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On the Cover: The Heart of the Middle Cumberland River with Nashville in the Background (*Courtesy, Aaron Deter-Wolf and Tanya M. Peres*)

EDITORS CORNER

We are pleased to devote the sixth volume of *Tennessee Archaeology* to a special double issue highlighting current research along the Cumberland River -- guest-edited by Aaron Deter-Wolf and Tanya M. Peres (both regular contributors to the journal). We thank Aaron and Tanya for their efforts, as we turned over most of that work to them to gather, edit, and forward the volume to us. We completed additional review and technical editing of submitted papers as seemed necessary and appropriate, as well as making formatting decisions. However, we acknowledge that the bulk of the work in assembling this volume should be attributed to Aaron and Tanya. This volume would not be in your hands today without their efforts.

A volume devoted to research along the Cumberland River is also an appropriate place for us to highlight recent recognition of John T. Dowd of Nashville by the Society for American Archaeology. John is the most widely known and respected avocational archaeologist in Tennessee with a career spanning from the 1960s through today. His name and reputation are well known by professional archaeologists throughout the interior southeastern United States and recognized nationally because of his publications on Middle Archaic and Mississippian sites along the Cumberland River. We were pleased to be among those who nominated John for the prestigious Crabtree Award -- presented annually by the Society for American Archaeology to an outstanding avocational archaeologist who has "made significant contributions to advance understandings of local, regional, or national archaeology through excavation, research, publications, site or collections preservation, collaboration with the professional community and/or public outreach." After due consideration by the Crabtree Award Committee and Board, John was presented the Crabtree Award at the 2012 Annual Meeting of the Society for American Archaeology on April 20 in Memphis, Tennessee.

FIGURE 1. Dr. Jeffrey Altschul, President Elect of the Society for American Archaeology presents the 2012 Crabtree Award to John Dowd. *Photograph, Kevin E. Smith.*

John's primary occupation was as an expeditor with Western Electric, a branch of AT&T. When AT&T was broken up in 1985, John was offered the choice of transferring to Atlanta or taking early retirement. He elected to retire at the age of 53, allowing him to be even more active in supporting

FIGURE 2. John T. Dowd at work at Sandbar Village, Cockrill Bend, 1969.

professional archaeology and vocational organizations over the next 25+ years. While having no professional training in archaeology, John spent most of his life developing skills and encouraging other vocational archaeologists to thoroughly document their work. The majority of projects conducted under John's direction were salvage projects on sites (or portions of sites) threatened by destruction. One striking fact that underlines John's professionalism is his dedication to ensuring that the results of his fieldwork were published. He continues those efforts today with two recent publications in previous issues of this journal, a reprint of a co-authored article in the volume at hand, and another forthcoming. Not surprisingly, well over half of the articles in this volume cite one or more works published by John. In addition to countless programs on local archaeology for K-12 school groups, he has shared his personal research and knowledge in presentations at Aquinas College, Belmont College, Middle Tennessee State University, the Tennessee State Museum, the University of Tennessee, and Vanderbilt University (along with various civic clubs). He also regularly gave presentations at the annual meetings of the Tennessee Archaeological Society (TAS), and a lengthy list of presentations to TAS chapters across the state, the Middle Cumberland Archaeological Society, the Jackson Archaeological Society, the Old Stone Fort Archaeological Society, and reported his work on stone-box graves to the Southeastern Archaeological Conference.

Over the course of his career, John has served as an officer for many vocational and professional archaeological organizations, including: President, Rutherford County Chapter of the Tennessee Archaeological Society (1970-71); Vice President of the TAS (1971, 1973, 1974); founder (1976), editor (1976-77, 1980-82; 1987-90) and president (1979-82; 1987-90) for the Middle Cumberland Archaeological Society, and a board member of the Tennessee Council for Professional Archaeology (1999-2000). Prior recognitions of his service to archaeology include receiving the first Outstanding Member Award (1971) from the Tennessee Archaeological Society and a Lifetime Achievement Award for Avocational Archaeology (1999) from the Tennessee Council for Professional Archaeology.

We have both known John for over 25 years. He has worked with us collectively and separately as a volunteer on many salvage archaeological projects over the course of that time. He has also co-authored several professional publications with both of us. For

an avocational archaeologist, John's list of publications is extraordinary and reflects a breadth of experience with the archaeology of the Middle Cumberland area that is unmatched even by most professional archaeologists in the region. John has always been willing to provide access to his notes, photographs, and artifacts for any professional or student interested in examining them. More recently, John has ensured long-term access to his significant project notes and collections for over one hundred Middle Tennessee sites by transferring them for curation to the Tennessee Division of Archaeology and the Frank H. McClung Museum at the University of Tennessee.

FIGURE 3. Selected images from John's “Shell Tempered Pottery” slide show illustrating his “public friendly” approach to education.

John’s efforts at public outreach are also among the most widely respected in the state -- he has served as an active member, contributor, and officer for many of the significant archaeological organizations in Middle Tennessee. Over his entire career as an avocational archaeologist, John has stressed the importance of keeping records, preserving sites when possible, salvaging information when preservation was not an option, and actively promoting positive relationships between the professional and amateur communities. In 1971, Dr. Charles Faulkner of the Department of Anthropology, University of Tennessee was coordinating creation of a centralized official site survey file for the State of Tennessee. Well aware of John's extensive experience, Dr. Faulkner contacted him for assistance in cleaning up the existing site file records and adding any new ones for Middle Tennessee. Also in 1972, he was asked by Robert Ferguson, director of the Southeastern Indian Antiquities Survey (SIAS) in Nashville, to coordinate SIAS assigned site numbers with the official files and complete new forms as necessary. He continued volunteer survey work until creation of the Division of Archaeology in the Tennessee Department of Conservation, where the official site survey records were subsequently housed. John personally recorded ninety archaeological sites in six Middle Tennessee counties (many of them the first recorded sites).

In sum, we feel that John stands as an exemplary model for the best kind of avocational archaeologist. Our understanding of the prehistory of Tennessee, and the interior Southeastern United States, would be substantially less had it not been for John’s dedicated efforts over his lifetime. We would also, however, be remiss not to

mention John's most tolerant supporter during the many years of his hobby -- his wife Lynda Dowd -- who jointly celebrated their sixtieth wedding anniversary in January 2012.

FIGURE 4. John and Lynda Dowd at the Anderson Site, ca. 1980-1981.

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RECENT RESEARCH IN THE MIDDLE CUMBERLAND RIVER VALLEY
Introduction to a Special Volume

Aaron Deter-Wolf and Tanya M. Peres

The Cumberland River flows 688 miles (1,107 km) westward from its headwaters in Letcher County, Kentucky through southern Kentucky and northern Middle Tennessee before emptying into the Ohio River near Paducah, Kentucky. Since the late seventeenth century, the Cumberland River has served as a vital resource and transportation corridor for European and Euro-American settlement, development, and commerce in Tennessee and the surrounding region (Brent and DuVall 2001). However, the history of human activity along the Cumberland River begins long before European exploration west of the Appalachians, or proto-historic settlement of the region by the Shawnee, Cherokee, Creek, and Chickasaw. Consistent human occupation and reuse of natural levees and adjacent terrace landforms since the late Pleistocene has resulted in the formation of numerous deeply-buried, stratified, multicomponent archaeological sites. The density of prehistoric settlement along the Cumberland River and its tributaries is particularly notable within the Middle Cumberland River valley in Tennessee, where archaeological evidence has revealed that initial human occupations occurred by at least 12,100 cal BP (Deter-Wolf et al. 2011a).

With such a rich and ancient history, one would think a published synthesis of archaeology along the Cumberland River would have occurred years ago. Unfortunately, primary data and site information are found mainly within the "grey literature" -- technical reports, state site files, and field notes -- and no synthesis, or attempt at a synthesis, exists. We offer this special guest-edited volume of *Tennessee Archaeology* as an effort to highlight the distinct archaeological record of the Middle Cumberland River valley and encourage future scholarship. In this Introduction we offer a description and definition of the Middle Cumberland River valley, a brief overview of the history of archaeology in the region, and highlight the current state of archaeological research and resource management addressed by the contributors to this volume.

The Middle Cumberland River Valley Defined

From a physiographic perspective, the Middle Cumberland River valley stretches roughly from the confluence of the Cumberland River with the Obey River at Celina (Cumberland River Mile [RM] 381) downstream past Ashland City to the mouth of the Harpeth River (RM 153). Within this region the Cumberland River is fed by major tributaries including the Obey, Caney Fork, Stones, and Harpeth Rivers, as well as numerous higher order streams. The watershed of the Middle Cumberland River valley drains the northern portion of the Central Basin and the northeastern portion of the adjacent Eastern Highland Rim physiographic provinces of Tennessee (Figure 1).

The Central Basin physiographic province consists of an elliptical depression extending across the central portion of Tennessee, which formed as a result of accelerated weathering of a

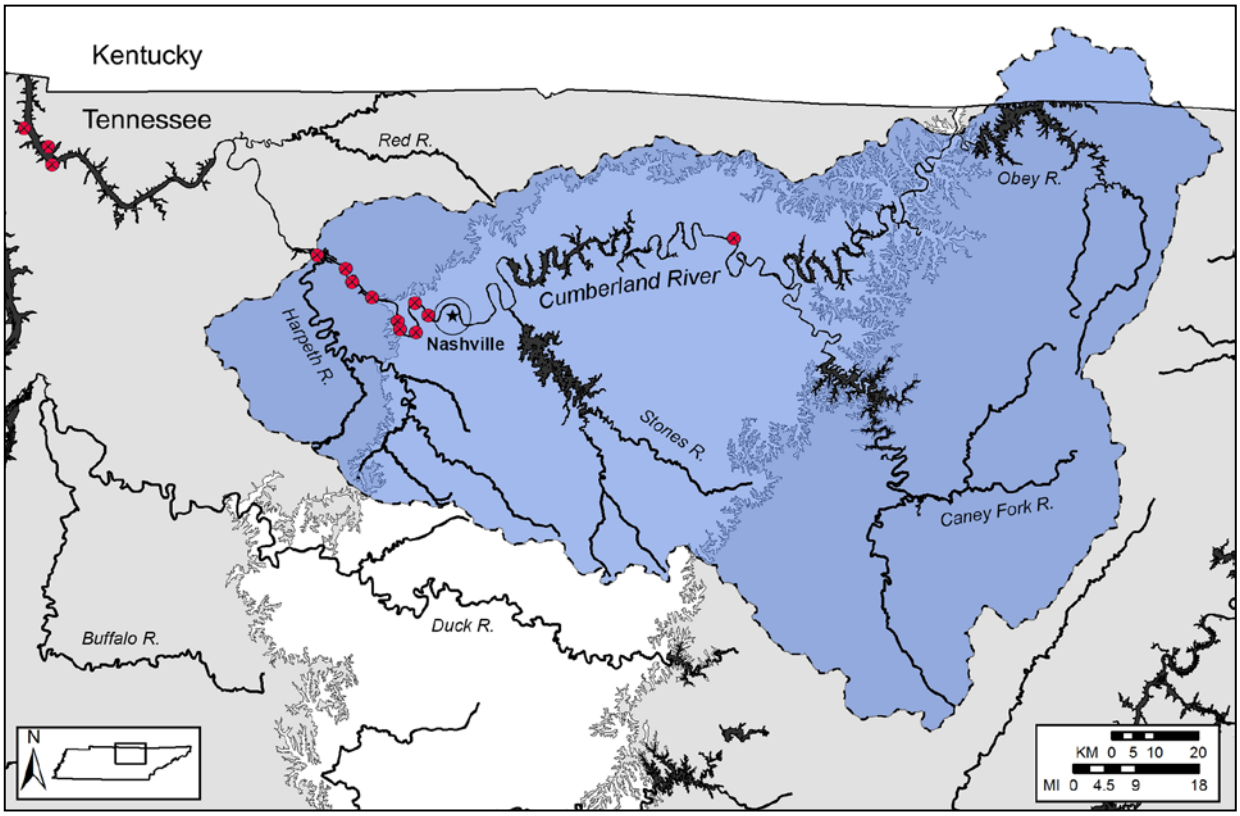

FIGURE 1. The Middle Cumberland River valley with locations of sites discussed in this volume.

Paleozoic anticlinal structure known as the Nashville Dome (Floyd 1990). The portion of the Central Basin along the Cumberland River drainage is characterized by gently rolling to hilly terrain. In the area immediately adjacent to the Nashville Dome, undisturbed and extremely dense limestone of the Lower Mississippian epoch Fort Payne Formation (ca. 360–345 MYA) prevented substantial erosion, resulting in the formation of the Eastern and Western Highland Rim physiographic provinces. These areas are characterized by rolling, dissected terrain situated around 300 feet higher in elevation than the Central Basin. The intersection between these provinces is marked by numerous finger-like protrusions where the Central Basin province extends along major river and stream channels into the surrounding Highland Rim.

Overview of Previous Archaeological Research in the Region

Our archaeological understanding of the prehistory of the Middle Cumberland River valley comes as a result of numerous survey, testing, and excavation projects performed by the Tennessee Division of Archaeology (TDOA) (e.g., Broster and Barker 1992; Broster et al. 1991, 2006, 2008; Cridlebaugh 1983; Deter-Wolf et al. 2011a; Jolley 1979; Moore 2005; Moore and Breitburg 1998; Moore and Smith 2001; Moore et al. 1992; Norton and Broster 1993, 2001; Spears et al. 2008), archaeological consultants and Cultural Resource Management firms (e.g., Allen 1999, 2008; Barker 1997, 2002, 2004, 2010; Bentz 1986; Dillehay et al. 1984; Gregory et al. 2010; Law 2005; McNutt and Lumb 1987; McNutt and Weaver 1983; Walling et al. 2000;

Wampler 2007), and from academic investigations (e.g., Anderson et al. 2010; Berryman 1981; Beahm et al. 2010; Morse 1967; O'Brien 1977; Worne 2011). However, while the Tennessee Division of Archaeology site file database includes entries for more than 3,100 prehistoric sites within the Middle Cumberland River valley as of June 25, 2012, the site file database indicates less than 10 percent (approximately 260) of these resources have been subjected to formal investigations beyond intensive surface collection and/or shovel testing.

Instead, much of our knowledge regarding the archaeological character of the Middle Cumberland is the result of investigations conducted by Middle Tennessee's avocational archaeological community, including notable efforts by 2012 Society of American Archaeology Crabtree Award recipient John T. Dowd. Data from surveys and excavations during the 1970s through early 1990s and continuing monitoring by members of that community have been published in various forums (e.g. Dowd 1972, 1989, 2008; Lindstrom 1979; Parker 1974) and contributed to the permanent site file record at the TDOA. This information provides essential baseline data on which our understanding of the archaeological character of this region is built.

Within the archaeological literature the term "Middle Cumberland" is used to identify a discrete regional late prehistoric culture (i.e., Middle Cumberland Mississippian) defined in part by distinctive mortuary practices, artistic styles, and ceramic typologies. The density and unique archaeological character of these Mississippian occupations along the Cumberland River in Middle Tennessee has been recognized since at least the nineteenth century. Antiquarian scholars include John Haywood (1823), Joseph Jones (1876), William E. Myer (1928), and Gates P. Thruston (1890). These gentlemen, along with Frederic W. Putnam (1878) and other representatives of Harvard's Peabody Museum of Archaeology and Ethnology (Moore and Smith 2009), were drawn to the earthworks, graves, and relics of the area's late prehistoric inhabitants and performed some of the earliest archaeological investigations in the region.

Modern efforts to identify the boundaries of the Middle Cumberland Mississippian culture initially proposed an area that included the Cumberland River watershed from the confluence of the Cumberland and the Caney Fork (RM 309) downstream to the mouth of the Cumberland at the Ohio River (Ferguson 1972). The culture boundary has since been refined both as a result of archaeological excavations (e.g., Moore 2005; Moore and Smith 2001; Moore et al. 2006; Smith and Moore 1994) and reanalysis of older collections and data (Moore and Smith 2009; Smith 1992; Smith and Miller 2009), and now encompasses the area from the Caney Fork to the confluence of the Cumberland and the Red River at Clarksville (RM 125) (see discussion in Moore et al. 2006).

While late prehistoric sites attracted some of the earliest scholarly interest in ancient habitation of the Middle Cumberland River valley, Mississippian occupations only scratch the surface of the area's archaeological record. Of around 1,700 sites in the region that have produced temporally diagnostic materials, just 20 percent include Mississippian artifacts. Nine percent of temporally-assigned sites include Paleoindian or transitional Paleoindian diagnostics, 46 percent include Woodland materials, and 74 percent have produced artifacts

diagnostic of the Archaic period.[1] These earlier cultural periods in the Middle Cumberland River valley, and particularly the Archaic, also witnessed the fluorescence of distinctive regional cultural phenomena including a variant of the Benton mortuary tradition (Deter-Wolf 2004), and the creation of extensive shell middens/mounds (Peres and Deter-Wolf 2012).

The archaeological density of the Middle Cumberland River valley can be explained in part by the ample resources of the region. These include easy access to potable, navigable, and mineral-rich water; high concentrations and varied species of flora and fauna; fertile soils along river floodplains; longer growing seasons and temperate winters resulting from temperature modulations of the Central Basin; access to transportation and trade routes including the overland Natchez Trace and the Cumberland River; and the ready availability of high-quality lithic material found eroding from the nearby physiographic boundary and along the gravel bars of numerous rivers and streams. Cultural factors that may have contributed to migrations of people in and out of the area for millennia are currently under study. A combination of both environmental and cultural factors likely attracted the earliest settlers of the Middle Cumberland River valley during the late Pleistocene.

Modern Impacts to the Archaeology of the Middle Cumberland River

Over the last century, the majority of the Cumberland River bankline in the immediate vicinity of downtown Nashville has been covered beneath stone riprap that protects archaeological deposits and generally prevents site erosion. However, the riverbanks both east and west of Nashville have been largely unimproved except according to the efforts of individual landowners. These outlying areas have suffered slow destruction since the creation of Cheatham Lake, Old Hickory Lake, and Lake Barkley as a result of varying water levels, boat wakes, and dam outfall.

In addition to impacts from erosion, the numerous easily-identifiable and readily-accessible prehistoric site deposits along the Middle Cumberland River and its tributaries have for years attracted detrimental attention from the public. Middle Tennessee has a strong tradition of avocational archaeologists helping to promote site preservation and public understanding of Tennessee's archaeological past. Unfortunately, public interest in the prehistoric archaeology of the region has not been entirely benevolent. For much of the last century prehistoric sites, and particularly those with visible riverbank profiles, have attracted the attentions of professional looters and unscrupulous collectors focused on identifying prehistoric graves in order to obtain the finely crafted mortuary offerings those burials sometimes include (Moore 1989).

Intensive looting in the Middle Cumberland River valley has historically targeted two site types: cemeteries and shell middens. The interest of looters in these particular sites stems from considerations of convenience and preservation. Diagnostic stone-box graves of the Mississippian period are sometimes identifiable on the ground surface because their distinctive configuration of limestone slabs has been exposed by erosion or cultivation. Although shell middens are not typically visible on ground surface, they are readily identifiable in riverbank profiles, where thick-banded concentrations of freshwater

shell stand out from surrounding alluvial soils. Both shell and limestone have a naturally high pH, which counteracts soil acidity and results in excellent bone and artifact preservation. Looters concentrate on these types of sites because of the increased likelihood of encountering preserved human remains and grave goods.

There are several locations along the Cumberland River watershed in Middle Tennessee where looting of large sites situated on private property has been ongoing for years or even decades. Although inspections of these sites have repeatedly identified evidence of deliberately disturbed human burials, it has proved difficult or impossible to apprehend or dissuade looters from their activity. Over the last decade TDOA archaeologists have also observed a phenomenon in which professional looters lease known prehistoric sites from private landowners in order to mine the deposits for high-quality artifacts. These materials are then sold at regional artifact shows and on the Internet. This artifact mining is legal under current state law, which on private property protects only those archaeological remains directly associated with human burials (Moore 1989, 1998), and then only when deliberate burial disturbance can be documented.

Our own ongoing research interests along the Middle Cumberland River coalesced following catastrophic flooding that occurred over the weekend of May 1, 2010. Beginning that morning, heavy storms deposited an average of 15 inches of rain on Middle Tennessee and southern Kentucky. Water levels rose rapidly along the Cumberland River and its tributaries in the vicinity of Nashville, and by the evening of May 1 evacuations were underway in some neighborhoods. On May 3, the Cumberland River crested at 52 feet, 12 feet above flood stage and its highest level recorded since 1937 (Tennessean.com 2010). Throughout the greater Nashville area floodwaters inundated the hundred-year floodplain and impacted or destroyed more than 9,000 homes and businesses.

After floodwaters abated and the Cumberland River returned to its summer pool elevation, the co-editors conducted damage inspections of several large, deeply-stratified prehistoric sites in the vicinity of Nashville in order to assess flood damage. Those inspections identified significant riverbank erosion, and determined that substantial archaeological deposits had been displaced or destroyed as a result of the flood and subsequent looting of newly-uncovered site deposits. The scope of damage documented during these site inspections prompted us, along with Dr. Shannon Hodge of Middle Tennessee State University (MTSU), to apply for Rapid Research Response funding from the National Science Foundation in order to assess both natural and anthropogenic site disturbances caused by the flood. That grant was awarded in June 2010, and over the following 10 months we performed a shoreline assessment of 128 prehistoric site locations with the aid of students from MTSU and community volunteers (Figure 2) (Deter-Wolf et al. 2011b).

While conducting background research for that project we were struck both by the number of archaeological resources and the steady output of high-quality recent archaeological work which has been conducted within the Middle Cumberland River valley. With this in mind, we approached the editors of *Tennessee Archaeology* and proposed a guest-edited volume devoted to

FIGURE 2. MTSU Student Joey Keasler examines a riverbank profile along the Cumberland River in Davidson County during the 2010 NSF-funded emergency survey project.

archaeological research in the Middle Cumberland River valley. We are pleased and honored that they accepted our proposal, and that we are able to present the following articles on the unique archaeological history of the region.

Overview of Contributions to the Special Volume

Much of the recent archaeological work performed within the Middle Cumberland River valley has been the result of Cultural Resources Management investigations related to federal permitting, human remains concerns, and as due diligence ahead of development projects. This volume begins with the article "A Flood of Looters: Endangered Mississippian Resources along the Middle Cumberland River," in which Danny Gregory discusses the results of a Section 110 survey performed on behalf of the U.S. Army Corps of Engineers following the May 2010 flood. This article examines the effects of the historic flood and looting on three Mississippian sites in Cheatham and Stewart Counties. Remote sensing performed in conjunction with the project reveals that, despite ongoing issues of erosion and looting, the intact archaeological resources of the Middle Cumberland River valley remain an important resource for understanding human occupations in Middle Tennessee and the Southeast.

Excavations along the Cumberland River at deeply-buried Paleoindian sites such as Johnson (40DV400) (Barker and Broster 1996) and Widemeier (40DV9) (Broster et al. 2006) have provided important evidence of late Pleistocene human occupation in both Tennessee and the American Southeast. The prospect of

additional unrecorded deposits spanning the terminal Pleistocene-Holocene transition prompted the 2010 commencement of the Cumberland River/Midsouth Paleoindian Project (now the Bells Bend Archaeological Project, http://bellsbend.pidba.org/).

The preliminary field season results are presented here in two articles. In the first of these, "A Preliminary Report on the Sanders #1 Site (40CH193), Cheatham County, Tennessee" Shane Miller, John Broster, Gary Barker, David G. Anderson, and Stephen Carmody describe Paleoindian and Early Archaic materials and a radiocarbon sample recovered from a deeply buried, stratified site in Cheatham County.

As previously discussed, distinctive and readily-visible shell middens along the bank of the Middle Cumberland have long been targeted by looters and collectors. Unfortunately, until recently there have been few professional excavations directed at examining the specific chronology, composition, or cultural significance of shell-bearing sites in the region. This volume of *Tennessee Archaeology* begins to rectify this paucity of data with two articles. In "Zooarchaeological Analysis of a Multicomponent Shell-Bearing Site in Davidson County, Tennessee" Tanya M. Peres, Aaron Deter-Wolf, and Gage A. Myers describe the results of emergency sampling of a large multicomponent site featuring stratified shell midden components from both the Archaic and Mississippian periods, and discuss how these data may contribute to our understanding of the complex social and environmental processes that led to the formation of shell middens/mounds in the region.

During the 2010 field season, the Cumberland River/Midsouth Paleoindian Project conducted excavations at three stratified riverbank sites that span the Early Archaic through Early Woodland, two of which include substantial shell midden components. In "Radiocarbon Dates from Three Sites Along the Middle Cumberland River Near Nashville," Shane Miller, David G. Anderson, Thaddeus Bissett, and Stephen Carmody discuss 29 AMS radiocarbon determinations from those sites. In addition to contributing a significant new body of radiometric data for the region, this article provides information critical to our emerging understanding of patterns of formation, occupation, and reuse of shell midden sites.

Few single component or short-term use sites have been identified to date along the banks of the Cumberland River in Middle Tennessee. The discovery and excavation of these sites therefore provides a rare opportunity to generate focused, comprehensive data on human occupations in the region. In "The Harpeth Shoals Marina Site (40CH195): A Terminal Archaic Fire-Cracked Rock Complex on the Cumberland River, Cheatham County, Tennessee," Marc Wampler and Larry McKee discuss data recovery investigations at a Cheatham County site that produced a significant corpus of Late and Terminal Archaic dates. Fire-cracked rock features from the site provide information on processing and cooking techniques, while Chenopodium seeds recovered from a feature at this site offer a possible window into early plant domestication.

The onset of the Mississippian period (ca. AD 1000) saw a dramatic population increase along the Middle Cumberland River, and a corresponding escalation of sites and site types. Over the ensuing 450 years, Mississippian occupations along the Middle Cumberland River ranged from

single farmsteads to cemeteries and multi-mound centers (Moore and Smith 2009; Moore et al. 2006). In 1969, John Dowd and John Broster conducted an excavation of several structures within the Cockrill Bend/Sandbar Village site (40DV36), which they initially identified as a small hamlet or village. The results of their work were published in 1972 in the first and only issue of the *Southeastern Indian Antiquities Journal*. Given the limited distribution and availability of that journal, we are pleased to be able to present a reprint of their report, "Cockrills Bend Site 17c: A Reprint from *The SIAS Journal* 1972" for a broader audience.

Subsequent investigations at 40DV36 identified the presence of a small Woodland component and Mississippian occupation spanning the period ca. AD 1100-1450. (Regional Periods II – IV [Moore and Smith 2009]), and the site was listed on the National Register of Historic Places in 1994. In "Changing Interpretations of Sandbar Village (40DV36): Mississippian Hamlet, Village, or Mound Center?" Kevin E. Smith and Michael C. Moore revisit the data from 40DV36 in order to suggest that the site is larger than previously identified, and may have originally been a small mound center.

By the start of the Mississippian period, populations along the Cumberland River and its tributaries had been systematically exploiting riverine species for consumption and construction material for upwards of 4,000 years (Peres and Deter-Wolf 2012). Despite the importance of maize agriculture to late prehistoric populations in the region, the resources of the Cumberland River remained a significant supporting element in the Mississippian diet. In "Skeletal Evidence of Aquatic Activities from a Middle Cumberland Site in Davidson County, Tennessee," Courtney Cox examines remains from the West site (40DV12), a late Regional III/early Regional IV period cemetery (Moore and Smith 2009) situated along the lower terraces of the Cumberland River. Her analysis of skeletal pathologies suggests Mississippian populations supplemented their agricultural subsistence base with riverine resources procured from the Cumberland's main channel.

The "Mississippianization" of the Middle Cumberland River seems to have been launched from the western portion of the Central Basin, likely originating at the site of Mound Bottom along the Harpeth River in Cheatham County (Moore and Smith 2009). In the eastern portion of the Central Basin, resident populations outside of the direct control or influence of Mound Bottom began to coalesce into local chiefdoms. In "Mississippian Ceramics and Settlement Complexity: Insights from the Beasley Mounds (40SM43), Smith County, Tennessee," Emily Beahm and Kevin E. Smith present the results of a small-scale mapping and excavation project in early 2008. Findings from that project suggest that by AD 1280, the residents of Beasley Mounds were more closely affiliated culturally with inhabitants of the Upper Cumberland and East Tennessee than to their nearer neighbors to the west.

The distinctive Dover chert obtained from quarries near the Cumberland River in Stewart County, Tennessee, was prized by Mississippian populations throughout the region and used in the manufacture of oversized and eccentric lithic artifacts. Although the quarry site is located outside the boundaries of the Middle Cumberland, Dover chert was traded upstream and appears at Mississippian sites throughout the region. This volume concludes with the article "Discovery and Early

Investigations of the Dover Quarries by Parmenio E. Cox and Warren K. Moorehead, 1926-1932," by Kevin E. Smith. In this article, Smith discusses early efforts to identify and describe the source for Dover material.

We thank Mike Moore and Kevin Smith for the opportunity to edit this special volume of *Tennessee Archaeology* and for their assistance and guidance during the process. In addition, we thank the authors who contributed their research to this effort and the peer reviewers who provided a service essential to the completion of the project. Finally, we thank the Tennessee Division of Archaeology and the MTSU Department of Sociology and Anthropology for their research support.

Notes

[1] The TDOA state site files are a dynamic database which is updated on a daily basis. Consequently, the data regarding site quantities and temporal affiliations which we include here represent the character of the overall site file record as of late June, 2012. We encourage future researchers to consult the site files directly regarding site locations, temporal affiliations, and level of investigation, rather than relying on earlier published data.

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A FLOOD OF LOOTERS: ENDANGERED MISSISSIPPIAN RESOURCES ALONG THE MIDDLE CUMBERLAND RIVER

Danny Gregory

New South Associates conducted an American Recovery and Reinvestment Act-funded Section 110 project for the U.S. Army Corps of Engineers following the flooding of the Cumberland River in May of 2010. This article discusses investigations exploring the effects of the 2010 flood and looting of Mississippian components at three sites on Cheatham Lake and Lake Barkley. First is a synopsis of archaeological reconnaissance at the Old Citadel, a mound complex and stone box cemetery atop a 200-foot bluff at the mouth of the Harpeth River in Cheatham County. A sophisticated level of looting is explored in the Mississippian stone-box cemetery at the Stone site on Lake Barkley in Stewart County. Finally, geophysical prospection is used as a survey tool for the deeply buried cultural deposits at site 40SW40 located near the town of Dover in Stewart County. These site investigations reveal the Cumberland River watershed to be rich in archaeological resources and research potential despite the destruction caused by the recent flooding and looting.

The catastrophic flooding of May 2010 caused immediate and lasting effects on archaeological resources along the Cumberland River and its tributaries in Middle Tennessee. Prior to the flood, the U.S. Army Corps of Engineers (USACE) had initiated a targeted Section 110 inventory of a 300-mile stretch of the Cumberland River that included 21 project locations in Lake Cumberland (Watauga Recreation Area), Old Hickory Lake, Cheatham Lake, and Lake Barkley (Figure 1). This work was conducted by New South Associates on behalf of the USACE Nashville District and John Milner Associates, Inc. The project was funded through the American Recovery and Reinvestment Act in support of the mission of the Mandatory Center of Expertise for the Curation and Management of Archaeological Collections.

The goals of the Section 110 inventory included archaeological inventory, site assessments, and site stabilization. Inventories were designed to locate and delineate sites, assess their integrity, and provide management recommendations. Assessments were focused on documenting the condition of select sites following erosion and looting, with particular attention to damage caused by the May flood. Stabilization efforts were focused on recent looter activity.

In order to achieve these goals, the project employed a wide variety of archaeological methods. Field investigations included not only traditional survey methods such as pedestrian walkover and shovel testing, but also test unit excavation, shoreline survey by boat, total station mapping, geophysical prospection (ground-penetrating radar, magnetometer, metal detecting), and surface collection along rake-cleared transects.

This project included over 1,300 acres of USACE fee-title land and 31 archaeological sites spanning the breadth of southeastern prehistory and history (Gregory et al. 2010). This article focuses on three previously recorded prehistoric archaeological sites that were revisited during this study, all of which contain primarily Mississippian components. These sites highlight not only the richness

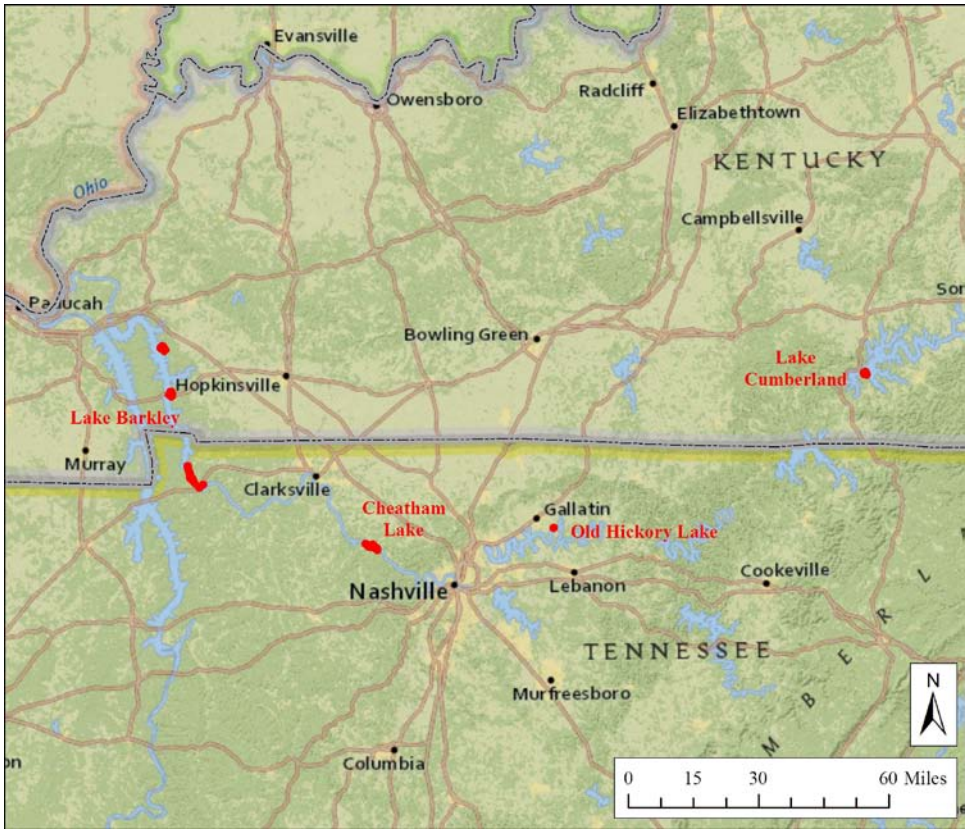

FIGURE 1. Location of survey areas.

of the archaeological deposits along the Cumberland River, but also the methodological flexibility necessary to address their varied research potential and management needs. These sites include: (1) Old Citadel, a Mississippian village and stone-box cemetery that later served as a Shawnee hideout; (2) Stone site, a Mississippian village and stone-box cemetery on the Cumberland River floodplain that exhibited evidence of systematic professional looting; and (3) 40SW40, a deeply-buried multi-component site that provides an example of the utility of geophysics as an archaeological survey tool.

Cheatham Lake

Of the areas included in this study, damage from the 2010 flood was most evident in Cheatham Lake. The high water mark on the trees and structures along the river reached 20 feet in some areas (Figure 2). High-energy flooding removed several feet of sediment from exposed banks and cultural deposits in the area. In addition to the immediate effects from fast-moving water and debris, the flood left many archaeological sites with exposed deposits that are prone to looting. Unfortunately looting along Cheatham Lake is not restricted to those sites with visible bank profiles. Other sites, such as the Old Citadel, are routinely looted despite their natural protective barriers.

Old Citadel (40CH23)

The Old Citadel site sits at the confluence of the Cumberland and

FIGURE 2. North bank of Cumberland River across from **"**The Old Citadel,**"** Cheatham Lake, showing the high water mark from the May 2010 flood.

Harpeth Rivers atop a 200-foot bluff connected by a small, narrow saddle of land over 900 meters long but only 15–30 meters at the top (Figure 3). The site area, surrounded by sheer cliffs and overhangs on three sides, contains Woodland and Archaic deposits as well as a Mississippian mound complex and stone-box cemetery. Though Old Citadel is one of the most inaccessible sites in middle Tennessee, it is still regularly looted.

Early site investigations include a veritable "who's who" of renowned Tennessee antiquarian archaeologists. John Haywood (1823:208-209) and James Ramsey (1853:79) first described it as the location where the last Shawnees were killed by the Chickasaw in 1714 or 1715. William E. Myer (1923) visited the site in 1920 and described a narrow ridge with 15 mounds and breastworks or a palisade across the narrow saddle connecting with the plateau to the south. Myer's work also included another Mississippian village on the other side of the Harpeth River; and he referred to both sites as "Indian Town Bluff" and discussed them as part of a Mississippian town complex (Myer 1923:583, ca. 1924:16). P. E. Cox excavated a mound at the northwest end of the Old Citadel in the 1920s (Tennessee Division of Archaeology 2010).

Old Citadel was again visited in 1966 by avocational archaeologist Leroy Camp. A final visit in 1974 by the Tennessee Division of Archaeology (TDOA) documented the Mississippian village at the southeastern end of the site and a single mound at the northwestern tip of the landform. TDOA personnel identified these as Areas A and B (see Figure 3). Area A is a village site with house circles

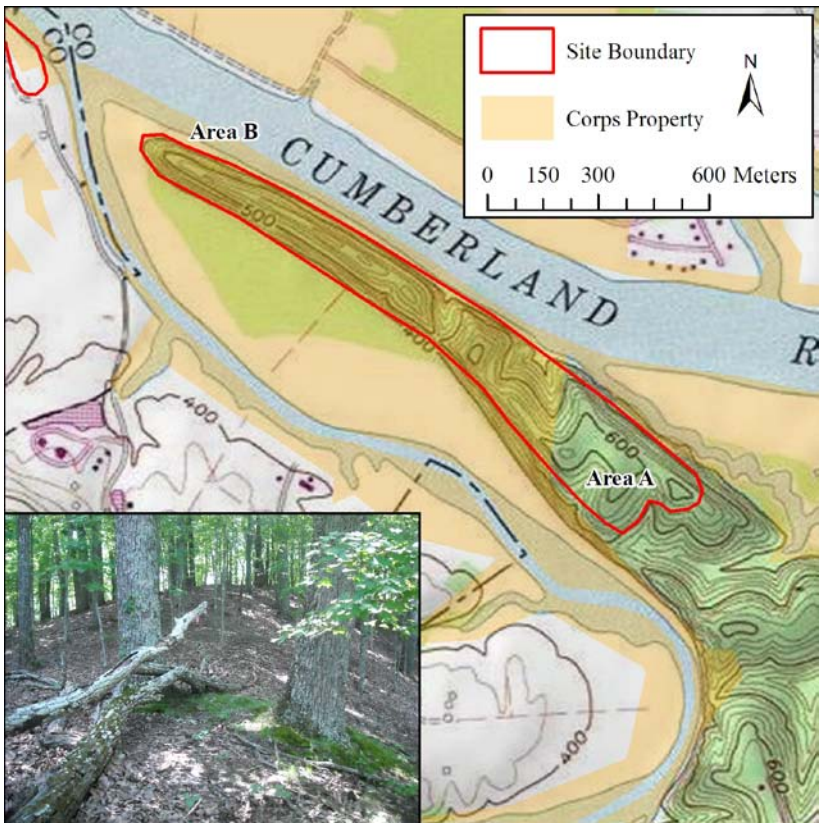

FIGURE 3. Plan view of **"**The Old Citadel.**"**

and mounds and a stone-box cemetery, with the latter noted as "almost totally destroyed by relic hunters" (Tennessee Division of Archaeology 2010). Area B is at the tip of the landform and contained a single excavated mound, presumably the site of Cox's work in the 1920s (Tennessee Division of Archaeology 2010). The Old Citadel site was listed on the National Register of Historic Places in 1974 (NRIS # 74001904).

Like many sites along the Cumberland River, only a portion of Old Citadel is federally-owned. The site area identified as Area B that includes the single excavated mound and scattered Woodland and Archaic deposits is situated on USACE fee-title land. The remainder of the site, including the Mississippian mound complex/village and the stone-box cemetery, occurs on private property.

New South's 2010 investigations at Old Citadel focused only on the portion of the site on USACE property. Methods included pedestrian reconnaissance, surface collection, mapping, and controlled metal detecting. Surface collection along the spines of the six ridge fingers within the USACE property determined that the entire ridge top is covered with a diffuse, low-density lithic scatter. Several hundred lithic artifacts (*n*=273) were recovered, including two Early Woodland Adena Stemmed projectile points. A single sherd of unidentifiable temper and surface treatment was also found.

The mound excavated by Cox (Area B) and the Mississippian village (Area A) were relocated. The latter was confirmed to be entirely on private land and showed signs of recent digging. Evidence of looting was noted throughout the USACE property as well. This vandalism, combined with natural erosion and treefalls, has produced a ridge top landscape filled with depressions and mounded dirt. Many of the (previously) well-anchored trees pried up slabs of natural limestone bedrock as they fell, and sometimes left vertical limestone slabs within depressions. Backdirt piles near some of these depressions suggest they were mistaken for late prehistoric stone-box graves. Local informants indicated that both the federally-owned and privately-owned portions of the Old Citadel site are routinely vandalized.

Observations made during the

investigation strongly suggest the original site boundaries extend well beyond the high bluffs of Old Citadel. The village and cemetery in Area A, the mound in Area B, the floodplain deposits below, and the associated village across the Harpeth River are all part of a town complex. The fact that only a portion of this large site area is federally-owned highlights the complex management issues facing this cultural resource in the future.

Lake Barkley

The impact of the May 2010 flood was less severe, but still evident, downriver on Lake Barkley archaeological sites in Stewart County. Direct effects of the flood were documented at two sites, Stone (40SW23) and the yet unnamed 40SW40. Both locales were inundated and lost significant portions of their archaeological deposits due to bank erosion.

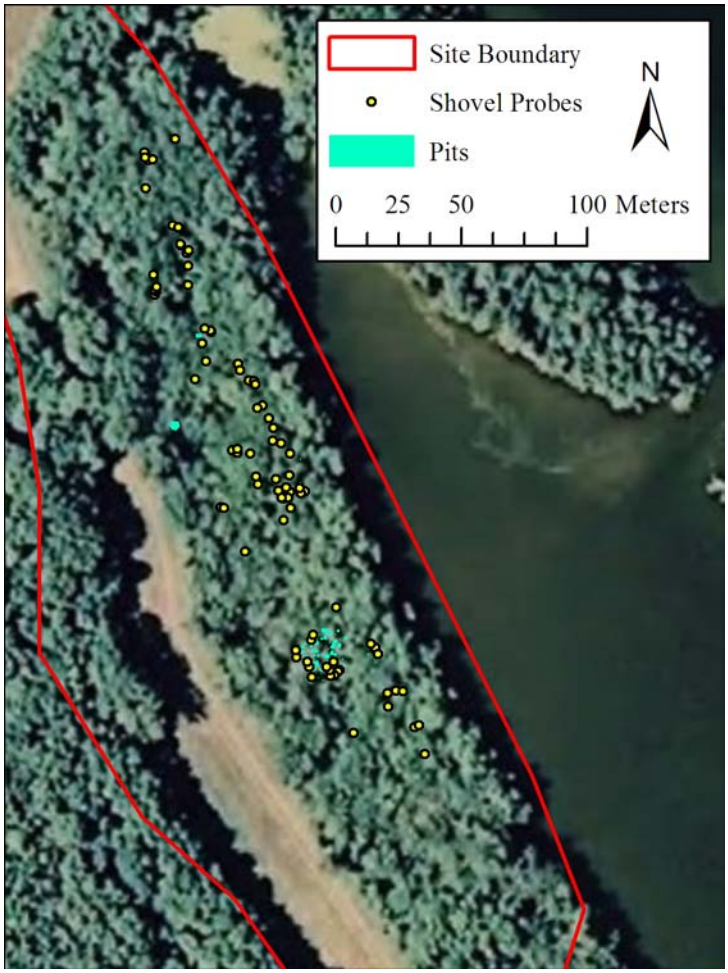

FIGURE 4. Plan view of the Stone site.

Stone (40SW23)

The Stone site is a large Mississippian village and stone-box cemetery on the west bank of the Cumberland River. Local farmers have known about it for as long as the floodplain has been farmed. The site was first recorded during the 1958 survey of the Cumberland River (Schwartz and Sloan 1958). Initial professional excavations were conducted by Michael D. Coe and F. William Fischer (1959:44-73) in preparation for the impoundment of Lake Barkley. This work documented a village with intact midden and features, wattle and daub structures, a possible mound, and one (possibly two) stone box-cemeteries (Coe and Fischer 1959). The site was subsequently assessed by Jack Nance (1972) and tested by UT-Martin and the TDOA (Broster 1973). Broster (1973) noted several intact thermal features (potentially hearths) and a Mississippian period ceramic assemblage.

A common theme in the Stone site literature is the extensive looting that had occurred. Coe and Fischer (1959:45) talked to several tenant farmers who noted that “when they first started to plow it with teams, there were places so thick with ‘relics’ that the blade could not get through.” They also spoke with “professional pot hunters” who reported the site was rich in stone-box graves that

could easily be found by probing (Coe and Fischer 1959:48). Coe and Fletcher (1959:48-49) also noted displaced limestone slabs throughout the site that were a result of disturbed graves. Broster (1973:3) likewise described part of the site as resembling a "bombed out battlefield" due to the number of looter pits.

The goal of our work at the Stone site was to identify the areas thought to contain stone-box cemeteries, assess their condition, and document any disturbances. This effort focused on a portion of Coe and Fischer's (1959) excavations and an adjacent area to the west.

Looter pits and shovel probes were discovered throughout the site along the riverbank (Figure 4). New South personnel documented 119 looter pits ranging in size from 0.5 to 3.5 meters in diameter. Eighty-six shovel probes ranging 20 to 30 cm in diameter were also found, and are presumed to be a result of looting. To the best of our knowledge the Stone site has not been professionally shovel tested, and the shovel probes do not conform to a systematic pattern or grid characteristic of archaeological surveys. Like the larger pits, these probes appear to have been intuitively placed along the river bank and are clustered in areas with visible cultural deposits (Gregory et al. 2010). A lack of peripheral erosion in the identified looter pits suggests they are fairly recent.

Although the May 2010 floods deposited five cm of fresh silt over the site, Coe and Fischer's (1959) excavations and the cemetery were not difficult to relocate. The cemetery is a large, circular cluster of deep looter pits, shovel probes, displaced limestone slabs, artifacts, and a few isolated human remains. The recent flood deposit was removed and the undergrowth was cleared down to the ground surface. A grid was established and all looter pits, shovel probes, and limestone slabs were mapped with a total station (Gregory et al. 2010).

The cemetery exhibited 30 large looter pits (Figures 5 and 6). Many of the pits contained limestone slabs, and two yielded human remains. The looters appear to have used shovel probes (and probably probing) to initially define areas with stone-box graves and high artifact densities, and then placed larger pits in these locales. These systematic methods are somewhat more sophisticated than those used by the typical opportunistic looter, and indicative of an organized effort to target stone-box graves and the valuable ceramic vessels they may contain.

Perhaps the most interesting aspect of the looting is the arrangement of the pits, which form two concentric rings. The inner ring is fairly complete and measures 6.5 meters in diameter. The outer ring covers the west half of the cemetery and is 13.5 meters in diameter. This pattern suggests

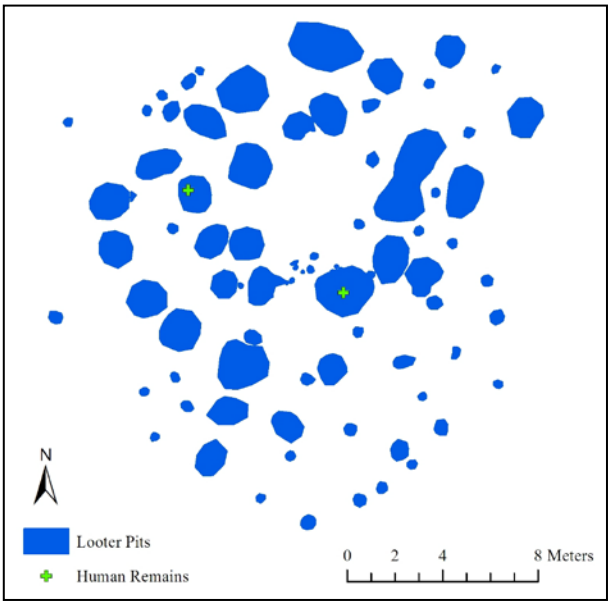

FIGURE 5. Map of looter pits in the stone-box cemetery.

FIGURE 6. Looted stone-box cemetery.

either the stone-box cemetery was arranged in a wheel-like orientation, or that the looters expected it to be. Such targeted looting, while possibly born from experience, might also be supplemented by research of previous archaeological literature on similar sites.

Coe and Fischer (1959:48) reported that a local pot hunter described this cemetery as having stone-box graves that were "arranged like the spokes of a wheel and produced a number of whole pots." Stone-box graves oriented in this same manner were documented archaeologically at East Nashville Mounds, where Jones (1876) described a group of burials within a Mississippian mound as having a wheel-like arrangement. That mound contained an outer circle of stone-box burials arranged head to foot and inner lines of graves with feet toward the center forming the "spokes." At the center of the mound were two individuals (one male and one female) who were not interred in stone-boxes (Jones 1876).

New South tested the entire area of the Stone site's cemetery with a steel tile probe along one-meter transects. Buried limestone slabs are virtually everywhere within a few meters of the larger looter pits, including the area in the center and around the perimeter. The exposed limestone slabs within the looter pits, many of which appear to be *in situ*, were oriented in multiple directions with only a few pointing toward the center. Several of the looter pits contained no slabs at all. Our investigation suggests that preservation is variable and that the orientation of the graves may be more complicated than a single wheel-like arrangement (Gregory et al. 2010).

40SW40

Site 40SW40 extends nearly 750 meters along the east bank of the Cumberland River just north of the town of Dover. This large multicomponent site

was originally recorded during the 1958 Cumberland River survey based on the presence of stone-box graves along the bank (Schwartz and Sloan 1958). Multiple plowzones and stratified cultural deposits extend more than one meter below ground surface. The majority of the site area is cultivated aside from a thin strip of trees along the bank. Most locations contain two plowzones, a Woodland/Mississippian cultural deposit, and a deeper deposit that is presumably Archaic.

In 2009, USACE archaeologists documented human remains along the bank near the northern end of the site. These were not stone-box graves, and were presumed to be related to the older cultural deposit (possibly Archaic) based on their stratigraphic position (Valerie McCormack personal communication, 2010). At the time of New South's 2010 survey, the bank was several feet back from the GPS position of human remains recorded by the USACE in 2009. The site area containing this particular burial had been completely destroyed by erosion, most likely due to the May 2010 flood.

The goals of our 40SW40 investigations were to delineate the site boundaries and identify exposed human burials along the bank. Shovel testing at 50-meter intervals across the site revealed a narrow but deep terrace deposit stretching back 20 to 30 meters from the bank. Prehistoric materials were densest and deepest in the site center. The two plowzones contained Mississippian Bell Plain ceramics. The upper intact cultural deposit (Stratum III) contained Mississippian and Woodland materials, including Bell Plain and limestone-tempered ceramics along with a Turkey-tail projectile point. The lower deposit (Stratum IV) held only indeterminate lithic artifacts and was presumed to be Archaic (Gregory et al. 2010).

A portion of Stratum III exposed along the bank revealed a partially intact pit feature and the remains of at least three stone-box graves. Limestone slabs and human remains had recently eroded from the bank and were exposed on the surface. The human remains were collected by the USACE for later reburial at the site.

Geophysical Survey. Site 40SW40 contains relatively homogenous alluvium and a clear, open ground surface. Though the bank was accessible, examinations of the rest of the site were problematic because traditional shovel testing could not reach the deepest deposits and test units were too inefficient to delineate its horizontal extent. The site's size, depth, and access made it a perfect candidate for geophysical prospection. In addition to a 50-meter shovel test grid and two test units, a 3.5-acre area was surveyed with magnetometer and ground-penetrating radar (GPR).

Magnetometry is a passive geophysical method that maps local variations in the Earth's magnetic field. This method is well-suited to archaeological sites because of the magnetic variations common in subsurface cultural features, particularly those with thermal components. Magnetometry is non-invasive and offers high resolution data and rapid acquisition rates. The primary limitation is a lack of resolution for targets at depths greater than two meters. For this project, a Bartington GRAD-601 dual fluxgate gradiometer was used along transects spaced at 50-cm intervals.

Ground-penetrating radar involves the transmission of high-frequency radar pulses from a surface antenna into the ground. Measurements are collected from

elapsed time between the pulse transmission and its reflection from buried materials and/or changes in sediments and soils. GPR maps the variation in the density and electromagnetic properties of the subsurface environment. Data is collected in reflection profiles and used to construct a three-dimensional map. Though it has slower acquisition rates, GPR has greater depth penetration than other geophysical methods. GPR is also more suited to the examination of subsurface stratigraphy and can provide depths to targets. For this project, a GSSI SIR-3000 with a 400 MHz antenna was used along transects spaced at 50-cm intervals. The GPR data collection rate was 100 scans per second.

Remote sensing revealed the deepest cultural deposits were situated within roughly 20 meters of the riverbank, following the first terrace. We placed a series of 24 magnetometer grids (20x30 meter) and 12 GPR grids (20x60 meter) along the river bank. These grids were staggered as necessary to keep them as close to the bank as possible while remaining in the cultivated field. Nine target loci were defined once the GPR and magnetometer data were processed, georeferenced, and interpreted (Figure 7).

Target loci were spread throughout the site and comprised a mixture of 129 magnetic anomalies and seven large clusters of GPR point reflections. Many of the magnetic anomalies were identified in Locus 1 at the southern end of the site, and are likely a result of metal associated with a previously unknown historic component. Five loci (1, 2, 3, 5, and 8) contained clusters of strong GPR point reflections that may represent cultural features such as burials. Ground-truthing of these geophysical targets was beyond the scope of the project, but their locations and depths provided a wealth of

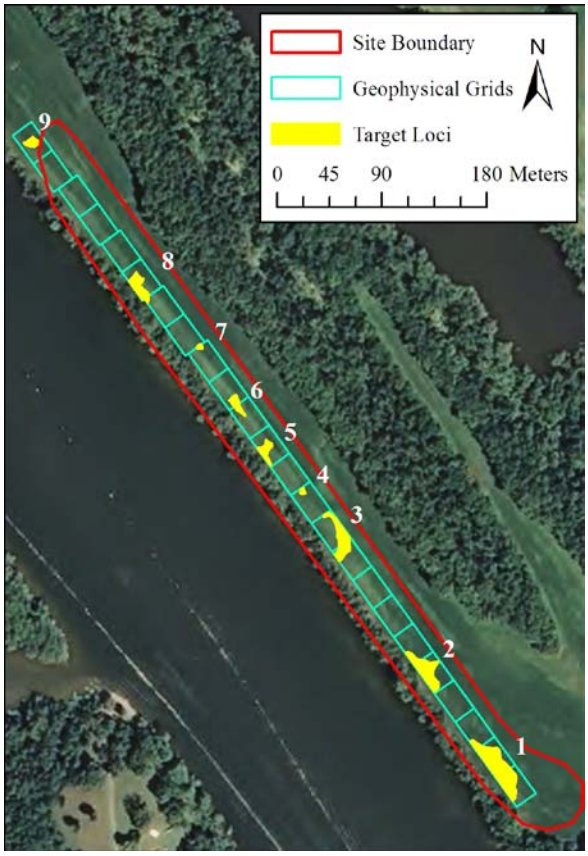

FIGURE 7. Plan view of 40SW40.

information on possible intrasite patterning. Three loci are discussed below.

Locus 1, at the south end of the site, contained a cluster of strong magnetic anomalies indicative of metal (Figure 8). Magnetic anomalies are visible as positive (white) or negative (black) readings that differ from the background magnetic field (gray). Magnetic dipoles contain strong positive and negative readings (half white and half black) and are typically a result of metal. The dipoles in Locus 1 correspond to the historic component identified by shovel testing.

Locus 3 is in the center of the site near the pit feature and stone-box graves identified on the bank (Figure 9). This locus contained a cluster of magnetic anomalies and associated GPR point reflections between 49–66 cm in depth,

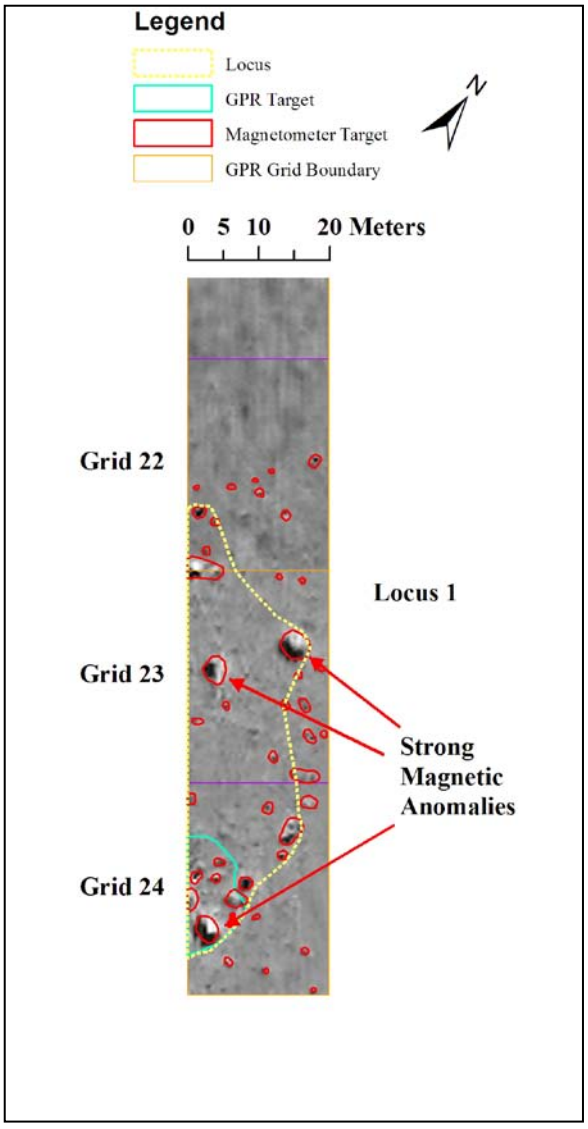

FIGURE 8. Magnetometer results.

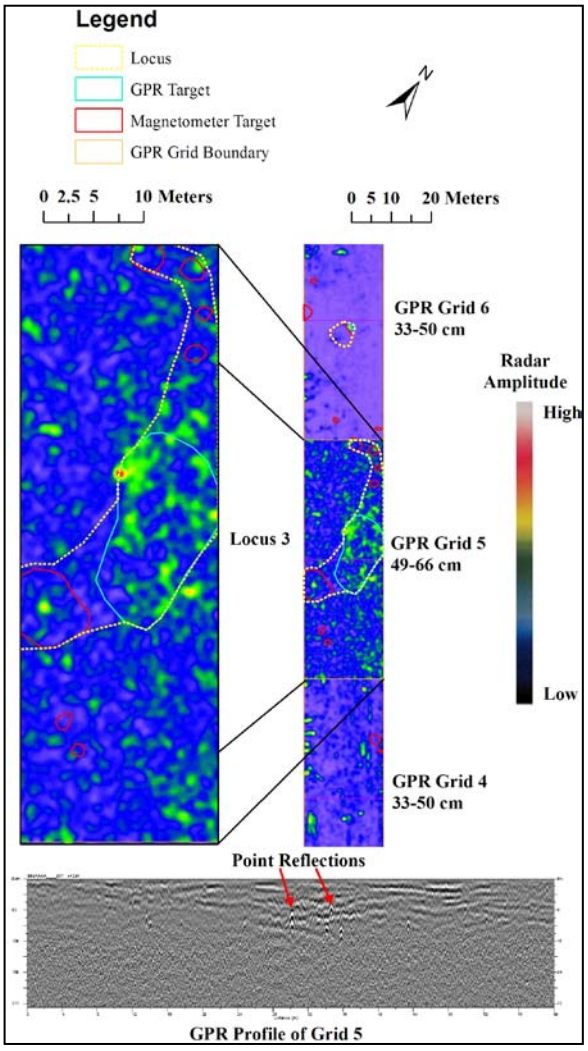

FIGURE 9. GPR results.

which is within the upper portion of the Woodland/Mississippian cultural deposit (Stratum III). Locus 8 is located at the north end of the site near the 2009 discovery of human remains. The plowzone is thicker in this area and the Archaic deposit (Stratum IV) is shallower.

The geophysical data indicates that 40SW40 contains several discrete activity areas, all linked by stratigraphy and a diffuse artifact scatter. The older deposits (presumably Archaic) occur throughout the site but are shallower at the north end. The Woodland and Mississippian deposits are much thicker and better preserved in the center of the site. The south end of the site contains the least dense part of the prehistoric components but the densest concentration of historic material (Gregory et al. 2010).

Discussion and Concluding Remarks

The flood of May 2010 caused an unprecedented amount of damage and destruction to archaeological sites along the Cumberland River and its tributaries. Archaeological damage assessments conducted in its wake, however, provided an unique opportunity to examine prehistoric sites in the Cumberland Basin

that would have otherwise received little to no attention (Deter-Wolf et al. 2011; Gregory et al. 2010). By examining these areas so soon after a flood of this magnitude, we were able to gather valuable information on the effects of river flooding and erosion. This project also allowed us to develop baseline data on the amount, severity, and effects of looting on a variety of different archaeological resource types.

This article has focused on three archaeological sites that presented unique management problems. Our work was conducted under the Section 110 process that allowed the methodological flexibility needed to assess sites in different settings and environments. The major findings and implications of our work are discussed below.

Looting

The Old Citadel site is highly visible from the Cumberland River side (extensive river traffic) as well as the Harpeth River side (across from a busy recreation area). Access from the water requires ascending 200-foot cliffs, whereas entry from land requires passing through private yards along a dead-end street with no non-local traffic. Unfortunately, the site is regularly looted despite an expectation that these access problems would deter vandals.

Evidence for looting at the Stone site demonstrated a level of sophistication that is atypical for the archaeologically-rich Cumberland River drainage. The relic hunters employed archaeological survey methods and had preconceptions about the orientation of the stone box-cemetery. These individuals shovel tested the landform, defined the cemetery, and (somewhat systematically) excavated the graves. The expectation of a wheel-like cemetery orientation could be the result of prior experience on similar sites, or a familiarity with archaeological literature on Mississippian burial practices.

Geophysical Survey

The varied utility of geophysical survey techniques for archaeology continues to be demonstrated and expanded. Although commonly used as an initial step in archaeological excavations, geophysics is rarely used as a first-line survey or site discovery tool. These techniques are faster and cheaper than excavation, but are typically slower and more expensive than traditional survey methods such as shovel testing or pedestrian walkover. For these reasons, geophysics are typically employed as a supplement to survey methods.

Sites such as 40SW40 are not suitable for shovel testing due to the depth of intact deposits that require a more substantial effort than is typically undertaken at the survey level. An examination of the 40SW40 site structure using traditional survey methods would have required dozens of people and a significant outlay of person hours, but achieved only minimal coverage. Using GPR and magnetometry, two people were able to map the extent, depth, and internal patterns of the site's cultural deposits in a few days. In addition, shovel testing and other manual excavations methods are invasive. The non-invasive nature of geophysics is another important consideration for its use at the survey level, especially at sites like 40SW40 that are known to contain burials.

Wide-interval shovel testing at 40SW40 showed a single, 800-meter long site with ill-defined areas of high artifact density and vague evidence for subsurface features. Erosion and plowing

have displaced much of the cultural material along the riverbank. Intensive shovel testing may have defined the denser areas of the site, but only with a substantial field effort. In contrast, geophysical survey revealed a great deal of intrasite patterning, including a shallow historic component at the southern end of the site. Coupled with minimal subsurface testing (two 50x50 cm units), the geophysical results showed that prehistoric deposits are mostly within the northern half of the site. The Woodland/Mississippian strata are thicker in the site's center, while the older (presumably Archaic) deposits are shallower at the northern end. Based on the identified anomalies, subsurface features are likely clustered in small groups in the center and northern site area. The depth variation of the plowzones and sub-plowzone cultural strata were mapped throughout the site. The lack of anomalies between the densest areas indicates that much of the cultural material observed across the site is displaced and likely unrelated to intact cultural deposits.

The 40SW40 work highlighted the utility of geophysical prospection as a tool for archaeological survey. Geophysics has traditionally been used as an integral part of data recovery or testing projects, especially for Section 106 undertakings. However, when the conditions are right (such as those observed at 40SW40), geophysics is a valuable survey tool and can provide information on the extent, depth, and density of cultural deposits that are beyond the reach of traditional manual survey methods like shovel testing. When applied in appropriate situations, geophysics is a fast, inexpensive, and non-invasive first-line archaeological survey technique.

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A PRELIMINARY REPORT ON THE SANDERS #1 SITE (40CH193), CHEATHAM COUNTY, TENNESSEE

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Archaeological components dating to the Paleoindian and Early Archaic periods (>8000 rcybp) are relatively rare in the southeastern United States. However, the Middle Cumberland River contains several previously reported stratified sites dating to this time period. Here, we provide a preliminary description of one of these sites (Sanders #1, 40CH193), where lithic material, charcoal fragments, and a probable hearth feature were found eroding out of the shoreline of the Cumberland River 4.0 to 4.5 meters below ground surface. A radiocarbon date derived from this feature (AA96399; 9412 ± 54 ^{14}C yr BP; 10,649 ± 88 cal yr BP) indicates it is Early Archaic in age and may be associated with the Lost Lake and Kirk Corner–Notched bifaces recovered from the shoreline lag deposits. Other temporally diagnostic Paleoindian and Early Archaic artifacts were also recovered from the shoreline lag deposits, thus making a direct association between the radiocarbon date and the corner-notched bifaces somewhat tenuous at this time.

One of the most significant issues in Paleoindian and Archaic period archaeology in the southeastern United States (>8000 14C yr BP) is a lack of sites with dated components (Anderson and Sassaman 2012:50; Anderson et al. 1996:13–15; Goodyear 1999; Miller and Gingerich 2012), despite having perhaps the densest concentrations of artifacts dating to this time in North America (Anderson et al. 2010; Meltzer 2009). Moreover, many of the dates that serve as the foundation of the region's culture historical sequence were processed using the "conventional" method prior to the inception to the more precise Accelerator Mass Spectrometer (AMS) method (Haynes et al. 1984). As a result, the identification of Late Pleistocene and Early Holocene archaeological sites that contain datable material should be considered a high priority (e.g. Anderson 2005:30–32). Unfortunately, in addition to general taphonomic biases that work against the preservation of organic materials (e.g., Schiffer 1988; Surovell and Brantingham 2007), there appears to be broad-scale geomorphic factors that have also inhibited the discovery of early sites in the region (Dunnell 1990:11–12; Goodyear 1999).

One exception to this trend appears to be the Cumberland River drainage, and in particular, the section of the river that traverses the Nashville Basin (Barker and Broster 1996; Broster et al. 2006; Goodyear 1999). In this area, multiple sites have been discovered that contained deeply buried archaeological deposits and preserved organic material that can be radiocarbon dated (Broster et al. 2012). One example is the Sanders #1 site (40CH193), which was initially exposed in a bank along the Cumberland River in Cheatham County. This article provides an overview of the fieldwork and materials recovered from this site, including the results of a radiocarbon date from a probable hearth feature found eroding out of the embankment. In addition, the authors discuss the significance of this date in regards to other recorded dates in the Cumberland and Tennessee River drainages.

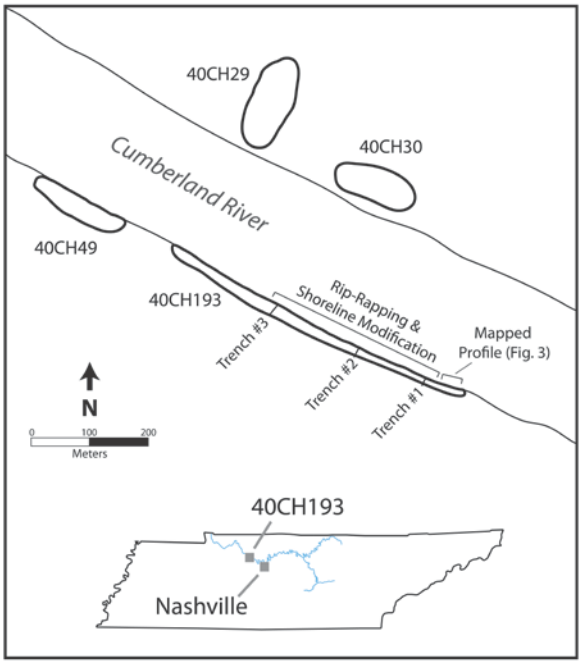

FIGURE 1. Site map of the Sanders #1 site.

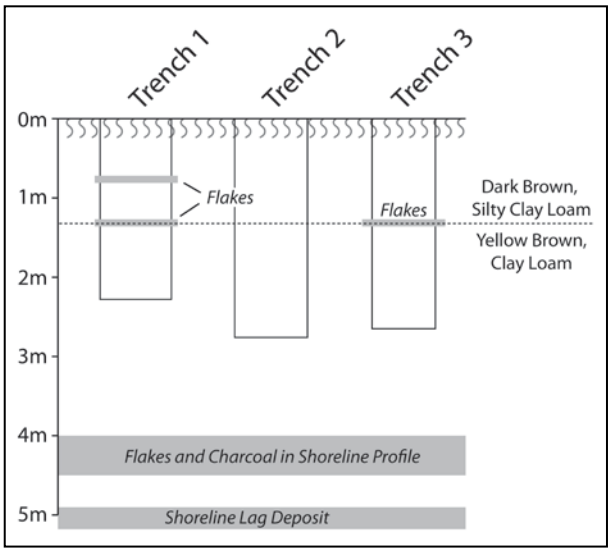

FIGURE 2. Schematic illustration of trench and cutbank profiles recorded by Barker in January 2004.

Site Description

The Sanders #1 site was originally recorded in December 2003 by Gary Barker as part of a limited archaeological assessment of measures proposed by the Nashville District, US Corps of Engineers to stem shoreline erosion (Barker 2004). During the initial site reconnaissance, Barker identified artifacts in secondary context in a shoreline lag deposit and visibly eroding out of the bank profile. A survey of recently disturbed ground surface landward of the river bank resulted in the discovery of only a few lithic flakes. To further evaluate the extent and context of the deposits, Barker opened three backhoe trenches at equal intervals across the site (Figure 1). All three were excavated perpendicular to the shoreline and placed between two and five meters back from the embankment. A similar profile was observed in all three trenches, which consisted of a 20-cm thick surface A horizon that overlaid dark brown, silty clay loam sediments extending to 1.25 meters below surface (mbs), below which the sediments graded to a yellow-brown, clay loam (Figure 2). No other obvious stratigraphic boundaries were observed in the profiles. In Trench #1, Barker noted flakes at 0.84 mbs and also recovered two lithic decortication flakes *in situ* at 1.24 mbs. No *in situ* artifacts were recovered in Trench #2, while three bifacial thinning flakes were recorded at 1.26 mbs in Trench #3. Finally, Barker noted a layer of lithic flakes and charcoal eroding out of the shoreline at 4.0–4.5 mbs, which was below the maximum depth of the three backhoe trenches.

TABLE 1. Radiocarbon Assay from Feature #1 at the Sanders #1 Site.

AA #	AA96399
Material	Wood (angiosperm)
$\delta^{13}C$	–26.6
^{14}C age BP	9412 ± 54
Calendar Years BP*	10,649 ± 88

*Calibrated with Oxcal 4.1 using the IntCal 09 curve (Bronk Ramsay 2009).

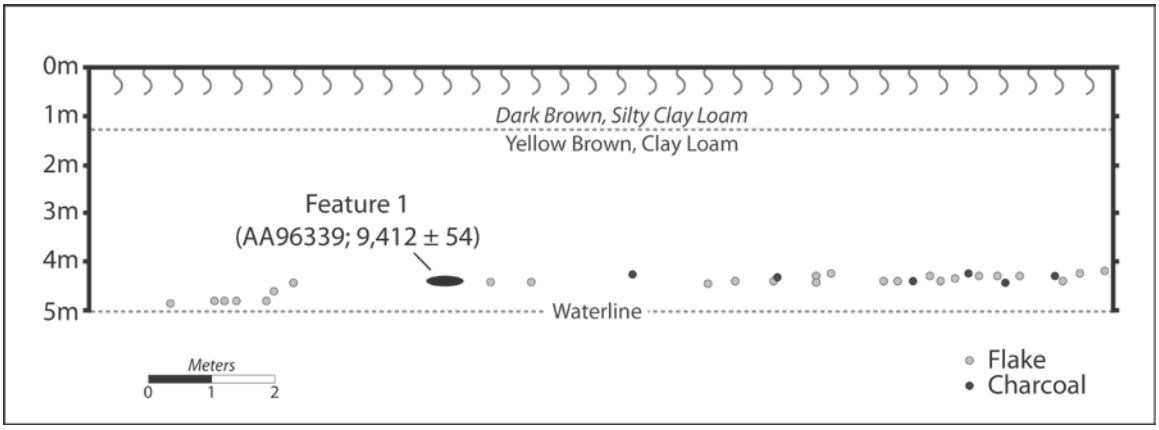

FIGURE 3. Schematic illustration of the cutbank profile mapped by Barker and Broster in June 2004, showing location of radiocarbon sample.

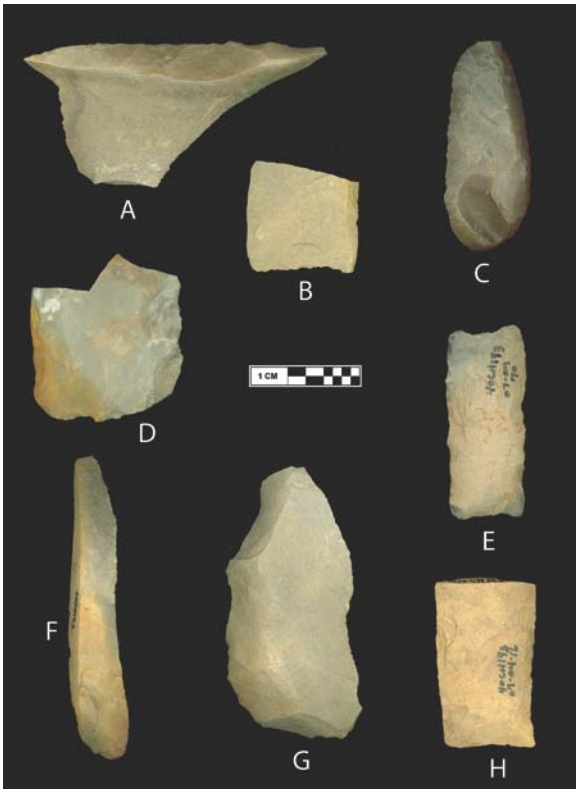

FIGURE 4. Selected artifacts recovered from the shoreline lag deposits at the Sanders #1 site: A) Overshot flake; B) Clovis base (TN FPS#4478); C) Endscraper; D) End-thinned preform (TN FPS#4417); E) Unfluted Cumberland (TN FPS#5434); F-G) Prismatic blades; H) Beaver Lake/Dalton (TN FPS#4261).

Subsequent work conducted at the site by Barker and Broster in June 2004 involved mapping the artifacts visible in the bank at 4.0 to 4.5 mbs. A total of 25 flakes, seven large pieces of charcoal, a single large cobble, and a possible hearth feature were plotted (Figure 3). The feature was 50-cm wide and 20-cm thick, and consisted of burned clay and charcoal fragments. A fragment of unidentifiable wood charcoal was removed from the feature. This sample returned a date of 9412 ± 54 14C yr BP (10,649 ± 88 cal yr BP) (Table 1). The site was again visited in July 2009 by Broster, Miller, and local avocational archaeologist Bobby Hulan. Prior to the 2009 visit, the landowner removed a substantial amount of sediment along the riverbank to create a sloping shoreline, and deposited a layer of riprap at the base of the slope to protect against further erosion. However, one section of the shoreline was not altered, and at the waterline a light scatter of artifacts was observed eroding out of the profile at 4.5 mbs.

A total of ten bifaces recovered from the shoreline lag deposits have been included in the Tennessee Fluted Point Survey (TN FPS) maintained by the Tennessee Division of Archaeology (Broster and Norton 1996; Broster et al.

TABLE 2. Bifaces from the Sanders #1 Site in the Tennessee Fluted Point Survey.

TN FPS #	Max Leng h (mm)	Basal Concavity (mm)	Body Width (mm)	Basal Width (mm)	Max Thickness (mm)	Flute Present	Edge Grinding	Raw Material	Type
3482	151.12	8.63	51.19	42.55	7.09	Yes	Yes	Dover	Clovis (re-sharpened)
4261	45.86	0	29.38	25.24	8.81	No	Yes	Ft. Payne	Beaver Lake/Dalton Base
4417	38.12	n/a	42.99	43.6	11.52	Yes	No	Ft. Payne	Clovis preform base
4419	64.21	n/a	34.11	29.19	8.21	No	No	Ft. Payne	Clovis preform base
4430	50.62	n/a	23.61	24.31	8.13	No	No	Ft. Payne	Harpeth River Dalton
4478	30.76	0.97	30.99	29.6	5.67	Yes	Yes	Ft. Payne	Clovis base
4501	36.03	n/a	34.25	34.23	8.75	No	Yes	Ft. Payne	Early preform base
4502	14.03	0.37	n/a	34.9	6.12	Yes	No	Ft. Payne	Clovis preform base
4852	81.44	n/a	42.51	n/a	12.85	No	No	Ft. Payne	Clovis preform
5434	53.24	,65	24.3	21.99	10.87	No	Yes	Ft. Payne	Unfluted Cumberland

FIGURE 5. Early Archaic bifaces recovered from the shoreline lag deposits at 40CH193.

2012) (Figure 4; Table 2). Of these artifacts, six were identified as having characteristics consistent with Clovis biface manufacture (e.g., Howard 1990; Morrow 1995; Smallwood 2010). With the exception of one untyped early stage biface, the remaining bifaces were identified as Middle or Late Paleoindian types. Prismatic blades and overshot flakes have also been recovered from surface lag deposits. This is commonplace in Paleoindian site assemblages across the region, including Carson-Conn-Short (Broster and Norton 1996), Widemeier (Broster et al. 2006), Adams (Sanders 1990), and Topper (Smallwood et al. 2012). Finally, Early Archaic Kirk corner-notched and Lost Lake corner-notched projectile points (e.g., Justice 1995: 55–56, 73) were also retrieved from the shoreline lag deposits (Figure 5).

Discussion

Based on the limited fieldwork conducted at the Sanders #1 site, it appears there are at least three cultural strata present at 84 centimeters, 1.25 meters, and 4.0–4.5 meters below

TABLE 3. Selected Paleoindian and Early Archaic Radiocarbon Dates from the Tennessee and Cumberland River Valleys.

Site Name	Lab Number	Date	Component	Reference
Russell Cave	I–828	8145 ± 275	Early Archaic (Bifurcate?)	Griffin 1974; Futato 1977:39
Dust Cave	Beta–65184	8330 ± 170	Kirk Stemmed	Sherwood et al 2004:538
Dust Cave	Beta–81608	8470 ± 50	Kirk Stemmed	Sherwood et al 2004:538
Russell Cave	I–822	8485 ± 275	Early Archaic (Bifurcate?)	Griffin 1974; Futato 1977:39
Puckett	Tx–7413	8490 ± 180	Kirk Corner Notched	Norton and Broster 1993:35
Ice House Bottom	I–9137	8525 ± 355	Kirk Corner Notched	Chapman 1976:3–4
Harrison Branch	GX–4119	8545 ± 245	Early Archaic	Chapman 1976:3–4
Russell Cave	I–2239	8550 ± 320	Early Archaic (Bifurcate?)	Griffin 1974; Futato 1977:39
Rose Island	GX–3598	8660 ± 180	St Albans Bifurcate	Chapman 1976:3–4
Rose Island	GX–3168	8700 ± 300	St Albans Bifurcate	Chapman 1976:3–4
Ice House Bottom	I–9138	8715 ± 140	Kirk Corner Notched	Chapman 1976:3–4
Rose Island	GX–3167	8800 ± 270	St Albans Bifurcate	Chapman 1976:3–4
Johnson	Tx–7694	8810 ± 80	Kirk Corner-Notched	Barker and Broster 1996:98
Puckett	Tx–7412	8820 ± 180	Kirk Corner-Notched	Norton and Broster 1993
Dust Cave	Beta–147136	8830 ± 50	Kirk Stemmed	Sherwood et al 2004:538
Johnson	Tx–7693	8830 ± 170	Kirk Corner-Notched	Barker and Broster 1996:98
Stanfield-Worley	M–1153	8920 ± 400	Dalton/Early Side- Notched	DeJarnette et al 1962:85–87
Rose Island	GX–3597	8920 ± 325	LeCroy Bifurcate	Chapman 1976:3–4
Johnson	AA–8860	8925 ± 75	Kirk Corner-Notched	Barker and Broster 1996:98
Johnson	Tx–7543	8940 ± 110	Bifurcate	Barker and Broster 1996:98
Johnson	Tx–7695	8980 ± 90	Kirk Corner-Notched	Barker and Broster 1996:98
Stanfield–Worley	M–1348	9040 ± 400	Dalton/Early Side-Notched	DeJarnette et al 1962, Josselyn 1964
Johnson	AA–9164	9050 ± 85	Kirk Corner-Notched	Barker and Broster 1996:98
Johnson	AA–9168	9090 ± 85	Kirk Corner-Notched	Barker and Broster 1996:98
Rose Island	GX–3565	9110 ± 145	Kirk Corner-Notched	Chapman 1976:3–4
Ice House Bottom	GX–4127	9175 ± 240	Kirk Corner-Notched	Chapman 1976:3–4
Rose Island	GX–3564	9330 ± 250	Kirk Corner-Notched	Chapman 1976:3–4
Stanfield–Worley	M–1347	9340 ± 400	Dalton/Early Side-Notched	DeJarnette et al 1962, Josselyn 1964
Ice House Bottom	GX–4125	9350 ± 215	Kirk Corner-Notched	Chapman 1976:3–4
Widemeier	Beta–234592	9390 ± 50	Early Archaic	Broster et al 2008 64–65
Patrick	GX–4122	9410 ± 290	Kirk Corner-Notched	Chapman 1976:3–4
Sanders #1	**AA96399**	**9412 ± 54**	**Kirk Corner–Notched/Lost Lake?**	**This article**
Ice House Bottom	GX–4126	9435 ± 270	Kirk Corner-Notched	Chapman 1976:3–4
Stanfield-Worley	M–1346	9440 ± 400	Dalton/Early Side-Notched	DeJarnette et al 1962, Josselyn 1964
Johnson	Beta 66202	9510 ± 250	Unknown	Barker and Broster 1996:98
Johnson	AA–9165	9555 ± 90	Kirk Corner-Notched	Barker and Broster 1996:98
Stanfield-Worley	M–1152	9640 ± 450	Dalton/Early Side-Notched	DeJarnette et al 1962:85–87, Josselyn 1964
Dust Cave	Beta–81606	9720 ± 70	Early Side-Notched	Sherwood et al 2004:539
Puckett	Beta–48045	9790 ± 160	Dalton	Norton and Broster 1993
Dust Cave	Beta–81611	9890 ± 70	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–133788	9950 ± 50	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–65177	9990 ± 140	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–147132	10010 ± 40	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–81610	10070 ± 70	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–81602	10070 ± 60	Early Side-Notched	Sherwood et al 2004:539
Dust Cave	Beta–133791	10100 ± 50	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–147135	10140 ± 40	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–133790	10310 ± 60	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–65181	10310 ± 230	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–41063	10330 ± 120	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–81609	10340 ± 130	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–40680	10345 ± 80	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–100506	10370 ± 180	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–65179	10390 ± 80	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–81613	10490 ± 60	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–40681	10490 ± 360	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Dust Cave	Beta–81599	10500 ± 60	Quad/Beaver Lake/Dalton	Sherwood et al 2004:539
Lagrange Shelter	GX–2774	11290 ± 635	Paleoindian?	Dejarnette and Knight 1976:38
Johnson	Tx–7000	11700 ± 980	Clovis?	Barker and Broster 1996:98
Johnson	Tx–7454	11980 ± 110	Clovis?	Barker and Broster 1996:98
Coats-Hines	Beta–125350	12030 ± 40	Mastodon butchering?	Deter-Wolf et al 2011:152
Coats-Hines	Beta–288801	12050 ± 60	Mastodon butchering?	Deter-Wolf et al 2011:152

surface. While no temporally diagnostic artifacts were recovered *in situ*, a radiocarbon date from a probable hearth feature indicates that the deposits at 4.0–4.5 meters below surface are likely Early Archaic in age. In comparison to other dated Paleoindian and Early Archaic sites from the Tennessee and Cumberland River drainages (Table 3), it is closest in age to the Early Archaic component at the Widemeier site (Broster et al. 2006) and the components from the Patrick and Ice House Bottom sites associated with Kirk Corner-Notched bifaces (Chapman 1976:3–4, 1985:146). Consequently, the hearth feature from Sanders #1 is likely associated with the Kirk Corner-Notched and larger Lost Lake Corner-Notched bifaces that have been recovered from the shoreline lag deposits. However, multiple other temporally diagnostic Paleoindian and Early Archaic artifacts also were recovered from these shoreline deposits, and at this time it is unclear whether these artifacts originated from any of the strata mentioned above, or from an unobserved stratum located beneath the waterline. Additional fieldwork and analysis is necessary to: (1) more accurately determine the site depositional history; (2) clarify the age and culture affiliation of the deposits; and (3) assess if any preserved archaeological deposits remain at the site.

Conclusion

The Middle Cumberland region is one of the few areas of the southeastern United States where stratified Paleoindian and Early Archaic period occupations have been reported. Some of the most significant sites include Johnson (Barker and Broster 1996), Widemeier (Broster et al. 2006), and Puckett (Norton and Broster 1993). Sanders #1 may be another site that has the potential to provide valuable information regarding the age and cultural associations of the earliest inhabitants of the southeastern United States. However, like the three sites listed above, Sanders #1 has suffered substantial erosion from the effects of channel migration, fluctuating water levels, and wave action along Cheatham Lake. Ongoing development and widespread looting of sites continues to occur along the Cumberland River. Finding, examining, and protecting stratified sites (like 40CH193) that can help bolster the cultural historical foundations of the Paleoindian and Archaic periods is a major challenge facing researchers.

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ZOOARCHAEOLOGICAL ANALYSIS OF A MULTICOMPONENT SHELL-BEARING SITE IN DAVIDSON COUNTY, TENNESSEE

Tanya M. Peres, Aaron Deter-Wolf, and Gage A. Myers

Site 40DV7 is one of several large shell-bearing sites located along the Cumberland River near Nashville which were heavily impacted by catastrophic flooding and looting activity during the spring of 2010. Emergency sampling and ongoing monitoring at 40DV7 since that time have identified deeply-stratified deposits spanning the Archaic through Mississippian periods. These deposits, and particularly the temporally-distinct shell midden components, may help inform our understanding of human occupation, species interdependence, and environmental change along the Cumberland River over a period of more than 5000 years.

Site 40DV7 is a large, deeply-stratified shell-bearing site situated west of downtown Nashville along the right (descending) bank of the Cumberland River, immediately downstream from its confluence with a major secondary drainage (see Deter-Wolf and Peres, Figure 1, this issue). Severe flooding along the Cumberland River over the first weekend of May 2010 resulted in the exposure of previously inaccessible deposits at 40DV7 and other riverbank sites. This article presents the findings of emergency testing and ongoing monitoring at 40DV7 following the May 2010 flood, and offers initial hypotheses regarding the use and deposition of freshwater bivalves and gastropods along the Cumberland River during the middle Holocene. These hypotheses will be tested in future field seasons at 40DV7.

Site Background and Field Methods

Site 40DV7 was initially recorded in the Tennessee Division of Archaeology (TDOA) site file record by avocational archaeologist John Dowd in 1972. Dowd's initial evaluation indicated the visible portion of the site consisted of plowed fields and a small shell deposit exposed along the river bank. Although some Mississippian period ceramics had been collected prior to Dowd's visit, the site was initially assessed as Archaic or Woodland.

No formal archaeological investigations took place at 40DV7 until 1998. That year, the property containing the site was the subject of a Phase I assessment conducted on behalf of a private developer (TDOA site files). The consultant reported that 40DV7 contained multicomponent deposits (Archaic through Mississippian) within a 26,500 square meter area and reaching at least 135 cm below surface. Undisturbed midden deposits and features were defined by shovel tests, unit excavations, and backhoe trenches. However, the Phase I investigation did not include a formal evaluation of the Cumberland River bank line.

Site 40DV7 was completely inundated during the May 2010 floods. Post-flood inspections by staff of the Department of Sociology and Anthropology, Middle Tennessee State University (MTSU), and TDOA, determined that substantial portions of the riverbank had been displaced or destroyed as a result of the flood and subsequent looting (Deter-Wolf et al. 2010, 2011). The riverbank at 40DV7 was selected for emergency sampling in June 2010 based on the extent of both natural and anthropogenic damage.

The frequency and preservation of human remains within shell middens is problematic for traditional bulk sampling methodology. Prior assessments of shell midden sites along Cheatham Lake by the TDOA suggested that any block excavations placed within middens such as that exposed along the shoreline at 40DV7 were likely to encounter human interments. In consideration of Tennessee state laws governing the treatment and protection of cemeteries (see discussions in Moore 1989, 1998) and to avoid unnecessary disturbance to burials, no block excavations were conducted at 40DV7.

Site sampling involved identifying areas of exposed midden with naturally vertical profiles which had not been impacted by looter activity or undercut by erosion. These areas were lightly cleaned along a profile at least 50 cm in width in order to remove contamination and identify both natural and cultural stratigraphy. The profile sections were not cut completely vertical in order to prevent future riverbank erosion. A shallow sample not exceeding 5 cm in depth was then collected from each stratigraphic level within the column. Sampling began in the stratum underlying the lowest cultural deposit and proceeded upwards in order prevent wall fall or contamination by more recent materials. Rather than being cut horizontally, the edges of the test column were feathered outwards during the sampling process. This was done to avoid leaving behind any obvious archaeological footprint that might attract the attention of either looters or casual collectors. All recovered samples were returned to MTSU, where they were processed and analyzed by the co-authors with the aid of upper-level undergraduate Zooarchaeology students.

In order to maximize the collected data, all samples were processed using nested geologic sieves. This approach is based on standard methods employed during excavations of shell mounds and middens throughout the southeastern United States, and particularly in Florida (Peres 2010; Reitz and Wing 2008; Wing and Brown 1979; Wing and Quitmyer 1985). It is ideally suited for maximum data recovery in situations where only limited sampling is possible. The use of nested sieves also allows for total recovery and identification of important faunal and paleoethnobotanical materials that are typically lost or overlooked using traditional archaeological testing methods such as 1/4-inch sampling.

All disturbed human remains encountered during the emergency sampling were photographed and collected according to established archaeological protocols, and added to the TDOA NAGPRA inventory. Human burials with *in situ* remains were photographed and documented but not removed in accordance with Tennessee burial laws.

Sampling Results

The eroding bank of the Cumberland River at 40DV7 has revealed two separate, temporally-unassociated shell-bearing deposits (Table 1). These consist of an upper band of midden composed predominately of large bivalves (Stratum II), and a lower band comprised primarily of small aquatic gastropod remains (Stratum IV). These deposits lie contiguous in some locations along the river bank, and in other areas are separated by up to 23 cm of silt flood deposits (Stratum III). Both shell-bearing zones are clearly visible in the cutbank over a distance of approximately 44 meters.

TABLE 1. Collapsed Stratigraphic Data and Soil Descriptions, 40DV7.

Locality 1			**Locality 2**		
Depth below surface		Cultural Stratigraphy	Depth below surface		Cultural Stratigraphy
0-17 cm	A horizon	Stratum I	0-15 cm	A horizon	Stratum I
17-53 cm	Grayish brown silt loam, primarily bivalve shells	Stratum II	15-52 cm	Grayish brown silt loam, primarily bivalve shells	Stratum II
53-142 cm	Grayish brown silt loam, primarily aquatic gastropods	Stratum IV	52-68 cm	Yellowish brown sandy silt, sterile	Stratum III
			68-94 cm	Grayish brown silt loam, primarily aquatic gastropods	Stratum IV
142-171 cm	transitional zone	Stratum IV	>94 cm	sterile sand	Unexcavated
>171 cm	sterile sand	Unexcavated			

FIGURE 1. Feature with bivalves stacked interiors facing up (Stratum II, 40DV7).

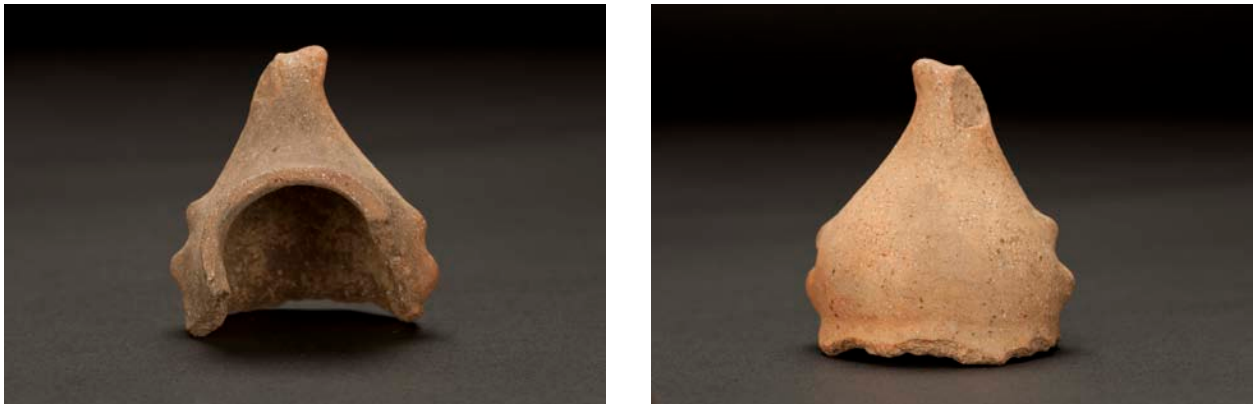

FIGURE 2. Mississippian blank-faced hooded effigy bottle fragment (front and back) recovered from Stratum II, 40DV7 (*MTSU Creative and Visual Services, Photographs by J. Intintoli*).

Cultural deposits at 40DV7 were sampled in two different locations; one where Strata II and IV were contiguous (Locality 1), and one where they were separated by Stratum III (Locality 2). While these samples were analyzed separately, the stratigraphic levels have been correlated and the data collapsed for the purposes of this discussion. Relative abundances are presented based on estimates of Minimum Number of Individuals (MNI) only as comparisons are made between bivalves and gastropods. Along the Cumberland River, the fresh-water bivalves are much denser and larger in size than the relatively small and gracile gastropods. Comparison of relative abundances based on other measures (i.e., weight) would be biased towards the bivalves and would misrepresent the assemblage.

The uppermost shell deposit at 40DV7 (Stratum II) consists of dark grayish-brown silt loam containing both bivalves and aquatic gastropods, as well as shell-tempered Mississippi Plain and Bell Plain ceramic sherds diagnostic of the Mississippian period. A single feature was identified within Stratum II in the Locality 1 sample. This feature consisted of a thick deposit of bivalves, stacked with the shells' interiors facing upwards, and surrounded by very little soil matrix (Figure 1). The preservation within this feature was extraordinary, and many of the shells retained their natural coloring. The feature also contained a fragmentary head of a Mississippian blank-face hooded effigy bottle (Figure 2). A radiocarbon sample from this feature returned a date of 560 ± 30 ^{14}C BP (Beta-323847; charred material; delta ^{13}C = -25.0).

Both naiads (14 species) and aquatic gastropods (two species) were present in the samples from Stratum II. Identified naiad taxa include: *A. plicata*, *E. dilatata*, *Cyclonaias tuberculata*, cf. *Lampsilis* sp., *Megalonaias nervosa*, *Obliquaria reflexa*, cf. *Plethobasus cicatricosis*, *Pleurobema clava*, *P. cordatum*, *P. oviforme*, cf. *P. plenum*, *P. rubrum*, *Ptychobranchus fasciolaris*, and *Quadrula pustulosa* (Table 2). The majority of the bivalves are identified to the genus *Pleurobema*. The combined MNI of the five *Pleurobema* species is 180, or 57 percent of the total MNI of Stratum II.

Aquatic gastropods are represented by two species in family Pleuroceridae, *Lithasia geniculata* and *L. verrucosa*. The *L. verrucosa* is represented by an MNI of 57, and *L. geniculata* by an MNI of four. This contrasts greatly with Stratum IV,

TABLE 2. Invertebrate Taxa Identified to Date at 40DV7 with Estimates of Minimum Number of Individuals (MNI).

Common Name	Scientific Name	Stratum II MNI	Stratum IV MNI
threeridge	*Amblema plicata*	2	9
elephantear	*Elliptio crassidens*	0	23
spike	*Elliptio dilatata*	19	33
pointed campeloma	*Campeloma decisium*	0	41
purple wartyback	*Cycloanaias tuberculata*	10	1
mucket/pocketbook	cf. *Lampsilis* sp.	1	0
ornate rocksnail	*Lithasia geniculata*	4	115
varicose rocksnail	*Lithasia verrucosa*	57	6350
washboard	*Megalonaias nervosa*	1	1
threehorn wartyback	*Obliquaria reflexa*	1	9
white wartyback	cf. *Plethobasus cicatricosis*	7	0
clubshell	*Pleurobema clava*	1	0
Ohio pigtoe	*Pleurobema cordatum*	66	43
Tennessee clubshell	*Pleurobema oviforme*	44	22
rough pigtoe	*Pleurobema plenum*	0	1
rough pigtoe	cf. *Pleurobema plenum*	23	0
pyramid pigtoe	*Pleurobema rubrum*	46	23
clubshells and pigtoes	*Pleurobema* spp.	0	4
family of elimia, rocksnail	Pleuroceridae	18	650
kidneyshell	*Ptychobranchus fasciolaris*	2	0
pimpleback	*Quadrula pustulosa*	10	2
wartyback/mapleleaf	*Quadrula* spp.	0	9
wartyback/mapleleaf	cf. *Quadrula* spp.	0	38
family of campeloma	Viviparidae	4	648
family of freshwater bivalves	Unionidae	0	316
bivalves	Bivalvia	0	19
	TOTALS	**316**	**8357**

TABLE 3. Vertebrate Taxa Identified to Date at 40DV7 with Estimates of Minimum Number of Individuals (MNI).

Common Name	Scientific Name	Stratum II		Stratum IV	
		Count	MNI	Count	MNI
vertebrates	Vertebrata	6	1	2	0
mammals	Mammalia	--	--	40	0
rodents	Rodentia	--	--	1	1
eastern gray squirrel	cf. *Sciurus carolinensis*	--	--	1	0
eastern gray squirrel	*Sciurus carolinensis*	--	--	1	1
white-tailed deer	*Odocoileus virginianus*	--	--	3	1
turtles	Testudines	--	--	2	1
bony fish	Osteichthyes	--	--	1	0
freshwater drum	cf. *Aplodinotus grunniens*	--	--	1	1

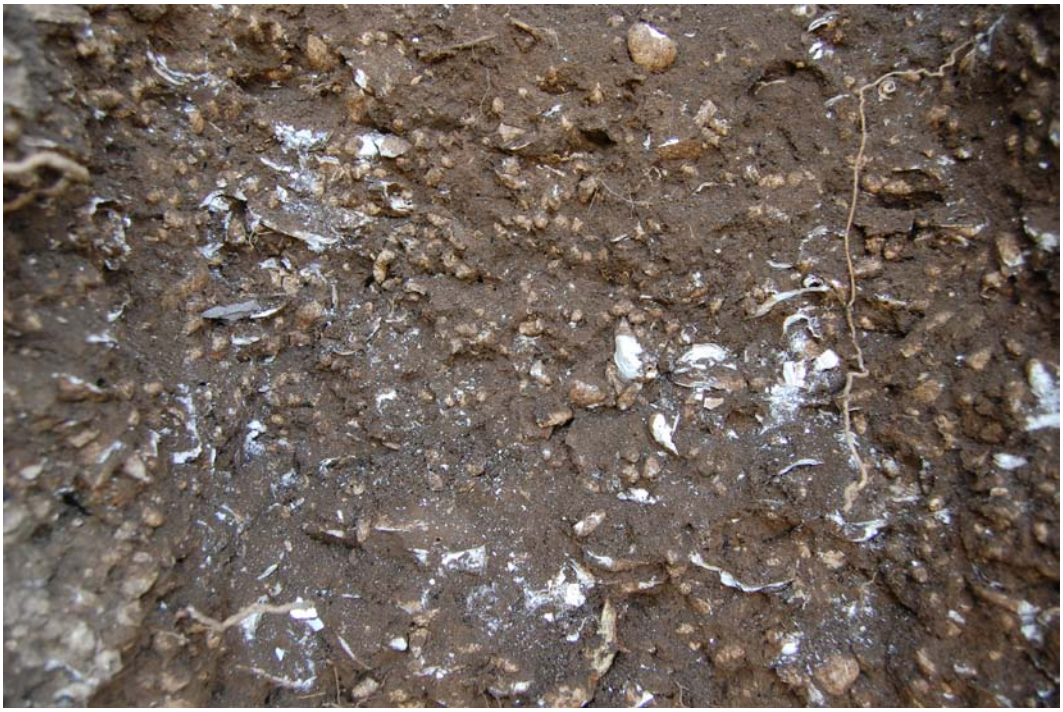

FIGURE 3. View of Stratum IV matrix, 40DV7.

where *L. verrucosa* increases dramatically. A total of six fragments of vertebrates (Vertebrata) were identified in this sample (Table 3).

Stratum IV at 40DV7 consists of a silt loam midden containing both naiads and aquatic gastropods (see Table 2; Figure 3). The naiads are comprised of nine species including: *A. plicata*, *E. dilatata*, *M. nervosa*, *O. reflexa*, *P. cordatum*, *P. oviforme*, *P. plenum*, *P. rubrum*, and *Quadruala* spp. Three species of aquatic gastropods were identified in the assemblage: *Campeloma decisium*, *L. geniculata*, and *L. verrucosa*. A small sample of terrestrial snails (MNI=9) were recovered but could not be identified beyond class. Five vertebrate taxa were identified in Stratum IV (see Table 3) with a total of 52 specimens. Mammals, turtle, and bony fish are all represented. The MNI of the vertebrate taxa in Stratum IV is 5. Of interest to note is that a greater number of vertebrate taxa were recovered from Stratum IV than Stratum II. However, this difference likely reflects the excavation of the bivalve feature described above and not the specific nature of Stratum II. Further excavations at the site will allow us to better understand the overall use of vertebrate taxa at the site and within temporal deposits.

The samples from Stratum IV did not yield any ceramic or lithic artifacts. A single temporally diagnostic Late Archaic projectile point was found eroding from a separate portion of slumped Stratum IV midden. Other temporally diagnostic materials recovered from eroded deposits along the shoreline of the site and recorded in the TDOA site file records include Middle through Late Archaic projectile points (Figure 4) and limestone-tempered Mulberry Creek Plain ceramics indicative of the Middle Woodland period.

Three radiocarbon samples were collected from Stratum IV at Locality 1. The earliest sample, collected from the transition zone at the base of Stratum IV

FIGURE 4. Temporally diagnostic projectile points recovered out of context at 40DV7 (*MTSU Creative and Visual Services, Photograph by J. Intintoli*).

(142-171 cmbs), returned a date of 5930 ± 40 ^{14}C BP (Beta-323850; charred material; delta ^{13}C = -24.5). Two samples collected from within the Stratum IV midden returned dates of 5810 ± 40 ^{14}C BP (95-142 cmbs; Beta-323849; charred material delta ^{13}C = -26.6) and 4670 ± 30 ^{14}C BP (53-95 cmbs; Beta-323848; charred material; delta ^{13}C = -27.0).

Although heavy concentrations of fire-cracked rock (FCR) were identified along the beach following the May 2010 flood, no fire pit or earth oven features were identified within the river bank profile. These features likely occur at the site, and would be encountered by full-scale excavations away from the riverbank. This expectation is based on extensive FCR features recorded by the authors at other Cumberland River sites, as well as feature description for Pickwick Landing Basin sites in the Tennessee River Valley (Morrison 1942).

There was little evidence of disturbance to human burials at 40DV7 as a result of either the 2010 flood or subsequent looting. Displaced materials present along the shoreline included a single human clavicle. Patina on that element suggests it was in the water for some time, and we cannot rule out the possibility that this bone was re-deposited from another site upriver. Site inspections identified a single human burial eroding from a river-cut profile in the vicinity of Locality 1, approximately 25 cm below surface within the upper portion of Stratum II.

TABLE 4. Species Diversity (H') and Equitability (V') Values by Strata, Site 40DV7.

	H'	V'
Stratum II	0.983482	0.81676415
Stratum IV	0.425995	0.36221216

Assemblage Composition

Shellfish are an easily accessible and nutritionally beneficial resource. However, they have traditionally been viewed as a marginal resource consumed in response to starvation or environmental crisis (Erlandson 2001; Parmalee and Klippel 1974). One would expect people in a food crisis situation to harvest whatever edible foodstuffs were available. The archaeological signature of this behavior would include the representation of a variety of vertebrate and invertebrate taxa, and therefore it is important to understand the diversity and equitability of the samples from 40DV7. We employed the Shannon-Weaver function to calculate the taxonomic diversity of the identified cultural zones. Equitability, or evenness, of the represented taxa is calculated following Reitz and Wing (2008:112-113). Table 4 presents the diversity (H') and equitability (V') values by stratum for the aquatic invertebrates only.

In the absence of absolute dates, Stratum IV is tentatively assigned to the Late Archaic and Early Woodland periods. The assemblage from Stratum IV is considered moderately diverse and has an uneven distribution of taxa because it

is dominated by relatively few of the gastropod species present. Although the sample sizes are small, this suggests that people may have been targeting a specific set of invertebrates during the earliest occupations of 40DV7. The pleurocerids (including those specimens identified to family and to *L. geniculata* and *L. verrucosa*) are heavily represented in Stratum IV.

The uppermost cultural deposit, Stratum II, was created during the Mississippian period, as determined by the presence of shell-tempered ceramics. The assemblage from Stratum II has high diversity and relatively even distribution of taxa. This stratum consists mostly of bivalves, and not one species appears to have been targeted to the exclusion of others. The taxonomic composition of this stratum likely represents the relative abundance of species that inhabited the river and stream areas adjacent to the site during the late Prehistoric (Parmalee and Bogan 1986; Peacock and Seltzer 2008). Examining why bivalves were exploited in greater numbers than gastropods is an avenue for future research.

Discussion

There has been little prior research into shell midden composition or development along the Middle Cumberland River. Excavations at Robinson (Morse 1967), Penitentiary Branch (Cridlebaugh 1986), Hayes (e.g., Klippel and Morey 1986), and Anderson (Dowd 1989) have provided a small window onto Archaic shell-bearing deposits from the broader region, but do not specifically address the many sites situated along the middle portion of the Cumberland River. Recent survey work by the authors (Deter-Wolf et al. 2010, 2011) and the Cumberland River/Midsouth Paleoindian Project (see Miller et al., this issue) represent the first systematic examination of the multiple shell-bearing sites along the Cumberland River in and around Nashville.

The data from 40DV7 support several hypotheses regarding prehistoric consumption and management of shellfish species, and the formation of shell middens in the region. Analysis and consideration of the Mississippian shell deposit (Stratum II) at 40DV7 is ongoing. This discussion will focus on the apparent Archaic and/or Woodland deposit of Stratum IV.

Sites exhibiting thick concentrations of freshwater bivalves and gastropods have been the subject of extensive research (and debate) throughout the greater Southeast. Some of the largest and earliest-studied shell midden sites from the Southeast, such as Indian Knoll in Kentucky (Webb 1974) and Eva in Tennessee (Lewis and Lewis 1961), contain large numbers of burials and artifacts originating in the Late Archaic. Consequently, occupations that date to the Archaic, and where evidence of freshwater mollusk (or marine mollusk for coastal locations) exploitation is the most obvious component, are traditionally grouped into the broad pan-Southeastern category of *Shell Mound Archaic* (SMA).

As recently discussed by Marquardt (2010a, 2010b) there is some controversy as to the exact cultural processes resulting in the formation and function of shell midden sites. One interpretation focuses on the time required to create thick deposits through aggregation, and postulates that the middens reflect population sedentism and/or indicate seasonal occupation by Archaic populations in areas of exceptional productivity during extreme environmental pressures, such as those brought on by

the Hypsithermal Interval (Hofman 1984; Jenkins 1974).

Another interpretation of shell mound and midden formation emphasizes corporate construction efforts and sociopolitical complexity. According to this model, Archaic peoples deliberately harvested and re-deposited massive amounts of freshwater shell in order to construct above-ground architectural features (e.g., Anderson 2004). The labor organization necessary for such an effort implies a level of sociopolitical development not traditionally assigned to Archaic period societies. Claassen (1991, 1992, 1996) has further emphasized the possible role of shell mounds and middens as burial facilities, citing the large numbers of human remains identified within shell-bearing deposits.

Based on preliminary analysis at 40DV7 and ongoing investigations of other shell-bearing sites along the Cumberland River, we believe that the solutions regarding shell midden formation outlined above do not adequately address the complex social and environmental processes that led to the formation of these sites or allow for regional cultural variation. Instead, we propose that successful evaluation and understanding of Cumberland River shell sites requires an approach predicated first on examining the importance of freshwater naiads and gastropods within the broad-spectrum of mid-Holocene economies; and second on investigating the deliberately modified landscape prehistoric peoples created at the intersection of riverine and riparian resource zones.

Other researchers have discussed the historic bias among archaeologists regarding the role of shellfish (see Erlandson 2001 for an in-depth review). Despite presenting an easily accessible and nutritionally beneficial resource, shellfish have been traditionally viewed as a marginal resource consumed in response to starvation or environmental crisis (Erlandson 2001; Parmalee and Klippel 1974). Claassen (1986) is one of the few dissenting archaeologists and believes, as we do, that shellfish were a major dietary staple of early horticulturalists, and that the modern bias against this position is due to shellfish's supplementary status in the diet of modern and ethnographic gathering-collecting cultures. Claassen (1986:34) states that the emphasis on *protein* is misplaced and that it is instead likely that shellfish were being collected as a source of carbohydrates, and possibly other minerals, which fluctuate seasonally. Only through a better understanding of how these components differ in the growth and life cycles of shellfish, coupled with seasonality studies of zooarchaeological specimens, can we begin to determine the importance that cultures placed on them.

We believe that mid-Holocene populations along the Cumberland River do not fit the traditional model of terrestrial hunter-gatherers, but rather manifest subsistence strategies and cultural complexity more akin to coastal fishing-gathering populations, such as those in the Pacific Northwest (Erlandson 2001). Within this inland gatherer-hunter-fisher model, we propose that Archaic period peoples within the Middle Cumberland River valley employed strategies designed to promote sustainable exploitation of freshwater shellfish beds.

Based on our initial analysis of 40DV7 materials, we hypothesize that shell deposits in the Middle Cumberland River valley represent a form of fisheries management bordering on aquaculture. Historic era impoundment and dredging of the Cumberland River and associated

impacts to its tributaries and backwater areas has destroyed or inundated the location of prehistoric shellfish beds and any *in situ* evidence regarding human activity or ancient landscape modification associated with managing those resources. Instead, we hope to address this hypothesis in the future using species data from the naiads and aquatic gastropods collected from controlled excavations. These data will be collected from 40DV7 during the 2012 and subsequent field seasons.

Since no Archaic period shell middens in the region have been subject to full data recovery, it is not possible to conclusively identify overall patterns of site use or divisions of lateral space. However, it appears that systematic shellfish deposition along the natural levee formed large midden piles running parallel to the river channel. These shell midden areas continued to be used for processing mollusks and burial of the dead for hundreds, if not thousands of years, and yet accumulated very little of the detritus of everyday life such as lithic debitage, stone tools, or vertebrate remains.

Over that expanse of time, the shell deposits grew in height, modifying the landscape and marking the intersection of riverine and riparian resource zones. The inhabitants of shell sites within the Middle Cumberland River valley made deliberate choices regarding how and where to dispose of the shellfish remains. By continuously processing and depositing shell in these specific locations, they consciously made permanent alterations to the natural landscape. The inclusion of burials within these landmarks further serves to consecrate the landscape, and likely served to identify it with a specific group or lineage.

Cemeteries in other areas of the world have long been recognized as territorial markers through which groups laid claim to a specific habitation area or environmental zone by virtue of their ancestral presence (e.g., Renfrew 1976). During the Mesolithic in the Baltic region of Europe, groups chose to bury their dead in “coastal areas, or major lacustrine or riverine zones, marked by concentrations of aquatic resources” (Zevelebil 2008:38). We believe that the Cumberland River shell bearing deposits containing human burials also served to mark territory, and stake claims of ownership to land and resources.

Conclusions

The analysis of samples collected from 40DV7 contributes significant new data to our understanding of prehistoric freshwater naiad and gastropod use along the middle portion of the Cumberland River. In addition to the hypotheses outlined above regarding landscape analysis and the importance of shellfish within mid-Holocene economies, we believe the project data will aid in developing a new, diachronic view of the interdependence of human, naiad, and gastropod species in the Midsouth. Through comparison of the substantial late prehistoric shell midden deposits at 40DV7 and other sites examined during our survey, and future planned excavations at several of these sites, we will further explore how evolving technologies, prehistoric management strategies, and shifts in social and environmental pressures impacted both human and molluscan populations within the Middle Cumberland River valley.

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RADIOCARBON DATES FROM THREE SITES ALONG THE MIDDLE CUMBERLAND RIVER NEAR NASHVILLE

D. Shane Miller, David G. Anderson, Thaddeus G. Bissett, and Stephen B. Carmody

Archaeological investigations by the authors along the Cumberland River near Nashville in 2009 and 2010 recovered materials from stratified deposits at three archaeological sites that collectively span the Early Archaic through Early Woodland periods. A series of 29 AMS radiocarbon determinations, all but five obtained from close interval flotation sampling of stratigraphic columns, document the age of these deposits. Two shell midden deposits at sites 40DV14 and 40CH171 were dated to the Mid-Holocene, between ca. 5800 to 6200 ^{14}C yr BP. Numerous dates were obtained from artifact bearing deposits above and below the shell midden at 40CH171, demonstrating that the site was occupied throughout the Middle Holocene and into the Late Holocene, from ca. 8000 to 4000 ^{14}C yr BP. A third site, 40DV307, was characterized by pit features dating to the early Woodland period, ca. 2700 ^{14}C yr BP. This research greatly expands the inventory of absolute dates from secure archaeological context in the western portion of the Middle Cumberland River valley, and demonstrates the utility of careful fine screen/flotation procedures for the recovery of datable materials from deeply stratified sites in riverine environments.

In 2009 and 2010, the authors conducted fieldwork along the Middle Cumberland River near Nashville, Tennessee in order to identify sites that had the potential to fill critical gaps in our understanding of the prehistoric occupation of the southeastern United States during the terminal Pleistocene though Middle Holocene (ca. 11,500 to 3000 14C yr BP). Initially, our goal was to locate stratified Paleoindian sites with datable materials (Anderson 2009; Anderson et al. 2009; Miller 2009), which are extremely rare despite the fact that the Mid-South has some of the densest concentrations of late Pleistocene sites and artifacts reported anywhere in North America (Anderson 2005:32–37; Anderson et al. 2010; Goodyear 1999; Miller and Gingerich 2012; Waters and Stafford 2007). Once fieldwork began, our goals changed to include examining later sites that were being actively looted, and that could provide archaeological and paleoenvironmental information useful to documenting human adaptation and settlement in the region over a much longer period of time (Anderson et al. 2011).

The culture-historical framework for the Archaic period in the Mid-South (ca. 10,000 to 3000 14C yr BP) relies primarily on dated deposits from a relatively small number of stratified sites, such as Ice House Bottom in eastern Tennessee (Chapman 1976), Russell Cave in northwestern Alabama (Griffin 1974), and Eva (Lewis and Lewis 1961), Anderson (Dowd 1989), and Morrisroe in west-central Tennessee (Nance 1986). Moreover, with the exception of a few recently excavated sites like Dust Cave (Sherwood et al. 2004), the majority of radiocarbon dates from the Mid-South were processed using the conventional method, as opposed to more precise Accelerator Mass Spectrometer (AMS) determinations. Age determinations

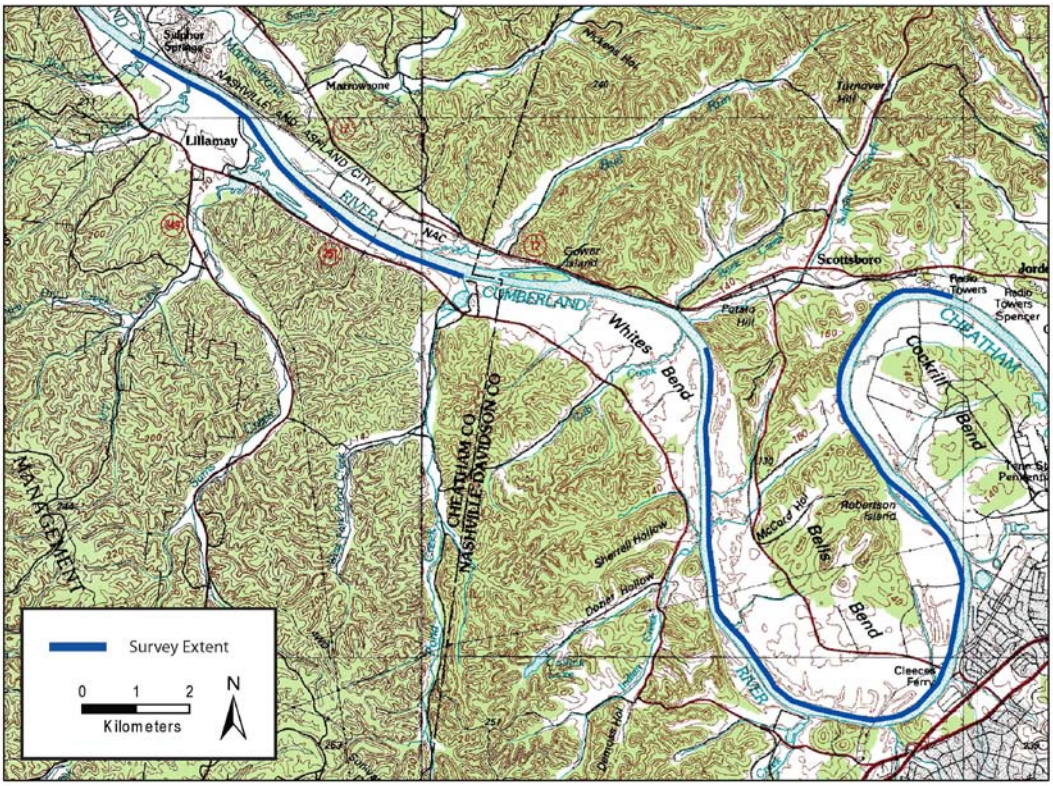

FIGURE 1. Overview of the project area.

obtained prior to the inception of the AMS method have much larger standard errors (e.g., Beukens 1992; Gove 1992; Trumdore 2000:46; Walker 2005:5, 20-23). Additionally, because large samples of charcoal were required for conventional radiocarbon dating, there is a greater possibility that a sample included charcoal of different ages, resulting in aberrant dates. AMS determinations run on small pieces of wood charcoal, and barring contamination, are likely to yield far more useful determinations.

The Middle Cumberland River valley near Nashville offers significant potential for improving the temporal resolution of the Paleoindian and Archaic periods in the southeastern United States. Previous research, primarily by archaeologists from the Tennessee Division of Archaeology (TDOA), has demonstrated that this area contains a number of stratified sites that likely contain datable material and span the terminal Pleistocene through Mid-Holocene (e.g., Broster et al. 2012). For example, two deeply buried sites, Johnson (40DV400) and Widemeier (40DV9), have produced radiocarbon dates of Late Pleistocene and Early Holocene age (Barker and Broster 1996; Broster and Barker 1992; Broster and Norton 1996; Broster et al. 1991, 2006). However, both Johnson and Widemeier have been severely damaged by erosion, looting, and urban development; and illustrate the dual threat of both cultural and natural processes to the preservation of archaeological sites in the area. Natural erosion enhanced by the wake from passing river traffic has severely damaged Johnson. At Widemeier, the majority of the artifact-bearing sediments were removed with heavy equipment and sold as fill. The exposed areas were then

subject to looting until the land owner put a halt to that activity. Johnson, fortunately, was partially riprapped by the Nashville District of the U.S. Army Corps of Engineers (COE), providing a measure of protection to the remaining cultural deposits. These two sites provide stark examples of how vulnerable deeply stratified archaeological deposits are in the Middle Cumberland River valley.

Our survey efforts focused on the area of the Cumberland River between Bells Bend and Ashland City because there is minimal urban development, an abundance of previously recorded Paleo-Indian and Archaic sites, and the potential for locating stratified sites with datable material (Figure 1). Moreover, this portion of the Middle Cumberland River has also been the target of extensive looting in the wake of the May 2010 flood (Deter-Wolf et al. 2011).

Our research has been based out of the 808 acre Bells Bend Park, a facility of the Nashville Metropolitan Board of Parks and Recreation located in the southwestern portion of the meander loop known as Bells Bend, immediately west of downtown Nashville. The area was archaeologically surveyed when the property was initially purchased by the city of Nashville for the construction of a landfill, with follow-up testing conducted at multiple sites (Anderson 1995; Merritt and Versluis 2000; Taylor 1989; Taylor et al. 1991). During that survey, and in a subsequent assessment conducted in advance of the construction of a water treatment facility immediately to the south (Anderson 1997), 35 sites were recorded including six (40DV263, 40DV273; 40DV310, 40DV526, 40DV527, and 40DV528) that yielded Paleo-Indian and/or Early Archaic artifacts (Anderson 1995, 1997; Tennessee Division of Archaeology 1989a, 1989b). Moreover, Law (2005:23) argued that similar site densities may be encountered in areas of Bells Bend that have yet to be systematically surveyed. In addition, the Widemeier site (40DV9) and 40DV524, both of which contain Paleoindian and Early Archaic artifacts, are located at the northeastern corner of the Bells Bend meander loop (Broster et al. 2006; Tennessee Division of Archaeology 1997). Downstream from Bells Bend in Cheatham County, three sites (40CH18, 40CH171, and 40CH193) all had previously reported stratified deposits with Paleoindian and Archaic artifacts that were collected from shoreline lag deposits (Barker 2004; Tennessee Division of Archaeology 1966, 1993, 1996). Finally, local avocational archaeologists have also monitored sites eroding into the Cumberland River, including one previously unrecorded site (Coble, 40DV645) that produced an Early Paleoindian, Clovis-type biface and a broken lithic drill tip that was not temporally diagnostic (see Figure 8a). The drill tip was found by our project team *in situ* in 2009 in a band of charcoal two meters below the bank crest. A sample of the charcoal returned a date of 7948 ± 51 (AA89767) and was the first of many dates resulting from this project (Table 1).

During the summer of 2010, we re-located 25 sites that ranged from comparatively recent historic sites to the initial Holocene/late Pleistocene. Of these, five upland sites were subjected to systematic shovel testing (40DV246, 40DV262, 40DV263, 40DV265, and 40DV526). We also intensively examined bank profiles at ten sites along the river (40CH18, 40CH171, 40CH193, 40DV9, 40DV14, 40DV98, 40DV307, 30DV317, 40DV524, and 40DV645). This fieldwork was conducted under ARPA permits DACW62-4-10-0438 and DACW62-4-10-

TABLE 1. Radiocarbon Dates.

Site #	Context	Material	AA #	$\delta^{13}C$	^{14}C Age BP	Cal. Age BP
40CH171	2009 Profile (160cmbs)	charcoal	AA89761	-25.1	4072 ± 39	4590 ± 102
40CH171	2009 Profile (260cmbs)	charcoal	AA89764	-25.9	5018 ± 47	5774 ± 74
40CH171	2009 Profile (280cmbs)	charcoal	AA89763	-23	5061 ± 41	5813 ± 57
40CH171	2009 Profile (260cmbs)	charcoal	AA89762	-27.8	5076 ± 41	5820 ± 54
40CH171	2009 Profile (260cmbs)	charcoal	AA89765	-27	5096 ± 42	5828 ± 56
40CH171	Float Column #5 (165cmbs)	wood (angiosperm)	AA96400	-27.7	5960 ± 43	6794 ± 58
40CH171	Float Column #5 (180cmbs)	wood (angiosperm)	AA96402	-26.2	6044 ± 46	6894 ± 71
40CH171	Float Column #5 (200cmbs)	wood (gymnosperm)	AA96401	-25.2	6092 ± 44	6974 ± 83
40CH171	Float Column #5 (210cmbs)	wood (angiosperm)	AA96397	-25.3	6115 ± 44	7014 ± 81
40CH171	Float Column #5 (220cmbs)	wood (angiosperm)	AA96398	-28.2	6152 ± 44	7058 ± 69
40CH171	Float Column #5 (190cmbs)	wood (angiosperm)	AA96408	-26.7	6197 ± 45	7096 ± 69
40CH171	Excavation Unit #1 (330cmbs)	wood (angiosperm)	AA96410	-25.9	7946 ± 49	8811 ± 105
40CH171	Excavation Unit #2 (335cmbs)	hickory nutshell	AA96411	-26.7	8004 ± 49	8864 ± 92
40CH171	Excavation Unit #2 (340cmbs)	hickory nutshell	AA96412	-27.5	8019 ± 49	8878 ± 91
40CH171	Excavation Unit #1 (345cmbs)	hickory nutshell	AA96416	-24.9	8034 ± 49	8894 ± 93
40CH171	Excavation Unit #1 (335cmbs)	hickory nutshell	AA96414	-26.6	8041 ± 49	8904 ± 95
40CH171	Excavation Unit #1 (340cmbs)	hickory nutshell	AA96415	-26.7	8043 ± 60	8904 ± 110
40CH171	Excavation Unit #2 (3350cmbs)	hickory nutshell	AA96413	-25.3	8064 ± 49	8950 ± 102
40CH193	Feat. #1 (Miller et al. This issue)	wood (angiosperm)	AA96399	-26.6	9412 ± 54	10649 ± 88
40DV14	Float Column #1 (Top)	wood (angiosperm)	AA96409	-26.4	5805 ± 43	6603 ± 58
40DV14	Float Column #1 (Middle)	wood (angiosperm)	AA96404	-23.8	5954 ± 44	6787 ± 59
40DV14	Float Column #2 (Top)	wood (oak)	AA96407	-26.8	5977 ± 44	6815 ± 58
40DV14	Profile #5 - Charcoal Lens	wood (angiosperm-oak?)	AA96393	-26.4	5979 ± 66	6822 ± 85
40DV14	Float Column #2 (Middle)	wood (angiosperm)	AA96403	-25.9	6004 ± 44	6845 ± 59
40DV14	Float Column #1 (Bottom)	wood (angiosperm)	AA96406	-24.1	6101 ± 44	6990 ± 83
40DV14	Float Column #2 (Bottom)	wood (indet.)	AA96405	-24.1	6136 ± 45	7041 ± 75
40DV307	Float Column #3 (110-115cmbs)	hickory nutshell	AA96394	-25.6	2061 ± 37	2031 ± 54
40DV307	Float Column #4 (Feature 1)	wood (angiosperm)	AA96396	-25.3	2716 ± 38	2816 ± 36
40DV307	Float Column #4 (100-105cmbs)	wood (angiosperm)	AA96395	-25.6	2728 ± 38	2825 ± 39
40DV307	Float Column #3 (105-110cmbs)	wood (angiosperm)	AA96392	-24.5	2766 ± 38	2861 ± 49
40DV645	Assoc. w/ Lithic Drill	charcoal	AA89767	-24.3	7948 ± 51	8812 ± 105

0438 issued by the Nashville District, US Corps of Engineers (COE) along with landowner permission for sites on private property.

The first phase of our survey included careful examination of the shoreline by boat. This was followed by pedestrian survey and controlled surface collections. For spatial control, we divided the shoreline into collection localities at either five or ten meter intervals along the bank. Survey collection unit boundaries and diagnostic artifact locations were determined using high precision Global Position System (GPS) instruments or with a total station. At eleven sites we noted evidence of recent looting, typically characterized by freshly gouged holes in

the archaeological deposits. We mapped the locations and extent of this damage and notified both COE and TDOA officials, and where warranted, private landowners. In the second phase of our 2010 fieldwork, we focused the bulk of our efforts on three sites where we were able to obtain access from private landowners, COE, and/or Nashville Metro Parks. Our goal was to recover relevant information from large and potentially significant sites that were being rapidly destroyed. The three sites examined included two in Bells Bend (40DV14, 40DV307) and one approximately 15 miles downriver in Cheatham County (40CH171). In this article, we focus on the stratigraphy, associated radiocarbon dates, and artifacts recovered from these three sites.[1] A single radiocarbon date obtained from a fourth site (40CH193) has been reported in a separate article (see Miller et al., this issue).

Site 40DV14, Clees Ferry

John Dowd recorded 40DV14 as a multi-component archaeological site eroding out of an alluvial terrace in the Bells Bend area (Tennessee Division of Archaeology 1972). He noted the presence of a large Mississippian period occupation most readily apparent in the form of stone-box graves that are sporadically visible in the upper meter of sediment, and that these graves may have been examined as far back as the late 19th century by representatives from the Peabody Museum (Moore and Smith 2009). In his classic tome on Tennessee archaeology, Thruston (1890:164-165) reported the site yielded "thirteen well-burned marbles, or pottery balls… in a stone box grave at Clees Ferry." Dowd observed that Thruston may have actually been referring to 40DV15 (Ganier) located on the other side of the river.

Site 40DV14 has been sporadically visited for decades, and temporally diagnostic Woodland and Mississippian pottery sherds have been occasionally collected from the surface and shoreline. However, the most visible archaeological component is a substantial shell midden (with an absence of ceramics) that has been continuously looted for decades. Following a visit to the site in January 2009, TDOA archaeologist Aaron Deter-Wolf noted in an update to the site file that "without any formal excavations… collections [by local avocationals] may soon provide the only artifact record for this and other sites on this portion of the Cumberland."

2010 Investigation

We chose this site as part of our investigation to: (1) determine the age and nature of the occupations present at this location; (2) document the most recent looting that had occurred; and (3) remove flotation columns from the shell-bearing component to acquire samples for radiocarbon dating as well as for zooarchaeological and paleoethnobotanical analyses. Given the severe bank erosion and the extent of looting observed, the recovery of information from the site before it was lost forever was considered critical.

The 2010 field team cleaned five separate profiles approximately one meter wide to provide clear exposures of the shell-bearing deposits that were observed eroding out of the bank along a nearly 70 meter stretch of shoreline. The shell deposit ranged from 30 cm to as much 130 cm thick. Three of the five profiles (Profiles 3, 4, and 5) produced radiocarbon determinations, and are discussed here. In Profile 3 (Figure 2), the

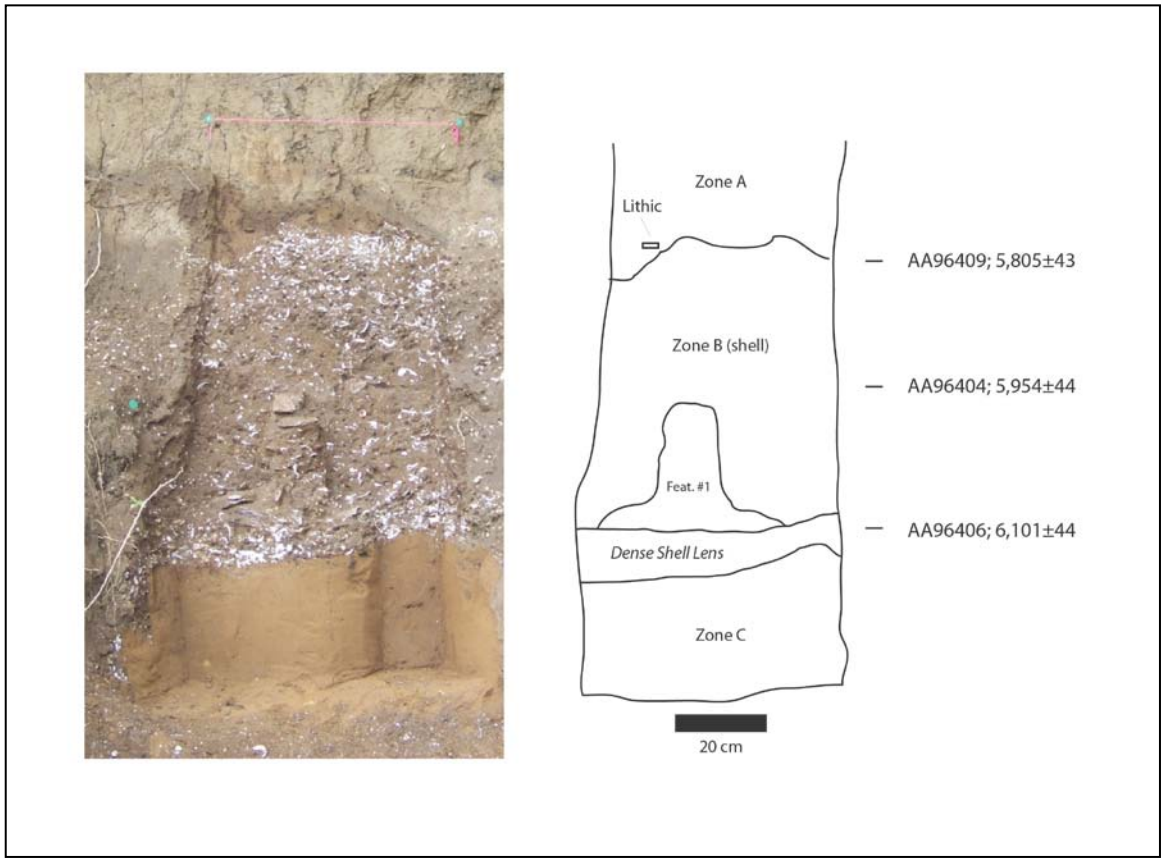

FIGURE 2. Profile 3 at 40DV14.

shell midden was capped by more than one meter of sterile alluvial sediments (Zone A). Within the shell deposit (Zone B) we observed a rock cluster (Feature 1) that may have been the remnants of a rock-lined hearth superimposed over a dense layer of shell. Similar features were observed eroding out of the shell midden in the immediate vicinity, several of which had been probed by looters. The shell layer overlaid a sterile alluvial deposit (Zone C) that had a noticeably higher sand content than the alluvial sediments in Zone A. The shell-bearing deposit had a discrete upper and lower boundary, thus making it an ideal candidate for the removal of a flotation column sample. We first isolated and removed Feature 1 and then proceeded to remove five liter flotation samples (Flotation Column 1) in 50 x 50-cm units, and at 5-cm intervals (Figure 3a).[2] From the flotation samples we were able to identify material to radiocarbon date the top (AA96409; 5805 ± 43),[3] middle (AA96404; 5954 ± 44), and bottom (AA96406; 6101 ± 44) of the shell deposit (see Table 1).

Profile 4 at 40DV14 (Figures 3b, 4) displayed stratigraphic complexity, and is discussed in detail here to document that the creation of these middens was not a haphazard or one-time affair, but involved a series of episodes. Five zones were observed, with the first (Zone A) a dark midden deposit (10 YR 3/4 dark yellowish brown) that grades into the upper boundary of the shell midden. Many large pieces of charcoal and limestone rocks were observed in the profile at the base of Zone A. Zone B contained a shell deposit that was intersected by a looter hole on the western side of the profile. Zone C

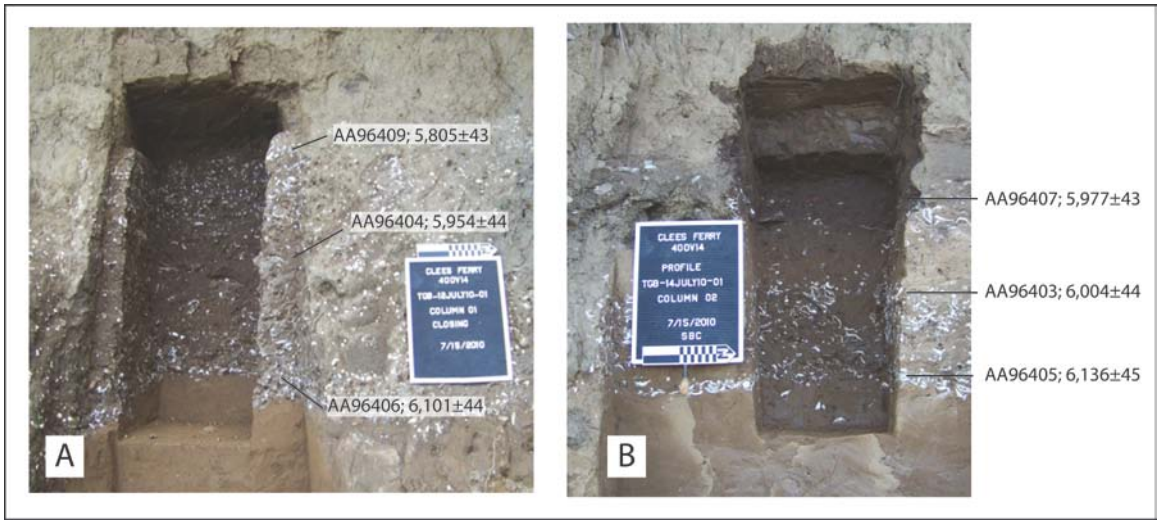

FIGURE 3. Flotation Colum 1 (A) and Flotation Column 2 (B) at 40DV14.

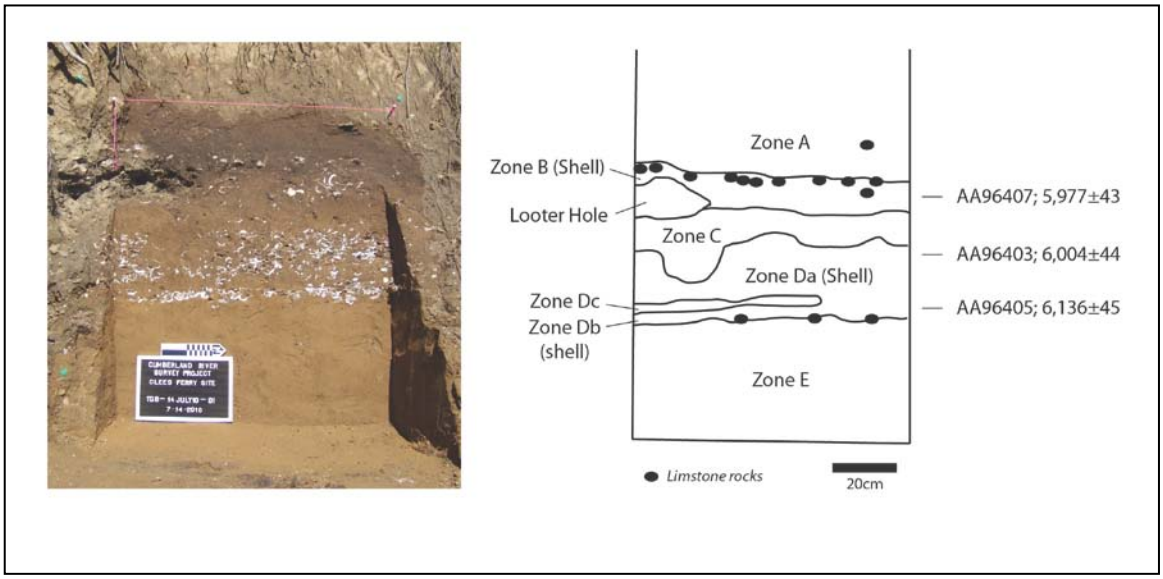

FIGURE 4. Profile 4 (facing west) at 40DV14.

was a near sterile layer of silty, alluvial sediment that overlaid Zone D, with a small disturbance on the western side that intruded into the next layer. We divided Zone D into three separate sub-strata. Zone Da was a thick deposit of shell (~30 cm) that appears to have been disturbed by either a pit feature or krotovina on the western side of the profile. Zone Db consisted of a thin layer of sterile alluvial sediment superimposed over Zone Dc, a layer of dense shell at the base of the archaeological deposits. Many of the shells at the base of the lowest part of the midden were oriented with the dorsal surface facing upward atop Zone E, suggesting intentional placement rather than casual discard. Zone E was a sterile alluvial deposit underlying the archaeological deposits and the upper part of this stratum had a noticeably higher sand content relative to the other strata. Flotation Column 2 was taken through the Profile 4 deposits using 5-cm

levels, with care taken to avoid the looter hole and the disturbance noted intruding into Zone Da (see Figure 3b). Radiocarbon dates were obtained on charcoal extracted from the top (AA96407; 5977 ± 43), middle (AA96403; 6004 ± 44) and bottom (AA96405; 6136 ± 45) of the shell deposit (see Table 1).

Profile 5 was cleaned and a radiocarbon sample obtained from the base, but a flotation column was not taken because of the sloping deposits and the apparent feature disturbance. As with Profiles 3 and 4, the shell deposits in Profile 5 were capped by a darker (10 YR 3/4 dark yellowish brown) deposit (Zone A) (Figure 5). Zone B consisted of the upper-most shell deposit over-lying a much denser shell deposit (Zone C) that we sub-divided into three sub-strata based on relative shell content. Otherwise the color and texture of the sediments between the three sub-strata are indistinguishable. Within Zone C we observed a large rock feature designated Feature 2 that was similar to the rock feature identified as Feature 1 in Profile 3. On the western side of Feature 2 was a very dense charcoal deposit from which we were able to obtain a fragment of wood charcoal to radiocarbon date, yielding a result in agreement with the determinations obtained from the other two flotation columns (AA96393; 5979 ± 66)(see Table 1).

The three profiles and associated radiocarbon determinations indicate that the Clees Ferry shell midden was laid down between ca. 5800 and 6000 14C yr BP. While multiple depositional episodes are indicated, the overall span of time involved was comparatively short.

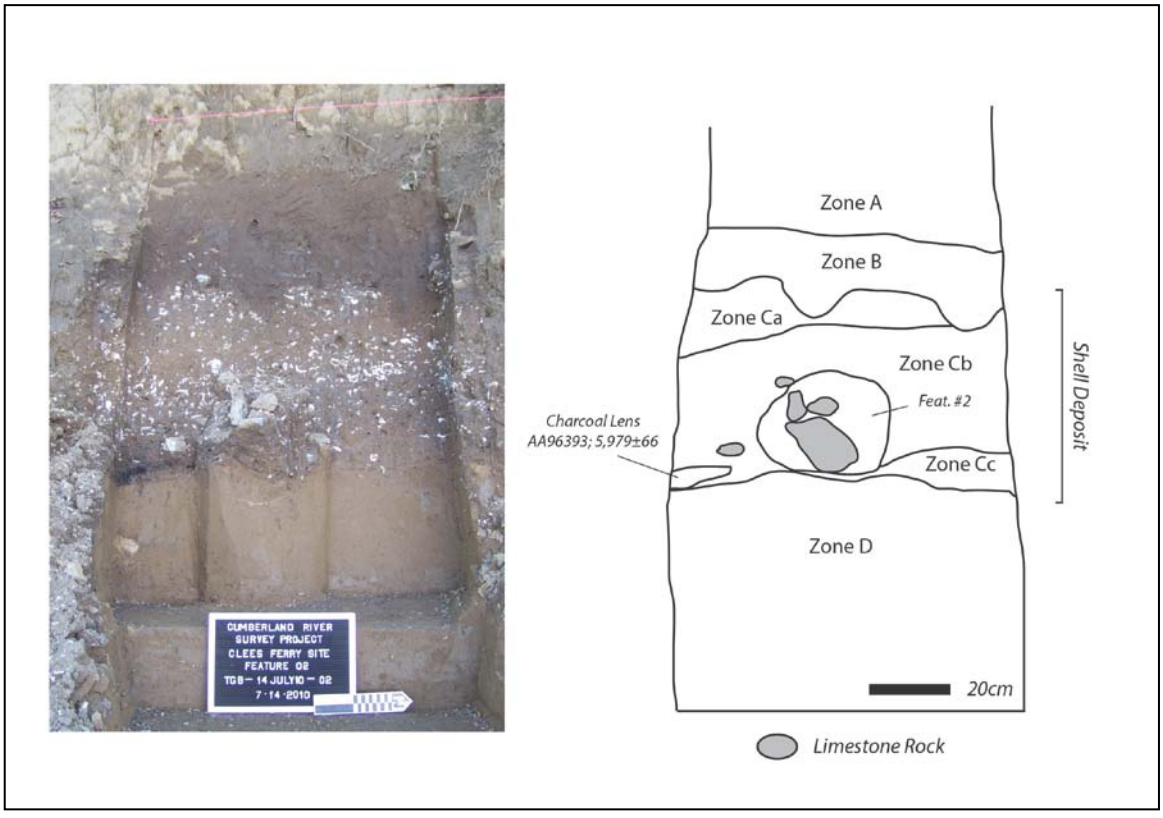

FIGURE 5. Profile 5 (facing west) at 40DV14.

Site 40DV307

Site 40DV307 was originally recorded in 1989 by Richard Taylor of the Office of Archaeological Research at the University of Alabama, during a survey of the property that later became the Bells Bend Outdoor Center (Taylor et al. 1991). The site was described as a well-defined shell midden extending for approximately ten meters along the shoreline. The remains of two stone-box graves together with human skeletal remains were also observed along the shoreline and had recently been looted out of the bank. The site was reported as having probable Woodland and Mississippian components based on the presence of a large bifacial hoe as well as both limestone-tempered and shell-tempered pottery. Mammal and fish bones were observed eroding out of the deposits as well as gastropods and bivalves.

2010 Investigation

When we revisited 40DV307 in 2010, the site had been freshly looted with human remains and probable stone-box grave slabs displaced onto the bank slope. The human remains were collected by TDOA personnel and included in the TDOA NAGPRA inventory. Inspection of the profile noted features of shell and earth (including possible pit features), warranting careful cleaning and mapping of a portion of the bank profile.

The initial focus of our work at this site was to identify if there were older deposits present due to its location on a levee at a relatively elevated position above the current river channel. Additionally, we observed very recent looter activity that had probably occurred just hours before our arrival. An undisturbed cigarette that had been laid by a human long bone, and shovel/pick gouges in the bank wall with the soil still damp.[4] The scattered human remains were associated with fragments of (at least) one stone-box grave. In order to document both the extent of the looting and the archaeological deposits eroding from the site, a controlled surface collection was conducted at ten-meter intervals along the shoreline. The boundary of the site was determined to be much larger than first reported based on the distribution of recovered artifacts.

A four-meter wide bank profile revealed stratified cultural deposits and two prehistoric pits (Pits 1 and 2) bisected by the recent bank erosion (Figure 6). Our 2010 fieldwork focused on documenting and sampling each pit. Both features extended from an upper, dark (10YR 4/3 brown) cultural deposit (Zone Aa), and were well-defined by clear contrasts in color between the darker (10YR 2/1 black), organic fill and the surrounding lighter matrix (10YR 4/4 dark yellowish brown) of the deeper deposits. Pit 2 (see Figure 6) was excavated through an earlier cultural stratum containing freshwater mussel shell (Zone B). The discontinuity in the horizontal extent of the shell deposit at the pit edges further delineated the edges of the prehistoric excavation. A thin layer of shell defined at the top of Pit 2 had been deposited when the pit was filled (presumably from the earlier midden the pit intruded, see Figure 6). In contrast, Pit 1 was positioned immediately beyond the horizontal extent of the deeper shell midden. The upper boundary of Pit 1 was less defined than observed for Pit 2 by grading into the overlying Zone Aa cultural deposit. The lower boundaries of the pit were also less delineated than those of Pit 2, with Pit 1 slightly shallower in overall depth.

Both pits extended into Zone C below the Zone B shell deposit. Distinctions in

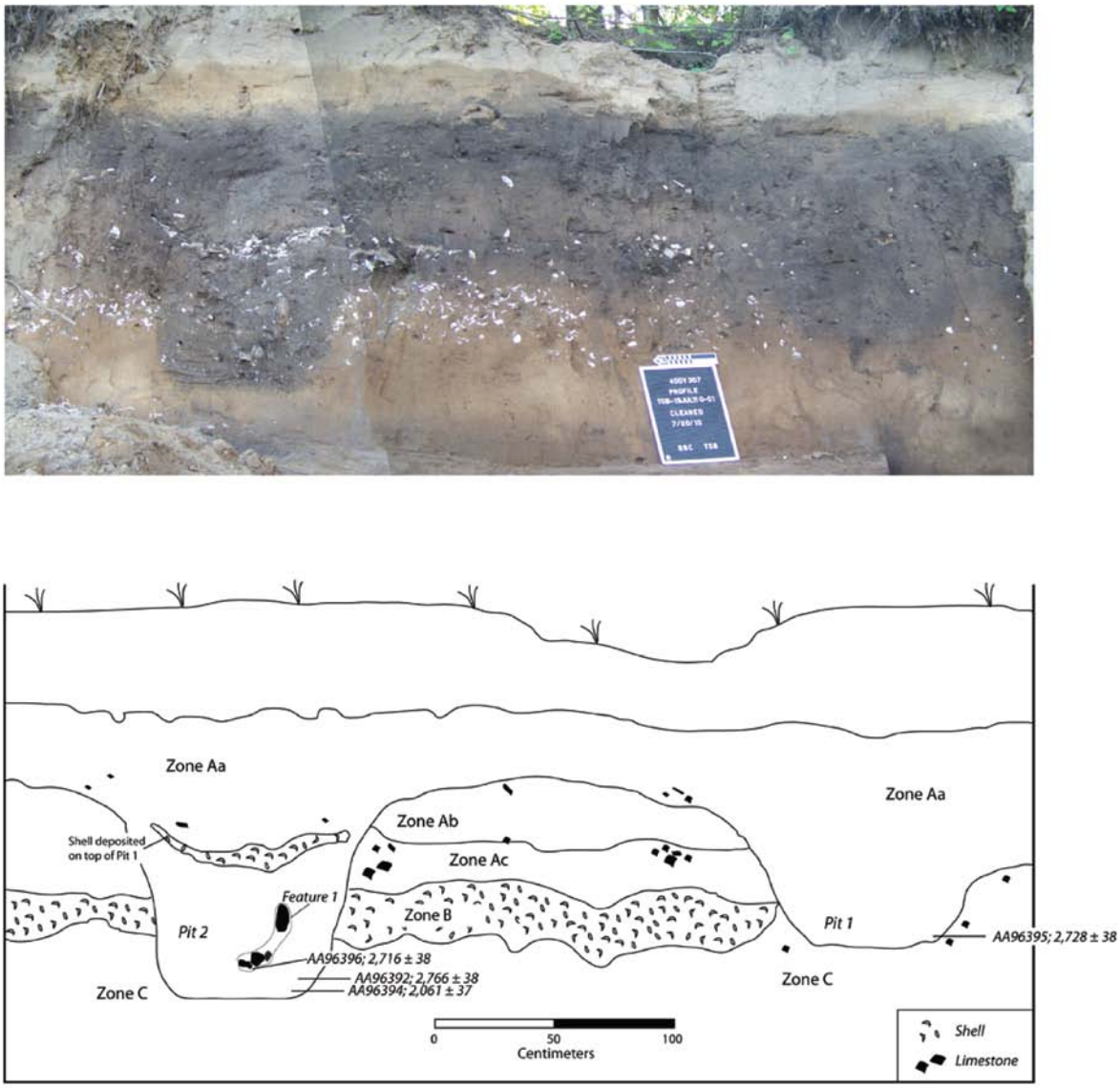

FIGURE 6. 40DV307 Profile.

color in the sediments noted in the profile between Pits 1 and 2 were labeled Zone Ab and Zone Ac. Zone Ac was of the same approximate color and content as Zone Aa (10YR 4/3 brown), while Zone Ab (between Aa and Ac) was lighter in color (10YR 4/1 dark gray). The lack of shell in Zone Ab suggested the possibility that it comprised the remains of subsoil from Zone C, removed and piled to one side when either Pit 1 or Pit 2 was excavated.

Two 50 x 50-cm flotation columns were excavated in 5-cm intervals (producing five-liter samples), one each from Pit 1 (Flotation Column 3) and Pit 2 (Flotation Column 4). These produced abundant organic material suitable for dating. Two radiocarbon dates were obtained from column levels at the base of Pit 2 (see Figure 6) (AA96392; 2766 ± 38; AA96394; 2061 ± 37) and from Feature 1 (AA96396; 2716 ± 38). A fourth date came from a column level at the base of Pit 1 (AA96395; 2728 ± 38). Finally, a Late Archaic/Early Woodland

stemmed projectile point (e.g., Justice 1995:154) was recovered after it fell out of the Pit 1 wall (Figure 8b).

Site 40CH171

This site was recorded in 1993 after a local informant notified the COE and TDOA that a four-foot thick shell deposit was being actively looted (Tennessee Division of Archaeology 1993). Subsequent fieldwork (Tennessee Division of Archaeology 1996) recorded Archaic and Woodland period artifacts including Kirk Stemmed, Benton, and Motley type bifaces (Coe 1964:70; Ford and Webb 1956:57; Ford et al. 1955:129-130; Justice 1995:82, 111, 198-201; Kneberg 1956:25; Lewis and Lewis 1961:34).

Our fieldwork at 40CH171 began with a visit in July 2009, when Shane Miller accompanied TDOA archaeologist John Broster and Bobby Hulan, a local avocational archaeologist, on a tour of riverbank sites that had the potential for deeply buried, intact deposits. Miller returned to the site in September 2009 and collected a total of six samples for radiocarbon dating (Figure 7). Five separate archaeological deposits between 1.6 and 3.3 meters below modern ground surface were apparent in the exposed profile at that time. In addition to these deposits were two buried soil horizons at 1.6 and 2.8 mbs. Based on a radiocarbon dated sample of charcoal (AA89764; 4072 ± 39), the upper soil horizon at 1.6 meter below surface and the associated archaeological materials are likely terminal Late Archaic in age. The lower soil horizon and associated archaeological material date to the Middle Archaic/Late Archaic transition based on five dates that produced an averaged date of 5065 ± 22.[5]

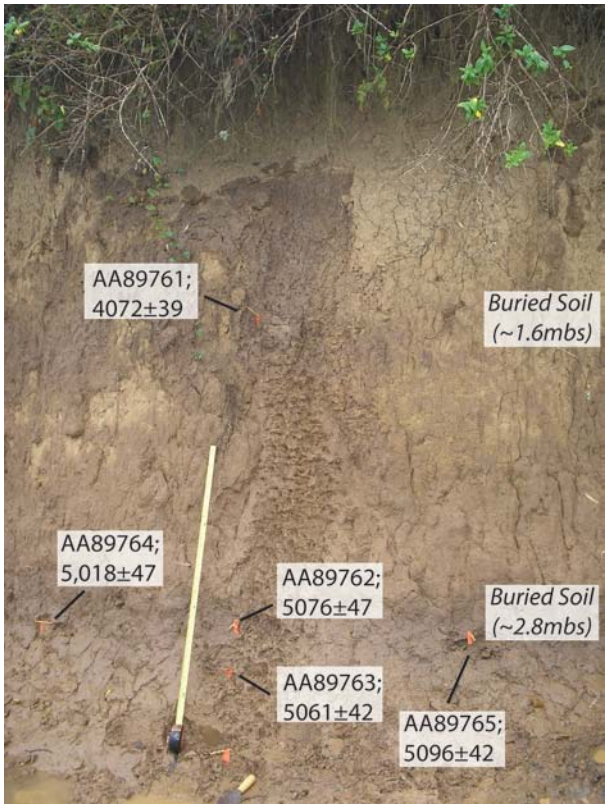

FIGURE 7. 40CH171 - 2009 Profile.

2010 Investigation

Our efforts during the 2010 field season focused on further testing at 40CH171 since: (1) intact archaeological deposits and radiocarbon datable material were present; (2) Early Archaic artifacts have been reported from the site; and (3) we received permission from the inland landowner to investigate the site. The actual site location falls under the jurisdiction of the COE.[6]

One of the more dramatic aspects of 40CH171 is the massive volume of lithic artifacts that has eroded out of the bank and covers the shoreline. Most of the eroded material consists of debitage. A controlled surface collection was conducted in the hopes of locating temporally diagnostic tools, points, and other artifacts. Collection areas at five-meter intervals were examined by team

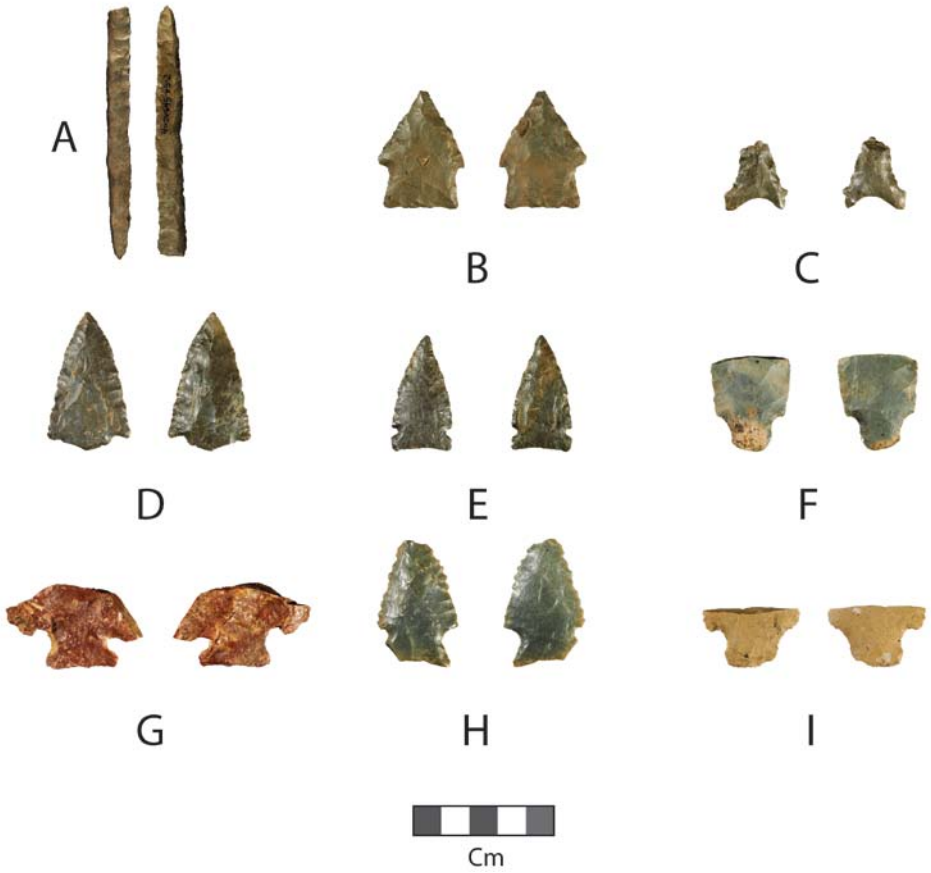

FIGURE 8. Selected lithic artifacts: A) 40DV645; B) 40DV307 - Pit 2; C-F) 40CH171 - Shoreline Collection; G-H) 40CH171 - Zone B; I) 40CH171 - Zone D.

members. A total of 1,121 artifacts were collected and catalogued from the controlled collection units. Another 107 items were either collected from the general site area during later visits, or donated to the project by local avocation archaeologists. Artifacts recovered from the controlled collection include a heavily re-worked biface that appears to be either an Early Side-Notched or Dalton (Figure 8c), a possible Early Archaic Kirk Corner-Notched biface with a missing proximal portion (Figure 8d), a Big Sandy Side-Notched (Figure 8e), and a Late Archaic Stemmed (Figure 8f).

In addition to the lithic artifacts found along the shoreline and eroding out of the bank, a well-defined shell midden was observed in the bank extending for approximately 20 meters at the site's eastern end. This midden was being actively looted, with gouged out holes extending almost a meter into the bank. Shell and human remains were present on the shoreline.[7]

The authors chose to remove controlled samples from select locations within the midden for a variety of reasons, including: (1) the relatively small area of exposed shell; (2) the strong possibility that the shell deposit would not survive many more episodes of looting; (3) ease of access to the exposed bank deposits; and (4) the high probability of obtaining information relevant to project research goals. The first excavation profile (Profile 1) was placed at the eastern end of the shell deposit (Figure 9). The upper 20 cm

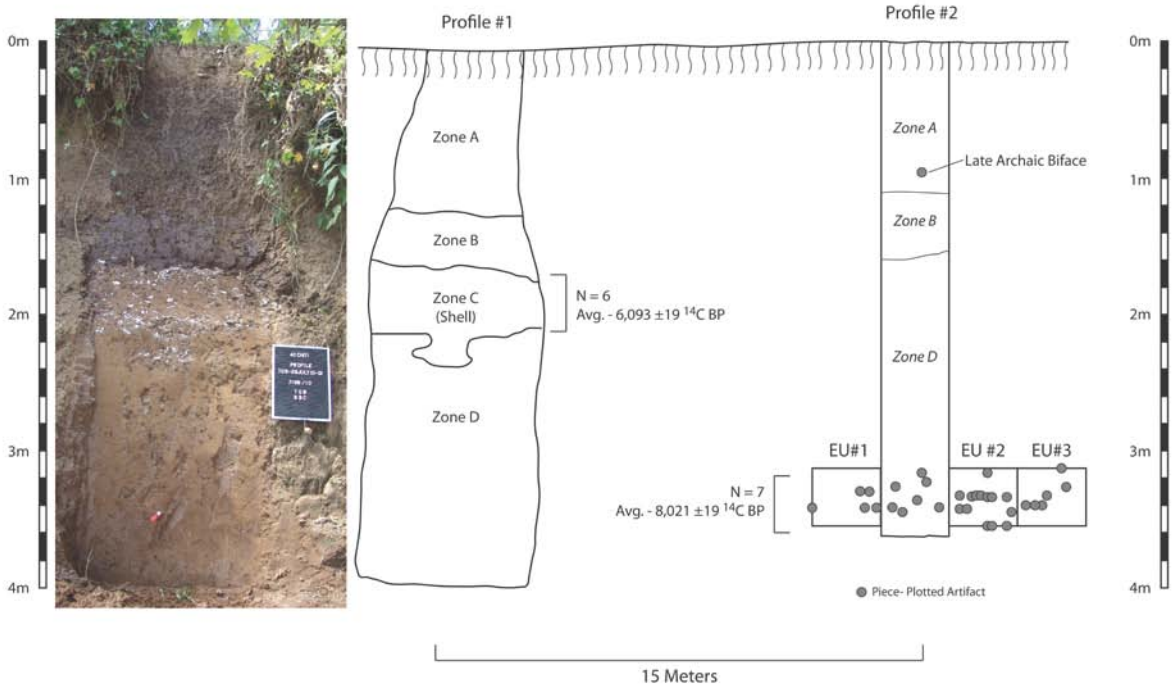

FIGURE 9. 40CH171 - Profiles 1 and 2.

level comprised an A horizon covered with dense vegetation. Below this level the profile was divided into five zones. Zone A extended from 20–125 cm below surface and contained little archaeological material. In Zone B (125–165 cm below surface) the deposits became noticeably darker (10YR 2/2 very dark brown) and yielded substantially more artifacts, including two bifaces found at 150 cm and 153 cm below surface. One biface is likely a Snyders (Justice 1995:201; Scully 1951) (Figure 8g). Zone C (165–225 cm below surface) consisted of two dense bands of shell separated by a 25–30 cm thick deposit of sediment with much lower shell content. Zone D consisted of a silt loam deposit that graded into a sandy silt loam with increasing depth. No artifacts were found in Zone D from either the general profile or the subsequently collected flotation samples. However, we decided to remove a flotation column (Float Column 5) from this profile due to the presence of lithics, bone, shell, and charcoal in Zones B and C. Project personnel collected 25 x 25 cm samples at 10-cm intervals from the bank top to just above the waterline (depth of approximately four meters). Wood charcoal samples suitable for radiocarbon dating were submitted from six levels within the shell midden (Zone C). These determinations resulted in an averaged date of 6093 ± 19 (see Table 1).

Profile 2 was placed just beyond the western extent of the shell deposit in an area of the site where the slope of the shoreline was not completely vertical. This location provided an opportunity to conduct limited excavations if intact deposits could be defined below the shell deposit. We began cleaning the profile at 95 cm below ground surface and encountered sediments that were the same color and texture as Zone A in Profile 1. A biface was removed at 95 cm below surface (Figure 8h) that may be a Late Archaic Matanzas (Bray 1956;

Justice 1995:119, 124; Suhm et al. 1954).[8] From 110–160 cm below surface we encountered darker sediments (10YR 3/3 dark brown) consistent with Zone B in Profile 1. However, below this zone there was no shell deposit, and from 160–308 cm below surface we instead encountered a culturally sterile zone consistent with Zone D in the previous profile. Then, beginning at 308 cm below surface we encountered a large flake, fire-cracked rock, and charcoal fragments extending to 339 cm below surface. The levels were now at the water's edge and grew increasingly saturated with depth. Larger debitage, rock, and charcoal fragments were piece-plotted and removed, with the fill removed for later flotation. Flotation was conducted following the fieldwork, and the samples required soaking in sodium hexametaphosphate before they could be successfully floated.

This particular area of the site provided a unique opportunity because the profile had eroded at an angle that allowed us to open small excavation units without having to excavate through three meters of sediment that capped the lower archaeological deposits. Consequently, three adjacent 50 x 50 cm excavation units were excavated in 5-cm intervals to a depth of 350 cmbs where the waterline was reached (see Figure 9). All observed lithic artifacts, large pieces of charcoal, and rocks were piece plotted, with all level fill collected and floated. From these units we were able to recover seven charcoal and hickory shell specimens that produced an average date of 8021 ± 19 (see Table 1). The floatation samples also yielded numerous pieces of debitage, one retouched flake, and a biface base (Figure 8i) at a depth of 330-335 cmbs that is most likely an Early Archaic Kirk Stemmed or Stanly Stemmed (Coe 1964:35-36, 70; Justice 1995:82, 97).

Conclusions

A total of 29 high precision AMS determinations were obtained from sites 40DV14, 40DV307, and 40CH171 in 2009 and 2010 (Figure 10). When combined with the radiocarbon dates from 40DV645 and 40CH193 (AA96399, 9412 ± 54; see Miller et al., this issue), our project yielded dated components spanning almost the entire breadth of the Archaic period as well as the initial part of the Woodland period. The stone drill tip and associated charcoal from 40DV645, and the average of dates from Zone D of 40CH171, are consistent with terminal Early Archaic components associated with Kirk Stemmed and Stanly Stemmed bifaces from elsewhere in the Cumberland and Tennessee River Valleys. Comparable sites include Icehouse Bottom (Chapman 1976:3), Dust Cave (Sherwood et al. 2004:538), Russell Cave (Griffin 1974), and Morrisroe (Nance 1986:42). The presence of possible Early Side-Notched/Dalton and Kirk Corner-Notched bifaces from the surface collection of 40CH171, as well as the Paleo-Indian period fluted points reportedly recovered from the water's edge by local collectors, indicates a potential for older deposits present at this site.

Dates from the 40DV14 and 40CH171 shell deposits overlap with Middle Archaic components associated with White Springs/Sykes and Benton bifaces at sites such as Dust Cave (Sherwood et al. 2004: 538), Anderson (Dowd 1989), Ervin and Hayes (Hoffman 1984), and elsewhere in the Mid-South (McNutt 2008). The dates also overlap with the side-notched components from Austin Cave (Barker 1997:216). Finally, the dates and the stemmed biface recovered from the 40DV307 pits are terminal Archaic/Early Woodland in age.

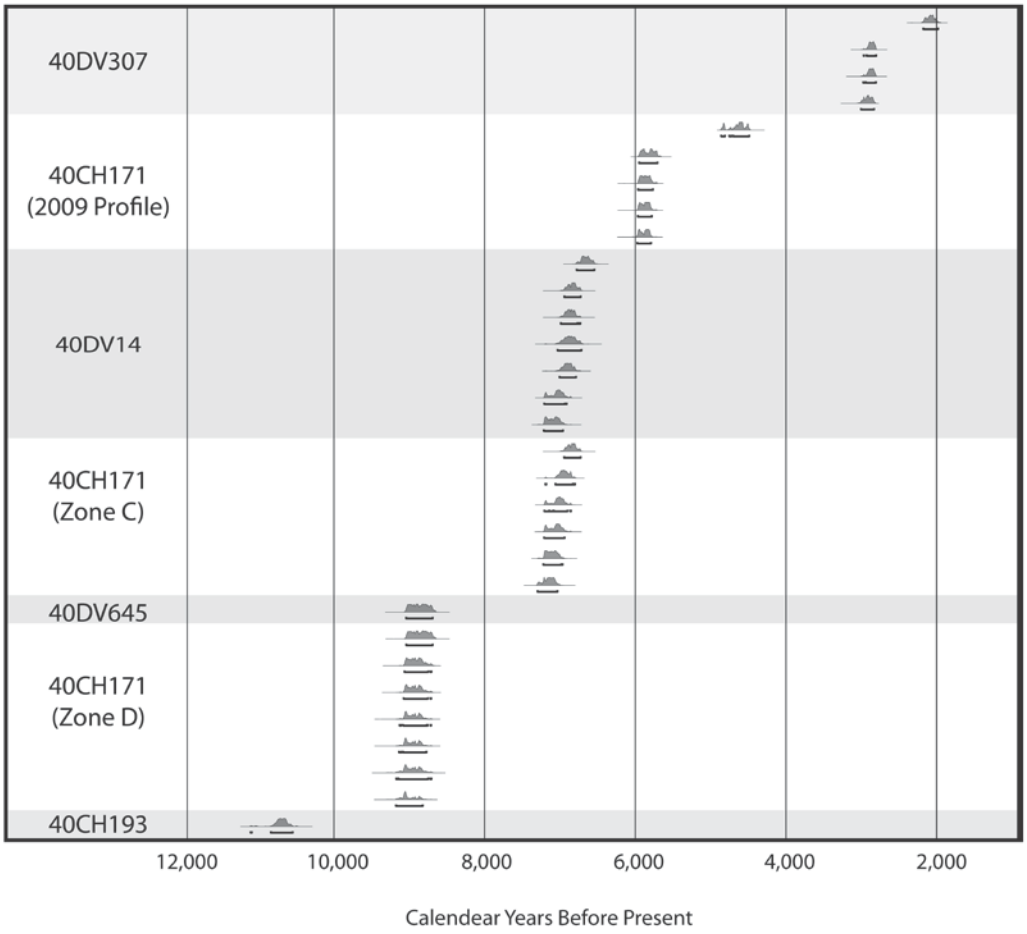

FIGURE 10. Radiocarbon determinations calibrated with OxCal 4.1 using the IntCal 09 curve (Bronk Ramsey 2009).

The precision and close agreement of the dating illustrate the utility of conducting fine screen/flotation column sampling at deeply stratified sites, and also the value of submitting multiple samples for dating. The banks and adjoining uplands along the Cumberland River west of Nashville contain archaeological data useful to documenting the range of human cultures present in the Mid-South over the past 15, 000 years from the late Pleistocene through later Holocene eras. Investigations of project materials are ongoing, with more fieldwork planned for the summer of 2012 and beyond to explore human existence over the long term in the Mid-South.

Notes.

[1] Comprehensive artifact inventories from these sites will be submitted as part of a final report to the U.S. Army Corps of Engineers (Nashville District), Tennessee Historical Commission, and Nashville Metro Parks.

[2] All flotation column samples were processed using the methodology outlined in Pearsall (1989).

[3] All radiocarbon determinations are reported as uncalibrated unless otherwise noted.

[4] A follow-up visit to the site in mid-April 2012 found another looted stone-box grave.

[5] We used the “R-Combine” function in OxCal 4.1 (Bronk Ramsay 2009) to average multiple radiocarbon dates.

[6] Fieldwork at the site conducted by Miller in September 2009 was undertaken under ARPA

Permit DACW62-4-09-0414. Subsequent fieldwork in July and August 2010 was under ARPA Permit DACW62-4-10-0438.

[7] The U.S. Army Corps of Engineers, Nashville District collected the human skeletal remains and is working in accordance with the Native American Graves and Repatriation Act (NAGPRA) to repatriate the remains.

[8] Reviewers suggested the point may be a re-worked Kirk Corner-Notched. Given its position in the deposits at a level consistently dated to younger than 5000 14C yr BP, we continue to hold that it is probably a re-worked Matanzas-like form, similar to the Big Sandy side-notched points from Strata II and III at Eva (Lewis and Lewis 1961:38). However, it is possible that the shell midden was itself built on a much older surface, or that point was an Early Archaic type that was subsequently curated and re-deposited on a Late Archaic surface.

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THE HARPETH SHOALS MARINA SITE (40CH195): A TERMINAL ARCHAIC FIRE-CRACKED ROCK COMPLEX ON THE CUMBERLAND RIVER, CHEATHAM COUNTY, TENNESSEE

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In 2006, data recovery excavations at 40CH195 along the Cumberland River in Cheatham County, Tennessee resulted in the discovery and excavation of 29 intact fire-cracked rock (FCR) features. Radiocarbon dates from the features place activity within the Late or Terminal Archaic periods (2820–3820 BP). FCR feature complexes of similar nature and age have been found throughout the Eastern Woodlands and elsewhere in North America, and are interpreted as representing a range of cooking facilities. Morphology (size, shape, and evidence of burning) and content analysis of the FCR features assign them to the general functional categories of earth ovens, FCR pits without evidence of burning, or dump/discard piles. Radiocarbon dates from fourteen of the FCR features at 40CH195 provide data on their contemporaneity as well as site structure and use history. The evidence suggests the site served as a resource-processing center where varied cooking techniques were applied to a diverse set of raw foods. Comparable archaeological and ethnographic evidence place the site in the context of increased use of plant resources requiring special processing in the Late and Terminal Archaic period. Finally, analysis of Chenopodium seeds recovered from the site serves as a contribution to research on the early stages of plant domestication in the region.

Fire-cracked rock (FCR) is arguably one of the most prevalent artifacts recovered from archaeological sites in the Eastern Woodlands, and particularly from the Archaic period. This artifact class forms when rock types such as sandstone, limestone, and granite are subjected to intense heat exposure, resulting in the presence of angular, fractured, and unweathered surfaces that show no sign of intentional modification (i.e., knapping). Dense concentrations of FCR identified in archaeological contexts throughout the region vary in morphology and content, and are thought to represent the remains of various cooking facilities such as earth ovens, open-air hearths, and steam or stone boiling pits (Thoms 2007). Complexes of FCR features have been identified across North America in areas including the Eastern Woodlands, western mountain regions, and Plains (e.g., Benison 1999; Carstens and Watson 1996; Driver and Massey 1957; Petraglia 2002; Sassaman 1996; Thoms 2003).

Radiocarbon data indicate that FCR complexes are especially prevalent in the latter part of the Late Archaic or Terminal Archaic in the Eastern Woodlands (Benison 1999). Some researchers suggest that the appearance of rather widespread burned rock complexes in the Eastern Woodlands coincides with a shift in subsistence regimes that exhibited increased reliance on seed bearing plants (Watson 1996). This shift may have led to a variety of cooking innovations that required technological advances such as the advent of ceramics and more specialized lithic tools. Plants containing edible seeds and leaves undoubtedly required the use of heated stone cooking techniques such as pit hearth or earth oven cooking and stone boiling to reduce toxin levels (Wandsnider 1997).

During the spring and summer of 2006, TRC, Inc. conducted data recovery excavations at 40CH195, a FCR feature complex along the Cumberland River west of Nashville (Wampler 2007). This article first discusses the site's natural setting and previous investigations, followed by presentation of the morphology and contents of the FCR feature complex. Our research focuses on the range of activities possibly carried out at the location and, through examination of radiocarbon dates, an interpretation of site development. Secondly, we put this information into context regarding similar Terminal Archaic sites in the region, and general archaeological and ethnographic knowledge on cooking and food processing activity associated with pits and fire-heated rock. Finally, this research links the site to intensified use of plants during the Late Archaic period through the discovery and analysis of a cache of *Chenopodium* seeds from a site refuse pit (Feature 35). The seeds also provide some evidence of the move toward plant domestication that many researchers link to this intensification of plant use.

Late Archaic Occupations of the Middle Cumberland River Valley in Regional Perspective

Much of what is understood about human occupation during the Late Archaic in the Mid-South region stems from a substantial amount of investigation and research of numerous shell mound and/or midden sites in the Green River Valley in west-central Kentucky. The most intensively excavated sites were Late Archaic Indian Knoll phase base camps dating from ca. 4500 to 3500 BP (Rolingson 1967). Trends in the recovery of plant remains at Indian Knoll settlements suggest an increase in plant utilization. For example, the lower levels at Carlston Annis contain hickory nutshell and very few plant remains, while upper levels contain predominately acorn shells and some squash remains (Crawford 1982). However, Carlston Annis and other Indian Knoll sites have not yielded good evidence of early plant domestication (Marquardt and Watson 2005).

Comparably, Late Archaic occupations are less understood in the Middle Tennessee region. Late and Terminal Archaic components have been identified and investigated at several sites along the Middle Cumberland River drainage, central and lower Duck River, and also the Buffalo and Elk River drainages (Figure 1). Some of the sites represent seasonally and/or annually occupied base camps, whereas others appear to be short-term encampments and/or smaller parts of multi-component assemblages. Three sites investigated in the Middle Cumberland River drainage in the northeast periphery of the Central Basin offer the most impressive amount of data pertaining to Late Archaic (specifically Terminal Archaic) occupations in the region. These seasonally occupied base camps comprise the Robinson (40SM4; Morse 1967), Penitentiary Branch (40JK25; Cridlebaugh 1983), and Chapman (40JK102; Bentz 1986) sites.

Sixty-five archaeological sites have been previously identified within a five-mile (eight-km) radius of 40CH195. Twenty-two of these sites likely contain Late Archaic components, generally defined by the recovery of Late Archaic projectile points/knives (six sites are single-component, with the other 16 sites recorded as multi-component). These particular sites are largely confined to the Cumberland River valley, with no sites recorded in the adjacent uplands. This result is likely a product of less systematic

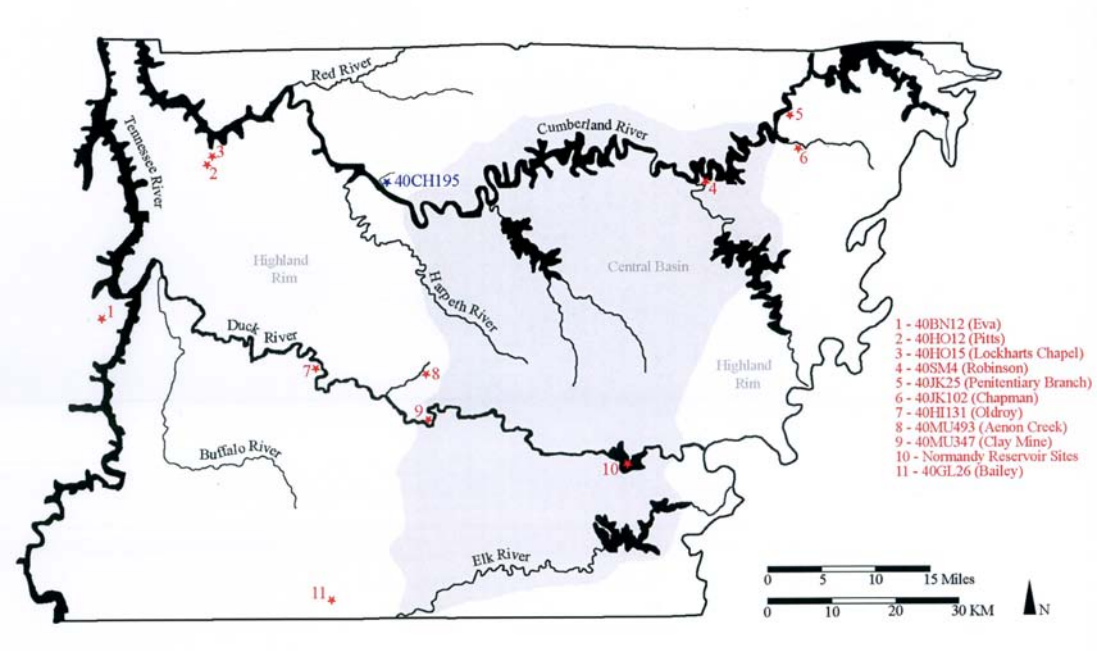

FIGURE 1. Major drainages and location of selected Late Archaic sites in Middle Tennessee region.

archaeological investigation in the upland areas rather than an actual absence of sites. Very few sites recorded near 40CH195 have undergone extensive testing or analysis.

Excavation results from site 40CH50 located just upstream (on the opposite bank of the Cumberland River) offer relevant comparative data for 40CH195 (Dicks 1999). The 40CH50 investigation focused on Late Archaic and Early Woodland (Terminal Archaic) components, with cultural deposits extending nearly three meters below ground surface. A total of 91 cultural features were investigated across three well-developed cultural surfaces. These features were assigned to six categories: surface hearths, pit hearths, earth ovens, pits, artifact concentrations, and postholes. The surface/pit hearths and earth ovens were associated with dense concentrations of FCR. Plant remains, particularly seeds and fruits, were well represented within the Terminal Archaic/Early Woodland component. Miniscule amounts of nutshell were present. Maygrass comprised the most prevalent plant recovered, along with chenopod, wild bean, bedstraw, little barley, pokeweed, amaranth, smartweed, persimmon, wild grapes, and blackberry seeds (Dicks 1999).

Initial Site Investigations

Site 40CH195 is situated on the Cumberland River floodplain approximately 394 feet (120 m) northeast of its current channel on a meander bend of Marks Creek at an elevation of approximately 400 feet (122 meters) above mean sea level (AMSL). The width of the floodplain averages 0.9 miles (1.5 km) in the region and its interior edge is bounded by steep uplands that often form sheer limestone bluffs that rise to rolling karstic plateaus (Sherwood 2006).

The site was identified during archaeological investigations prompted by the proposed development of the Harpeth Shoals Marina in Ashland City. The

FIGURE 2. View of excavations at 40CH195, facing south.

marina development project was to alter the Marks Creek channel at this location to create a canal for a marina basin north of the channel to the Cumberland River. Mechanical investigations on the peninsula north of Marks Creek identified three intact pits situated beneath one meter of sterile alluvium (Barker 2005), These pits were described as shallow burned basins containing FCR, charred archaeobotanical remains, and some lithic debitage. Additional investigations for the project took place in the area to the south (between Marks Creek and the Cumberland River) but did not locate significant cultural remains (McKee 2005).

Data Recovery Results

Data recovery excavations were conducted from early May through mid-June 2006 (Wampler 2007). Explorations consisted of the mechanical removal of approximately one meter of overburden to achieve three primary objectives: (1) completely expose the buried cultural surface or zone at the site; (2) identify and map all cultural features; and (3) excavate all of the identified cultural features (Figure 2).

Thirty-two prehistoric cultural features were identified and mapped at the site. The features clustered in three discrete areas (Clusters 1–3) running north-south across a buried surface ranging 1.0–1.8 meters below the original ground surface in the eastern site area located east of the Marks Creek meander (Figure 3). Twenty-nine features consisted of FCR deposits of varied morphology, along with two dense charcoal concentrations and one small refuse pit. Analysis of morphological characteristics and artifact content allowed us to divide these 29 features into three main categories: (1) earth oven; (2) FCR pit; and (3) FCR discard and/or dump.

Fire-Cracked Rock Features

Eight FCR features were basins that exhibited intense *in situ* firing evidenced by a reddened/burnt clay basin surface and/or a dense charcoal layer near the basin surface (Figures 4 and 5). These features, interpreted as earth ovens, appeared circular in plan-view and ranged in diameter (long axis) from 88–178 cm. Generally, most of the earth ovens were relatively shallow with an average depth of 20 cm. However, Feature 8 was much deeper at 52 cm.

Six features comprise basins that displayed little evidence of firing and were

categorized as FCR pits. These pits were also circular (but generally smaller) in plan-view than the earth ovens, ranging from 33 cm to as large as 100 cm in diameter along their long axis. These features lacked clear evidence of intense firing activity and extended on average 18.5 cm below definition.

The remaining fifteen FCR features were extremely shallow, diffuse in profile, and often clustered around the deeper basin features. Generally circular in plan-view, these FCR features ranged from 33–64 cm in diameter along the long axis, and were defined as the location of discard episodes or maintenance activities associated with the earth-ovens and/or FCR pits.

Cultural Material

Cultural artifacts recovered from screened feature fill and flotation samples included relatively low amounts of lithic material and substantial amounts of FCR. The lithic assemblage included Late Archaic stemmed projectile points (*n*=3), non-diagnostic biface fragments (*n*=11), flake tools (*n*=5), and debitage (*n*=848). No ceramic artifacts were recovered. Overall, relatively low amounts of plant and animal materials were recovered from the FCR features.

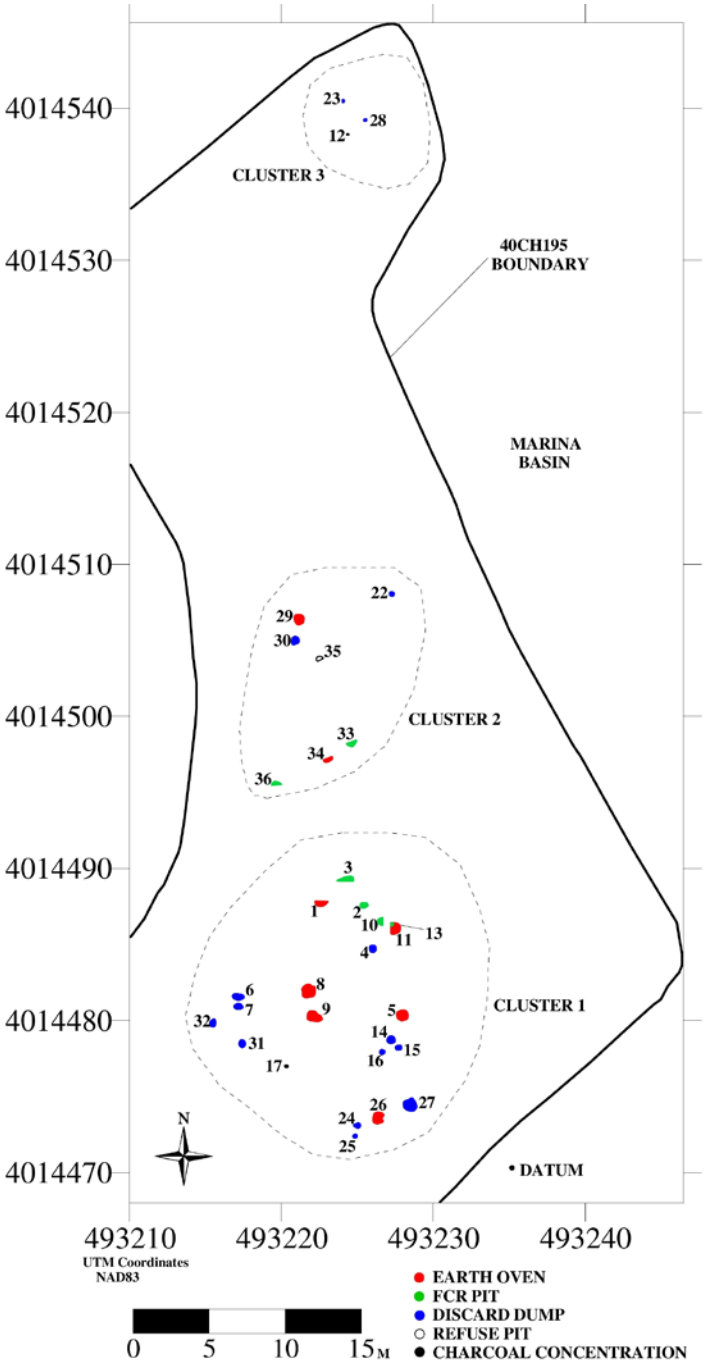

FIGURE 3. Plan view of feature types identified at 40CH195.

Analysis of the 235.29 kg (518.7 lbs) of FCR recovered from 40CH195 focused on the general makeup of the sample in terms of weight and fragmentary occurrence. The sample consisted solely of fragmented limestone and chert. The FCR surfaces were not water-worn, suggesting the rock was obtained from the surrounding uplands.

FIGURE 4. Feature 9, profile.

FIGURE 5. Exposed charcoal layer (Zone B) noted in Feature 9.

The FCR analysis did not include exact numbers of limestone versus chert within the assemblage, but all feature fill FCR collected for flotation was graded by size. FCR counts by size and overall weight revealed the sample to be highly fragmented. Over seventy percent (70.7%) of FCR fragments within the overall size grade sample measured less than one inch. Just over 26 percent (26.5%) of the FCR fragments measured greater than one inch but less than two inches in size, and about three percent (2.8%) measured greater than 2 inches. Only three features (Features 5, 9, and 27) contained FCR measuring above 2 inches in size.

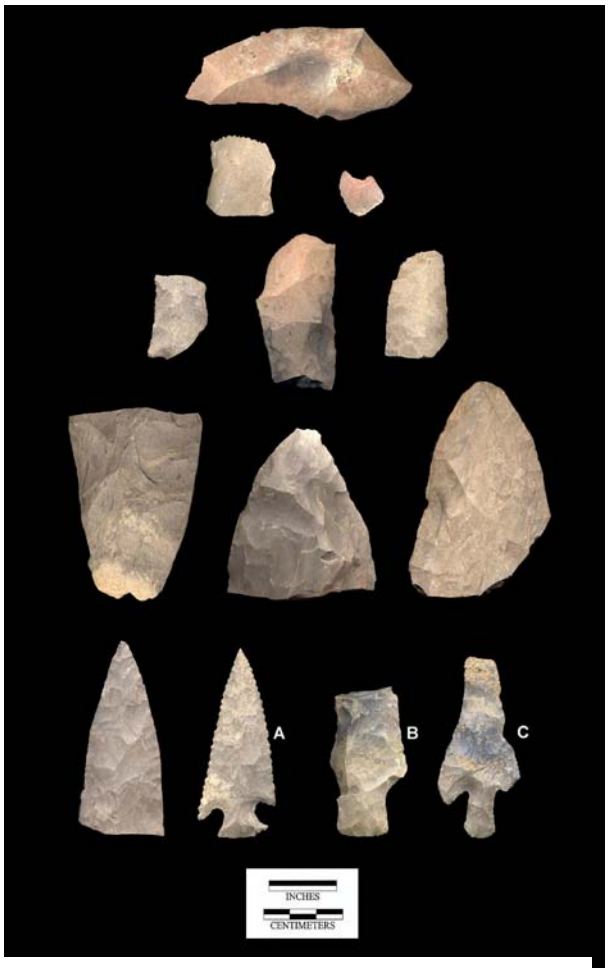

FIGURE 6. Lithic flake tools, biface fragments and PP/Ks (A-C) from 40CH195.

Three Late Archaic projectile points were recovered during the data recovery excavations (Figure 6). Two points were collected from the buried surface during mechanical excavations (Figure 6a-b). The third was recovered in Zone A of Feature 8, one of the potential oven features (Figure 6c). The specimen in Figure 6b represents a typical Late Archaic stemmed variant. Figure 6c appears to represent a Terminal Archaic barbed Wade variant. In addition, charred wood from Feature 8 returned an uncalibrated date of 3000 ± 70 BP that firmly falls within the Terminal Late Archaic period.

Figure 6a is a nearly complete barbed

point with deep c-like notches. The point somewhat resembles an Early Archaic Kirk Corner Notched, although the haft element notches appear too wide for this assignment. Instead, Figure 6a more closely resembles what Morse (1967) termed the Robinson point from the Terminal Archaic Robinson site (40SM4) established upriver in Smith County. Similar points were also recovered from Penitentiary Branch (40JK25; Cridlebaugh 1986).

Plant Remains

Plant material recovered from features totaled 144.6 grams. Carbonized material was retrieved from 312.3 liters of fill collected from 25 features (Table 1). Analyzed remains were sorted into

TABLE 1. Plant Remains by Weight (g) Identified in Feature Flotation Samples.

Feature Number	Floated Fill Volume (liters)	Wood	Nutshell	Seed and Fruit	Total Plant Remains
1	13.5	1.2	<0.1	<0.1	**1.2**
2	23.5	0.5	0.5	0.0	**1.0**
3	5.3	0.1	0.3	0.0	**0.4**
4	12.3	2.6	0.8	<0.1	**3.4**
5	21.4	0.5	34.7	<0.1	**35.2**
6	7.5	0.4	<0.1	0.0	**0.4**
7	10.6	0.0	0.0	0.0	**0.0**
8 Zone A	12.0	0.6	0.1	0.0	**0.7**
8 Zone B	1.5	<0.1	<0.1	0.0	**<0.1**
8 Zone C	3.5	3.0	0.0	0.0	**3.0**
8 Zone D	10.5	0.8	<0.1	0.0	**0.8**
9 Zone A	9.5	0.0	<0.1	<0.1	**<0.1**
9 Zone B	6.4	8.5	0.0	0.0	**8.5**
10	5.4	0.2	<0.1	0.0	**0.2**
11 W. 1/2	19.5	0.6	0.5	0.0	**1.1**
11 E. 1/2	14.6	0.8	0.1	0.0	**0.9**
14 E 1/2	23.4	2.7	0.2	<0.1	**2.9**
15	6.0	<0.1	<0.1	0.0	**<0.1**
16 E 1/2	3.1	0.1	<0.1	<0.1	**0.1**
17	3.0	8.0	0.0	0.0	**8.0**
24	4.4	0.0	0.0	0.0	**0.0**
25	1.9	<0.1	<0.1	0.0	**<0.1**
26	8.4	0.2	<0.1	0.0	**0.2**
27	5.4	<0.1	<0.1	0.0	**<0.1**
29	3.7	0.1	0.0	<0.1	**0.1**
32	28.9	4.1	0.2	0.2	**4.5**
33	11.3	<0.1	0.2	0.0	**0.2**
34	7.4	0.8	<0.1	<0.1	**0.8**
35	21.9	31.2	36.3	0.7	**68.2**
36	6.5	0.0	2.8	0.0	**2.8**
Total:	**312.3**	**67.0**	**76.7**	**0.9**	**144.6**

general categories of nutshell, wood, and seeds/fruits. Weight and number of fragments were recorded for each provenience. For wood charcoal, a maximum of 35 fragments was randomly chosen from each sample for species or genus identification.

Nearly 50 percent of all plant material (68.2 g) came from one small refuse pit (Feature 35, see below). Plant remains from the remaining 24 FCR features totaled approximately 76.4 g. Twenty-one of these features contained less than two grams of plant material and six features yielded less than 0.1 g.

Nutshell represented 53% of the total weight of plant material recovered, followed by wood (46%) and seed/fruit material (<.01%). Nutshell was recovered from 20 FCR features (Table 2) and consisted of hickory (*Carya* sp.; 30.1 g), walnut (*Juglans nigra*; 10.4 g), acorn (*Quercus* sp.; <0.1 g), and hazelnut (*Corylus*; <0.1 g). Eighty-six percent of the total nutshell weight was recovered from Feature 5 and included hickory (28.7 g)

TABLE 2. Nutshell Remains by Weight (g) Identified in Feature Flotation Samples.

Feature Number	*Carya* sp. (hickory)	*Corylus* (hazelnut)	*Juglans nigra* (walnut)	*Quercus* sp. (acorn)	Total Nutshell Remains (g)
1				<0.1	**<0.1**
2	0.4		0.1		**0.5**
3			0.3		**0.3**
4	0.8			<0.1	**0.8**
5	28.7		6.0		**34.7**
6	<0.1				**<0.1**
7					**0.0**
8 Zone A	0.1		<0.1	<0.1	**0.1**
8 Zone B			<0.1		**<0.1**
8 Zone C					**0.0**
8 Zone D			<0.1		**<0.1**
9 Zone A	<0.1				**<0.1**
9 Zone B					**0.0**
10			<0.1		**<0.1**
11 W. 1/2		<0.1	0.5		**0.5**
11 E. 1/2			0.2		**0.2**
14 E 1/2			0.2	<0.1	**0.2**
15	<0.1				**<0.1**
16 E 1/2	<0.1				**<0.1**
17					**0.0**
24					**0.0**
25	<0.1				**<0.1**
26	<0.1				**<0.1**
27	<0.1				**<0.1**
29					**0.0**
32	0.1	<0.1	0.1	<0.1	**0.2**
33			0.2		**0.2**
34			<0.1	<0.1	**<0.1**
35	31.1	<0.1	5.1	0.1	**36.3**
36			2.8		**2.8**
Total:	**61.2**	**<0.1**	**15.5**	**0.1**	**76.8**

TABLE 3. Distribution of Wood Species by Count Identified in Feature Flotation Samples.

Feature Number	*Arundinaria* sp (cane)	*Acer* sp. (maple)	*Carya* sp. (hickory)	*Catalpa* sp. (catalpa)	*Celtis* sp. (hackberry, sugarberry)	*Cercis canadensis* (redbud)	*Fraxinus* sp. (ash)	*Gleditsia triacanthos* (honey locust)	*Juniperus virginiana* (Eastern red cedar)	*Juglans* sp. (walnut/butternut)	*Liriodendron tulipifera* (yellow poplar)	*Morus rubra* (red mulberry)	*Nyssa sylvatica* (blackgum)	*Platanus occidentalis* (sycamore)	*Prunus serotina* (black cherry)	*Riobinia pseudoacacia* (black locust)	*Quercus* sp. (oak)	*Salix* sp. (willow)	*Ulmus* sp. (elm)	*vitis* sp. (grape vine)	monocot stem (probable grass)	Unidentifiable
1	1					13	6	1	1		1				3	7	1		1			
2	1						5	2								3	2		2			
3							1	1								2			1			
4									5		1		17			7						
5	8						9			4												
6	4						5														10	
7																						
8 Za					8		3										1					
8 Zb								3													2	
8 Zc	4				7		3										1				15	
8 Zd			1				10	2									3					
9 Za																						
9 Zb				2			3	14								7			2			
10	1		2										10									
11 W1/2							3			3		3				2	1					
11 E1/2							1	2											5			
14 E1/2							19	4									1	1				
15																				4		
16 E1/2							1									10						
17									30													
24																						
25																					2	
26	6						1															
27																					4	
29	2					2	2		1							2						
32	2						14	3								1						
33																					4	
34							14		1							5						
35		5	4				5	1			11				2	2						
36																						
Total	**29**	**5**	**7**	**2**	**15**	**15**	**105**	**33**	**3**	**35**	**12**	**7**	**1**	**3**	**27**	**5**	**48**	**10**	**1**	**11**	**4**	**37**

and walnut (6.0 g).

Twenty-one identified wood species are listed in Table 3. The most prevalent species were Ash (*Fraxinus* sp.), oak (*Quercus* sp.), walnut/butternut (*Juglans* sp.), honey locust (*Gleditsia triacanthos*), cane (*Arundinaria* sp.), black cherry (*Prunus serotina*), hackberry (*Celtis* sp.), redbud (*Cercis canadensis*), yellow poplar (*Liriodendron tulipifera*), and black locust (*Riobinia pseudoacacia*).

Nine FCR features contained seed and fruit remains (Table 4). These remains included a gourd (*Cucurbita*) rind fragment, persimmon (*Diospyros virginiana*), honey locust, grape (*Vitis* sp.),

TABLE 4. Seed and Fruit Remains by Count Identified in Feature Flotation Samples.

Feature Number	*Chenopodium berlandieri* ssp. *Jonesianum* (goosefoot, chenopod)	*Cucurbita pepo* ssp. *Ovifera* cf. *var. ozarkana* (gourd)	*Diospyros virginiana* (persimmon)	Fabaceae (wild bean family)	*Galium* sp. (bedstraw)	*Gleditsia triacanthos* (honey locust)	Poaceae sp. (grass family)	*Polygonum* sp. (smartweed)	*Vitis* sp. (grape)	Seed coat fragments
1							1f			
4						3f			1f	14f
5									1w, 4f	
14 E 1/2			8f							
16 E 1/2									1f	
29								1w		
32			8f						4w, 12f	
34		1f			1f					
35	746w&f		12f	1w					8w, 36f	3f
Total:	**746**	**1f**	**28f**	**1w**	**1f**	**3f**	**1f**	**1w**	**13w, 54f**	**17f**

smartweed (*Polygonum* sp.), and wild bean seeds (Fabaceae). Other unidentifiable seed fragments were also present. See Feature 35 discussion below for information on *Chenopodium* seeds recovered from the site.

Feature 35 – Refuse Pit

The presence of highly fragmented animal bone was noted during the initial exposure of Feature 35 (Figure 7). This feature is in striking contrast with other 40CH195 features in terms of its rich organic charcoal, bone-filled matrix, and near absence of FCR. The entire feature contents were collected for flotation. Seventy-one grams of fragmented and unidentifiable animal bone was obtained from the feature fill.

Nearly seventy grams (67.7 g) of carbonized plant material was retrieved from the Feature 35 fill, including 746 *Chenopodium* seeds. Recovered nutshell (36.3 g) consisted mainly of hickory fragments (31.1 g) with smaller amounts of walnut (5.1 g), acorn (0.1 g), and hazelnut (<0.1 g). Wood fragments constituted 31.2 grams of the total plant material weight. Seed/fruit material consisted of persimmon seed fragments (*n*=12), grape seeds (8 whole, 36

FIGURE 7. Plan and profile photograph of Feature 35.

fragments), and one whole wild bean seed.

Radiocarbon Dates

Fifteen samples of carbonized wood from 40CH195 features were submitted to Beta Analytic for analysis (Table 5). The resulting dates between 2820–3820 BP (uncalibrated) place the site occupation firmly within the Terminal Late Archaic period in the project region. The dates provide very useful information regarding occupation duration, intra-site feature relations, and geoarchaeological considerations.

Occupation Span

The overall tight cluster of dates provides strong evidence for Terminal Late Archaic occupation of the site. Uncalibrated mean dates and associated standard deviation ranges illustrate the site was likely visited repeatedly over a span of approximately 1000 years from 2820–3820 BP (Figure 8). The uncalibrated date of 3820 $\pm$ 40 BP for Feature 28 within Cluster 3 in the far northern portion of the site may represent a distinct earlier site visit. Overlapping standard deviations for the other fourteen dates makes it difficult to discern the duration of additional site occupations.

Overall, features within Cluster 1 represent more recent site occupation than those in Cluster 2, with the exception of Feature 26 (earth oven). Near identical dates returned for Features 1, 8 (Zone A), 9, and 13 within Cluster 1 suggest they

TABLE 5. Radiocarbon Dates Obtained from Carbonized Wood from Fifteen 40CH195 Features.

Provenience	*Laboratory Number*	*RCYBP*	*δ13C*	*Intercept (BP)*	*1σ*	*2σ*
Feature 14	Beta-220104	2820 ± 50	-23.8	2920	2970-2860	3060-2790
Feature 5	Beta-220096	2930 ± 60	-22.7	3070	3200-2970	3260-2890
Feature 1	Beta-220095	3000 ± 60	-23.9	3210	3310-3300 3260-3080	3350-2980
Feature 8 ZA	Beta-220097	3000 ± 70	-24.7	3210	3320-3070	3360-2960
Feature 9	Beta-220100	3020 ± 60	-25.8	3230	3330-3140	3360-3000
Feature 13	Beta-220103	3040 ± 50	-27.2	3250	3340-3200	3360-3080
Feature 11	Beta-220102	3100 ± 50	-24.2	3340	3370-3260	3400-3210
Feature 8 ZD	Beta-220099	3170 ± 60	-26.1	3380	3460-3350	3480-3260
Feature 8 ZC	Beta-220098	3180 ± 40	-25	3390	3450-3360	3470-3340
Feature 10	Beta-220101	3240 ± 60	-24	3460	3490-3390	3600-3350
Feature 29	Beta-220107	3320 ± 40	n/a*	3560	3600-3480	3640-3460
Feature 35	Beta-220109	3350 ± 50	-24.7	3580	3640-3490	3700-3460
Feature 34	Beta-220108	3400 ± 50	-23.1	3640	3700-3580	3820-3780, 3730-3490
Feature 26	Beta-220105	3470 ± 40	-24.4	3710	3820-3680	3840-3640
Feature 28	Beta-220106	3820 ± 40	n/a*	4230	4260-4150	4380-4090

* sample size too small

may have been created during a visit to the site ca. 3000 BP.

Four stratified zones were recognized within Feature 8 (Zones A–D). Zones A, C, and D were dated to confirm if Feature 8 represented two features superimposed over one another. Dates for Zones C and D are virtually identical and their standard deviations do not overlap with the more recent Zone A date, providing evidence for superimposition of two separate fill episodes within Feature 8.

Intra-Site Feature Relations

The radiocarbon dates also aid in interpreting internal feature clustering within Clusters 1 and 2. Three internal feature groupings are discussed: (1) Features 5, 14, 15, and 16 in Cluster 1; (2) Features 24, 25, 26, and 27 in Cluster 1; and (3) Features 29, 30, and 35 in Cluster 2.

Feature 5, an earth oven, contained evidence of intense heat or firing. Features 14, 15, and 16 appear to

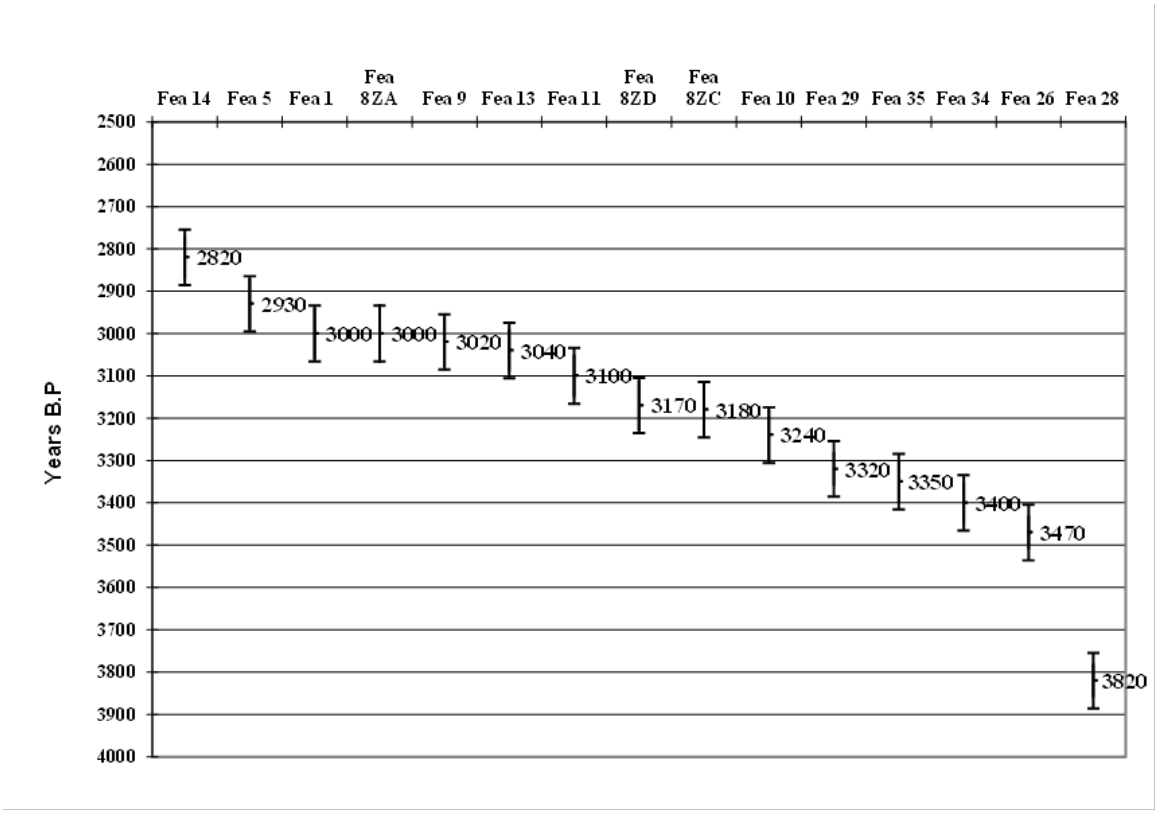

FIGURE 8. Distribution of uncalibrated radiocarbon dates from features at 40CH195.

represent discard locations associated with maintenance and cleaning activities for Feature 5. The uncalibrated dates from Features 5 (2930 ± 60 BP) and 14 (2820 ± 50 BP) are the two most recent dates from the site. Their standard deviations do overlap significantly and their intercepts (3070 and 2920 BP) are only separated by 150 years. T-test analysis available in Calib 5.1 beta (Stuiver and Reimer 1993) reveals the two-sigma calibrated dates are statistically the same (T=10.58, X_i^2[.05]=3.84), strongly suggesting the features are related in age. The presence of two other similar discard features (Features 15 and 16) situated in close proximity to Features 5 and 14 strongly suggests they are also related.

Furthermore, the same can be said for clustering at Features 24, 25, 26, and 27, and also for Features 29, 30, and 35. The latter cluster consists of an earth oven (Feature 29), a discard location (Feature 30), and a refuse pit (Feature 35). Dates from Features 29 and 25 are virtually identical, suggesting that FCR may have been cleaned from the earth oven and discarded (Feature 30) with perhaps another pit (Feature 35) dug to discard animal and plant food refuse.

Geoarchaeology

Depth below datum of all 40CH195 features ranged from 88–178 cm. Features within Clusters 1 and 2 ranged from 88–135 and 122–178 cm respectively, suggesting that deposits within Cluster 2 could have been situated stratigraphically or vertically below those of Cluster 1. However, geoarchaeological work did not identify stratified surfaces. Overall, the deposits or archaeological materials range in age from 2930–3820 BP (uncalibrated) and are buried under Late Holocene alluvium. This suggests

the area was stable until around 3000 BP when extensive overbank deposition sealed the deposits (Sherwood 2006). This deposition would not have occurred in one massive event but rather a series of smaller scale flood episodes. The general time period corresponds to global climate change associated with cooler temperatures and increased precipitation. These shifts are linked to significant increases in flooding within North America (Kidder 2006; Little 2003), which may explain the rapid burial of archaeological deposits at 40CH195. Furthermore, the overlapping feature dates support the conclusion they are all situated within a single buried surface and are not stratigraphically separated. Adding further credence to this argument are the contemporaneous dates for Feature 26 (Cluster 1) and Feature 34 (Cluster 2) with contrasting depths of 90 cm and 156 cm below datum, respectively.

Comparative Analysis

The construction and subsequent function of earth ovens vary widely across archaeological contexts and numerous historically known native cultures in North America. Extensive archaeological investigations on burned rock complexes conducted in west-central Texas (Black et al. 1997; Decker 1997; Ellis 1997; Howard 1991) and an ethnographic account from the northwestern United States (Smith 2000) provide a generalized view of earth oven form and use. Derring (1999) describes an earth oven as consisting of a dug out shallow pit containing a fire at its base with rocks placed on top. Once heat has sufficiently transferred to the rocks, plant material is packed on top of the heated stone to provide steam. Food items (plants and/or animals) are placed either on or within the pack layer. The oven is then covered with earth and the food items are allowed to cook for 1–2 days. Smith (2000) details six types of cooking facilities for the Kalispel people residing in the Northern Rockies in the state of Washington during the mid-1930's. The facilities were used to cook a variety of root foods and mammals, and consist of a closed earth oven (as described above), an open earth oven where rocks are heated in an adjacent fire or hearth, an open surface oven, an open stone boiling pit, and stone boiling in above-ground containers.

The authors found it difficult to discern more intricate morphological attributes of the earth ovens at 40CH195, such as a packing layer or whether or not the features were covered with a top layer of earth as detailed by Derring (1999). All of the apparent earth ovens, except perhaps Features 1 and 5, contained both reddened basins and charcoal lenses. Looting activities associated with Feature 1 made it difficult to conclude whether the feature contained charcoal concentrated near its basin. Feature 5 did, however, appear not to contain a charcoal lens. This fact suggests its formation may have involved the direct application of hot rocks, which could also result in a reddened basin without the occurrence of *in situ* firing.

The apparent lack of surface hearths or the remains of distinct campfires at 40CH195 suggests rocks were heated or fired within the earth ovens. These may represent Smith's (2000) description of closed earth ovens as opposed to an open oven where rocks are transferred from an adjacent fire. However, Feature 5 may represent an open oven. Smith (2000) does not include the occurrence of trash or discard areas relating to earth oven maintenance as an FCR feature type. Perhaps the fifteen circular, diffuse,

and shallow FCR features, along with the associated amorphous FCR scatters, are the result of maintenance and subsequent discard episodes.

Dicks (1999) describes earth ovens at nearby sites 40CH50 and 40CH73 as containing alternating layers of FCR and charcoal with reddened basin surfaces, and considers these the most formal hearth-like features at the sites. Like the features at 40CH195, shallow FCR pits (Category 4) at 40CH50 and 40CH73 contain dense FCR but generally lack charcoal. Furthermore, Dicks' (1999) Category 5c (FCR concentrations) are described as appearing diffuse and disturbed and representing discharge piles relating to maintenance of earth ovens. In contrast to 40CH195 features, however, sites 40CH50 and 40CH73 apparently contained surface hearths or thin lenses of FCR, charcoal and baked clay. These features were interpreted as the remains of camp fires, as well as deep and shallow pit hearths that contained much FCR and charcoal, but no burnt basin.

Interestingly, FCR features at 40CH50 and 40CH73 seem to more effectively represent the gamut of cooking features described by Smith (2000) for the Kalispel. Most importantly, the sites contain the remnants of campfires, as Dicks (1999) terms them, suggesting that relationships among the variety of features at the sites may have been much more complex than those at 40CH195. This seems especially evident at 40CH50, where features were particularly numerous and varied across a single surface. Surface hearths or camp fires at the sites may also fall into Smith's surface oven category. Earth ovens identified at 40CH50 may have served in open and/or closed capacities and the range of FCR pits described by Dicks may have also functioned as open and closed earth ovens or stone boiling pits.

The general layout of site 40CH195 and near complete absence of non-FCR features indicate that stone heating was a prominent activity conducted by prehistoric inhabitants. The overall low recovery of seed and fruit material and absence of animal remains from FCR features may be the result of poor preservation and thus makes conclusions regarding exact function somewhat problematic. Plants, and possibly animals, may have been cooked and processed at the site and transported to a nearby larger settlement. This action could have left no archaeological traces of these foods. The recovery of hickory nutshell from FCR Feature 5 (28.7 g) and refuse pit Feature 35 (31.1 g) indicate nut processing was an important site activity. The presence of a large number of chenopod (*Chenopodium* spp.) seeds recovered from Feature 35 provides good evidence that the leaves of this plant were cooked and its seeds processed on site, perhaps within a nearby earth oven (Feature 29).

Evidence of Plant Domestication?

The chenopod seeds from Feature 35 presented an opportunity to initiate an evaluation of wild/weed versus domesticated status for the genus in a Late Archaic context in the Middle South (Crites 2007). Currently, the earliest example of domesticated chenopod (*Chenopodium berlandieri* ssp. *jonesianum*) in Tennessee is from the Oldroy site (40HI131) in Hickman County. An uncalibrated date of 2575 $\pm$ 40 B.P. was obtained from charcoal associated with domesticated *C. berlandieri* from Feature 50 (Amick et al. 1985:164; Crites 1991:75). The earliest direct AMS date for domesticated *C. berlandieri* (3450 $\pm$ 150

B.P.) has been obtained from Cloudsplitter Rockshelter specimens in eastern Kentucky (Smith and Cowan 1987). Of note is that charred wood from Feature 35 at 40CH195 returned an AMS date of 3350 ± 50 B.P. (Wampler 2007).

Ten chenopod seeds from Feature 35 were selected for scanning electron microscope (SEM) evaluation using criteria experimentally established for assessing domesticated vs. non-domesticated status (Smith 1985). Analysis focused on morphological criteria including seed-coat surface expression (i.e., reticulate vs. smooth), seed diameter, seed margin expression (i.e., rounded, biconvex, equatorial banded, or truncated), seed "beak" expression (i.e., pronounced vs. unpronounced), and testa (seed-coat) thickness. Consideration of this set of seed characteristics allows for preliminary discussion of whether or not the 40CH195 sample shows signs of domestication.

None of the seeds from Feature 35 presented a smooth dorsal seed-coat surface that is typically associated with domesticated *Chenopodium* (Crites 2007). The beaks (resulting from the presence of the plant's embryonic root [radical]) on seeds from 40CH195 are rather unpronounced. Domesticated *C. berlandieri* ssp. *jonesianum* typically presents a pronounced beak. Four evaluated seeds presented a "somewhat" truncated margin (Crites 2007). A truncated margin is associated with archaeologically recovered domesticated *Chenopodium*. Other seeds were rounded-to-equatorial banded in cross-section.

Maximum seed diameters ranged from 1.10 mm to 1.40 mm (Figure 9). Seeds of cultigen *Chenopodium* tend to be larger. For example, cultigen *Chenopodium* seeds from Salts Cave, Kentucky and Big

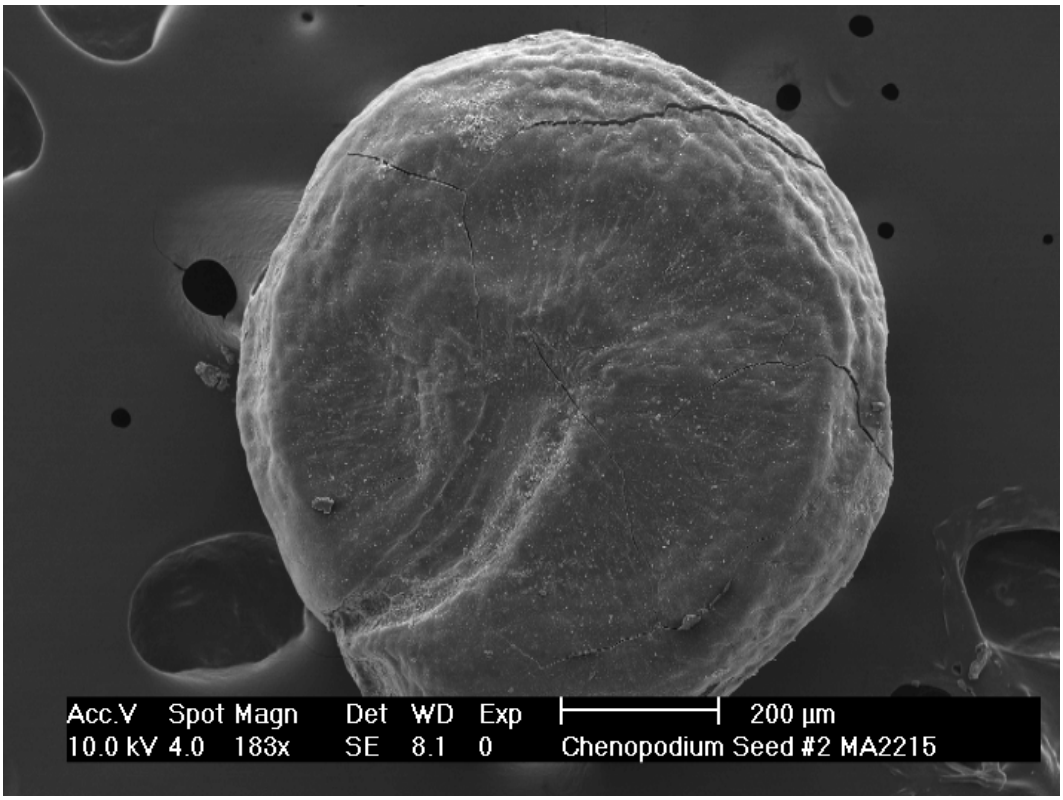

FIGURE 9. SEM digital image of Chenopodium seed #2.

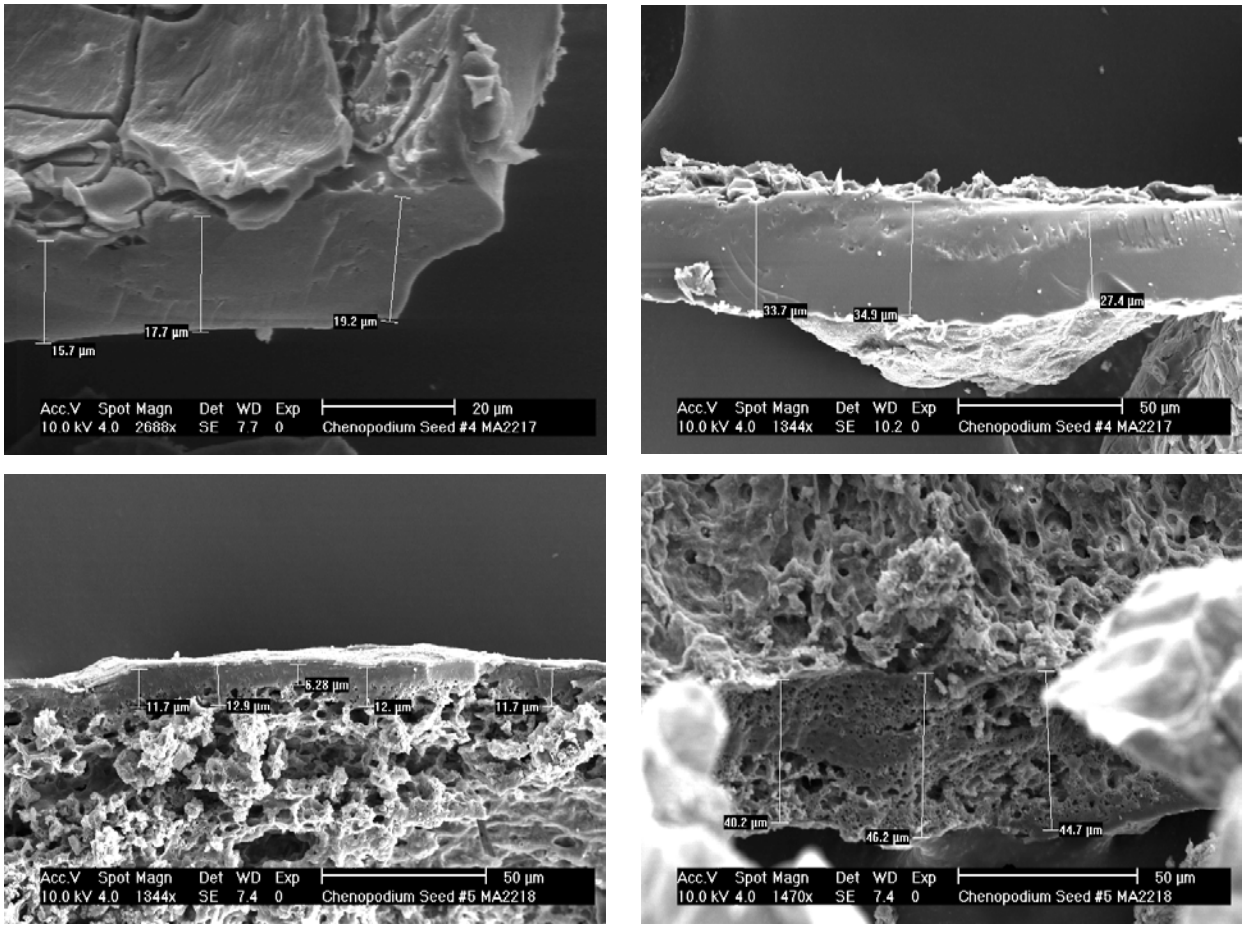

FIGURE 10. SEM digital image of testa thicknesses measured for Chenopodium seeds #4 (upper) and #5 (lower).

Bone Cave in east-central Tennessee yielded mean seed diameters of 1.46 mm-1.83 mm (Gremillion 1993:Table 2).

An essential morphological feature in determining domesticated status for *Chenopodium* is seed-coat (testa) thickness. Modern and prehistoric weed forms of *C. berlandieri* present mean testa thickness greater than approximately 20 microns (µm). Archaeological cultigen populations can present testa thickness of about 20 µm to less than 10 µm. The reduced (or even absent) testa of cultigen forms is an adaptation facilitating rapid germination in the competitive seedbed environment. Multiple testa thickness measurements on seed #4 and seed #5 (Figure 10) seem to indicate a cultigen form. However, additional measurements at other points on the two seed coats are substantially increased (Figure 10) beyond the 20 µm threshold for the domesticated form (Crites 2007). This situation has not been clearly addressed in previous research concerning domestication of *C. berlandieri* in eastern North America.

The small sample of chenopod from 40CH195 presents morphological characteristics more commonly associated with wild/sympatric weed populations. These include reticulate seed-coat, relatively unpronounced beak, seed diameters of 1.10 mm–1.44 mm, and testa thicknesses greater than 21µm. However, some of the seeds present a

somewhat truncated margin and testa thickness in the range of domesticated *C. berlandieri*. This tenuously suggests that the local plant community had begun to respond to the varied processes, both natural and cultural, leading toward domestication. More morphometric data for variation in single-seed testa thickness, surface patterns, seed size, and seed margin presentation are needed for a more confident assessment of the wild/sympatric versus weed/domesticated status of *Chenopodium* from 40CH195.

Conclusions

Morphology and content of the 40CH195 features indicate stone heating for cooking plant and animal remains was a prominent site activity. The data recovery investigations provided a great opportunity to study the full suite of archaeological features at such a single-activity site. Fifteen radiocarbon dates unequivocally date the site occupation to the Terminal Late Archaic period (2820–3820 BP). These dates do not necessarily help to refine cultural chronologies within the overall Late Archaic period of the project region, but they do address issues with regard to intra-site relations. Evidence from Feature 35 (3580 cal BP) may further chronological discussion relating to the emergence of agricultural practices in the project region.

Archaeological data from 40CH195 illustrates that Terminal Late Archaic groups in the region may have seasonally occupied certain locales for a specific and short-term reason (such as cooking and processing food) while residing at a nearby larger and more permanent settlement. The recovered plant remains indicate site occupation took place in the fall. These remains include nutshell, late summer and fall blooming flowering species (chenopod and smartweed), and fall ripening fruit (persimmon, grape, and honey locust pulp).

The lack of storage and structural features reveal 40CH195 was not a permanent settlement or larger base camp like the Robinson and Penitentiary Branch sites along the Cumberland River to the east, or the Normandy Reservoir sites (Duck River) to the southeast. The radiocarbon dates from 40CH195 bolster the assertion that 40CH195 occupations were short term. Dicks (1999) concludes that the Late Archaic components at nearby 40CH50 and 40CH73 do seem to represent base camp type occupations, but also states it is possible the components are the remains of repeated seasonal occupations by special activity task groups. Late Archaic activities at 40CH50 and 40CH73 may well have taken place in repeated seasonal, short term episodes given that features at the two sites are similar those investigated at briefly occupied 40CH195.

Confident conclusions regarding the subsistence strategy of Terminal Archaic people at 40CH195 are hampered by the overall low recovery of plant and animal remains (with the exception of nutshell and chenopod). The presence of other plants foods (such as gourd, persimmon, grape, smartweed, honey locust, and wild bean) contributes to wider regional evidence that Late Archaic groups were increasingly relying on marginal plant foods requiring specialized processing. As a result, these groups perhaps began experimenting, either consciously and unconsciously, with domestication techniques.

This increased reliance and domestication activity is thought to lay the ground work for a more sedentary way of life in later prehistoric periods. Preliminary analysis of the Feature 35 chenopod

seeds determined that while they are more associated with a wild population, some of the seeds exhibited attributes of a domesticated population. Continuing research pertaining to morphological characteristics of the seeds is likely to add to our understanding of emerging plant domestication in the project region.

Archaeological data gathered from 40CH195 has provided a rather detailed snapshot of a (briefly occupied) specialized use site with possible links to more complex sites located nearby. We feel the 40CH195 investigation serves as a rich source for future research into evolving subsistence strategies and settlement patterns along the Cumberland River in middle Tennessee.

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COCKRILLS BEND SITE 17C:[1] A REPRINT FROM THE *SIAS JOURNAL 1972*

John T. Dowd and John B. Broster[2]

(annotated by Kevin E. Smith)

In 1972, John T. Dowd and John B. Broster published the results of their 1969 excavations at a Mississippian site on Cockrill Bend in the one and only issue of the Southeastern Indian Antiquities Journal. Given the limited distribution and availability of that journal, the report has been reformatted here to reach a broader audience. While reformatted, the text and figures reflect a 1972 perspective on the important site now known as 40DV36 and do not necessarily reflect the current perspectives of the authors. Annotations to the original text for clarification are provided by Kevin E. Smith.

The site is located in Davidson County, Tennessee, on a bend of the Cumberland River known as Cockrills Bend. The land at one time was under the ownership of the Cockrill family, among Middle Tennessee's earliest inhabitants. It is presently owned and operated by the Tennessee State Prison Farm.

Site Description and Location

As an archaeological unit, it consists of a primary Middle Mississippian occupation, with a light Woodland zone underneath. When freshly plowed there is evidence of some 10 to 20 structural features or houses. The site lies on a slight rise that runs parallel to the river and covers approximately 200 yards by 50 yards. It is directly across the river from the WMAK Radio Rowers and about 100 yards from the water's edge.

There is a stone box cemetery about 1/3 of a mile SW of the site. We believe that this burial area was part of the major site. It has been looted over the years, to the point where there are probably few undisturbed burials. There is evidence, from the surface, of a midden next to the cemetery, which is of a probably Early Woodland occupation. The midden has been signified "Cockrills Bend Site 17a" and will be covered in a later report.[3]

Test Pit A

It was decided to test the stratigraphy of the site, with a series of 5x5 foot test pits. The first of these, "TEST PIT A", was dug in arbitrary 6" levels. Four levels were excavated before reaching sterile light sand. In the third level we discovered three features (Figure 1).

Feature #1. This feature consisted of three lone postmolds, which may have been associated with Feature #2, a pit which was probably a hearth.

Feature #2. This was a roughly oval pit, showing concentrations of charcoal and burned sand. The hearth was 25 inches in diameter and 6 inches deep, being cut down from the dark humic sand of level 2.

Feature #3. This was a small hearth, 8" in diameter and 5" deep which had been cut down from level 3. The contents of this feature consisted of Woodland sherds and animal bone. Several charred acorn hulls were also within the feature.

From Test Pit A we learned that the top 8 to 10 inches were mixed sand containing both Mississippian and Woodland materials and was plow-disturbed. The next 6 to 8 inches were

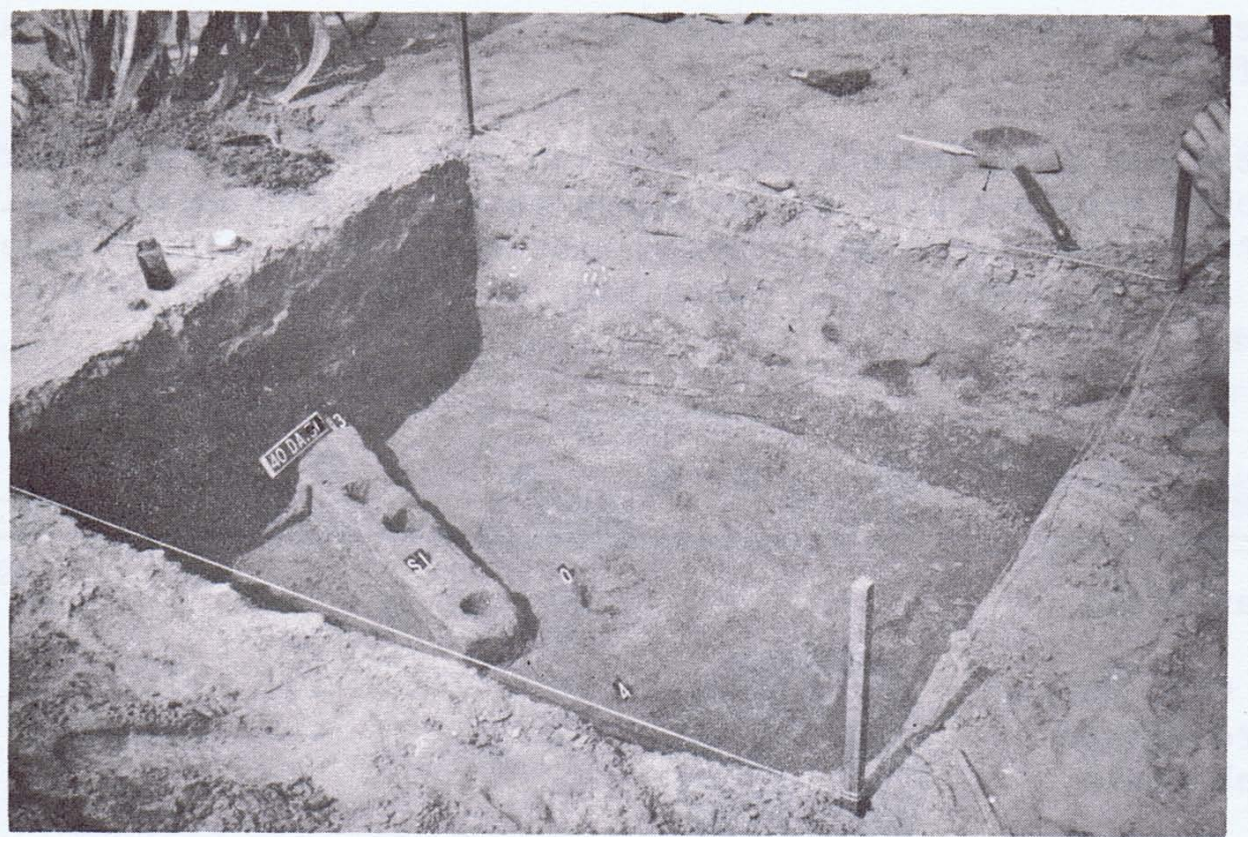

FIGURE 1. Test pit A. Looking toward the southwest. Feature 1.

undisturbed Mississippian. A third zone was very thin, about 2 to 3 inches thick, containing only Woodland materials. (Table 1).[4]

Test Pit B

We decided to try to excavate one of the Mississippian structures indicated by surface scatter. The excavation was called “Test Pit B”. A 5 by 5 foot square was dug, exposing a section of postmolds and a wall trench. A series of squares were excavated in order to determine the extent and nature of this wall trench

It was found to be 16 feet long and contained 18 postmolds. No wall trenches were found either to the north or south of the first wall trench. A scattering of 8 postmolds was found north of this trench, but may represent another structure (Figures 2 and 3).

TABLE 1. Artifacts from Test Pit A.

Artifacts	Level 1	Level 2	Level 3	Level 4
Mississippi Plain	34	29	1	
Bell Plain	4	7		
Candy Creek Cord Marked	3	6		
Hamilton Cord Marked		2		1
Mulberry Creek Plain	1		2	
Mussel shell	102	150	74	
Periwinkle	17	14	1	
House daub	18	14		
Rock	38	27		
Chert flakes	21	23	13	5
Pc. Quartz hammerstone	1			
Core scraper		1		
End scraper		1		
Chert core		1		
Sand Mountain PPK			1	
Cannel coal		1	2	
Deer bone	1	1	7	18
Rodent bone	1			7
Squirrel bone				2
Bird bone			1	
Turtle shell (terrapin)			1	13
Acorn hulls				5

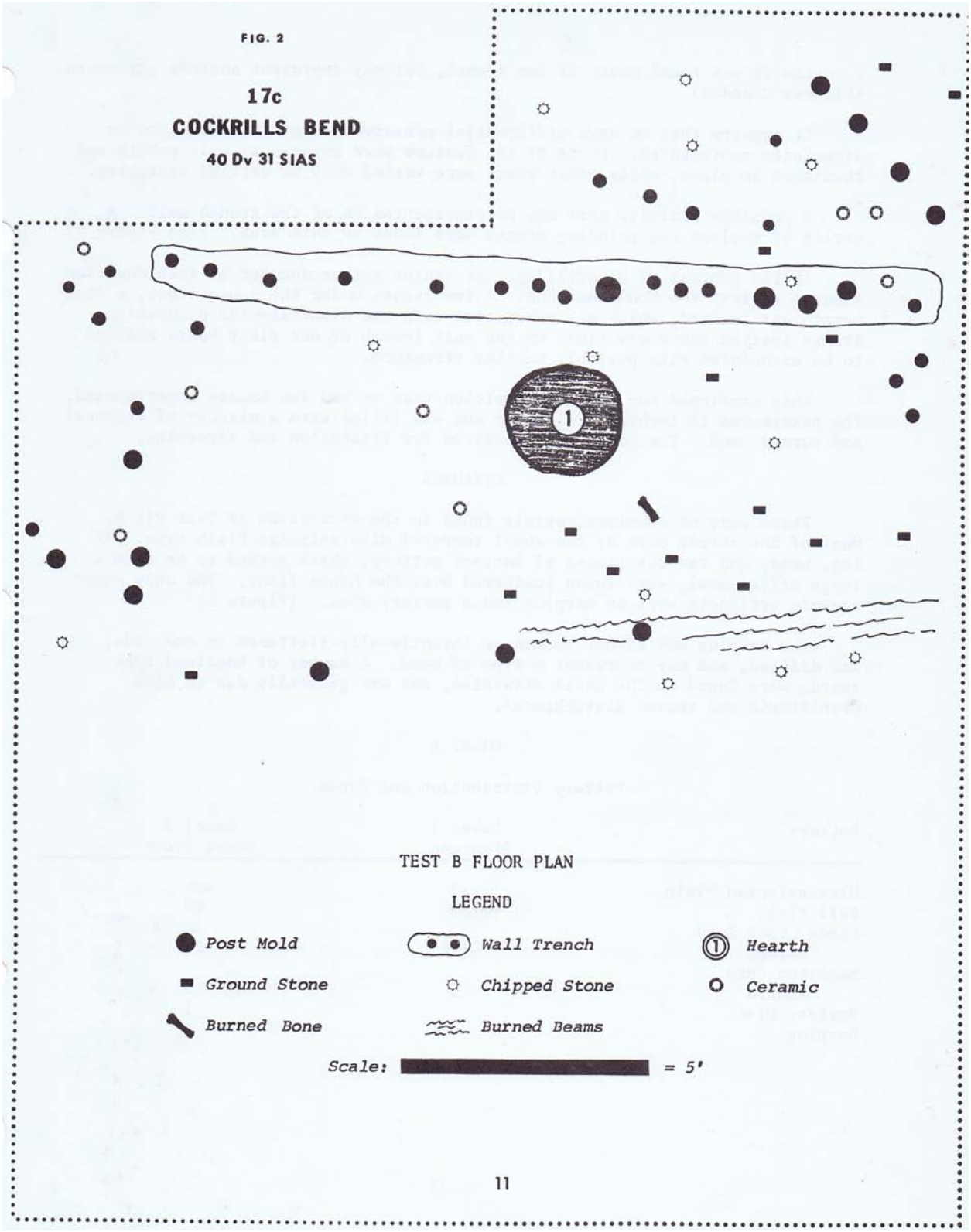

FIGURE 2. Plan view of Test Pit B.

FIGURE 3. Test Pit B. Looking to the North.

It appears that we have differential preservation of the structure or structures represented. Parts of the feature were covered by wall rubble and thus kept in place, while other areas were washed away or settled elsewhere.

A possible activity area may be represented SE of the trench wall. A series of mullers and grinding stones were found in this area (see Figure 2).

In the process of backfilling, the senior author decided to take down the squares to test the Woodland zone. A few inches under the house floor, a fine hearth was located, which was associated with the Mississippian occupation. It was located extremely close to the wall trench of our first house and had to be associated with possibly another structure (Figure 4).

This confirmed our earlier suspicion that we had two houses superimposed. The hearth was 16 inches in diameter and was filled with a mixture of charcoal and burned sand. The contents were saved for flotation and screening.

Ceramics

There were no complete vessels found in the excavation of Test Pit B. Most of the sherds were of the shell tempered Mississippi Plain type (Table 2). A leg, head, and various pieces of incised pottery, which seemed to be from a large effigy bowl, were found scattered over the house floor. The only other ceramic artifacts were an earplug and a pottery disc (Figure 5).

The earplug was either broken or intentionally flattened on one side, and drilled, and may represent a type of bead. A number of Woodland type sherds were found in the units excavated, but are generally due to both prehistoric and recent disturbances.

TABLE 2. Pottery Distribution and Types, Test Unit B.

Pottery	Level 1 Plowzone	Level 2 House Floor
Mississippi Plain	273	466
Bell Plain	30	58
Candy Creek Cord Marked	11	27
Hamilton Cord Marked	1	3
Pottery disc		1
Earplug		1

Faunal Analysis

There was very little animal bone found within this test on the site (Table 3). The sandy nature of the soil seems to be a good preservative for bone, thus we assume that the lack of faunal remains reflects that the processing of animal foods did not take place within the area excavated. One deer antler was represented by 71 pieces of burned bone on the house floor, while another 84 pieces of shattered bone were associated with a large deer tibia.

Shell

No evidence of worked shell of any type has appeared on this site, either during the excavation or from any known surface materials. Most of the mussel shells listed below were fragments (Table 4).

Lithic Analysis

A total of 592 pieces of stone were recovered from this unit. This includes both finished and broken implements, as well as residue from their manufacture. Unutilized flakes and cores totaled 429

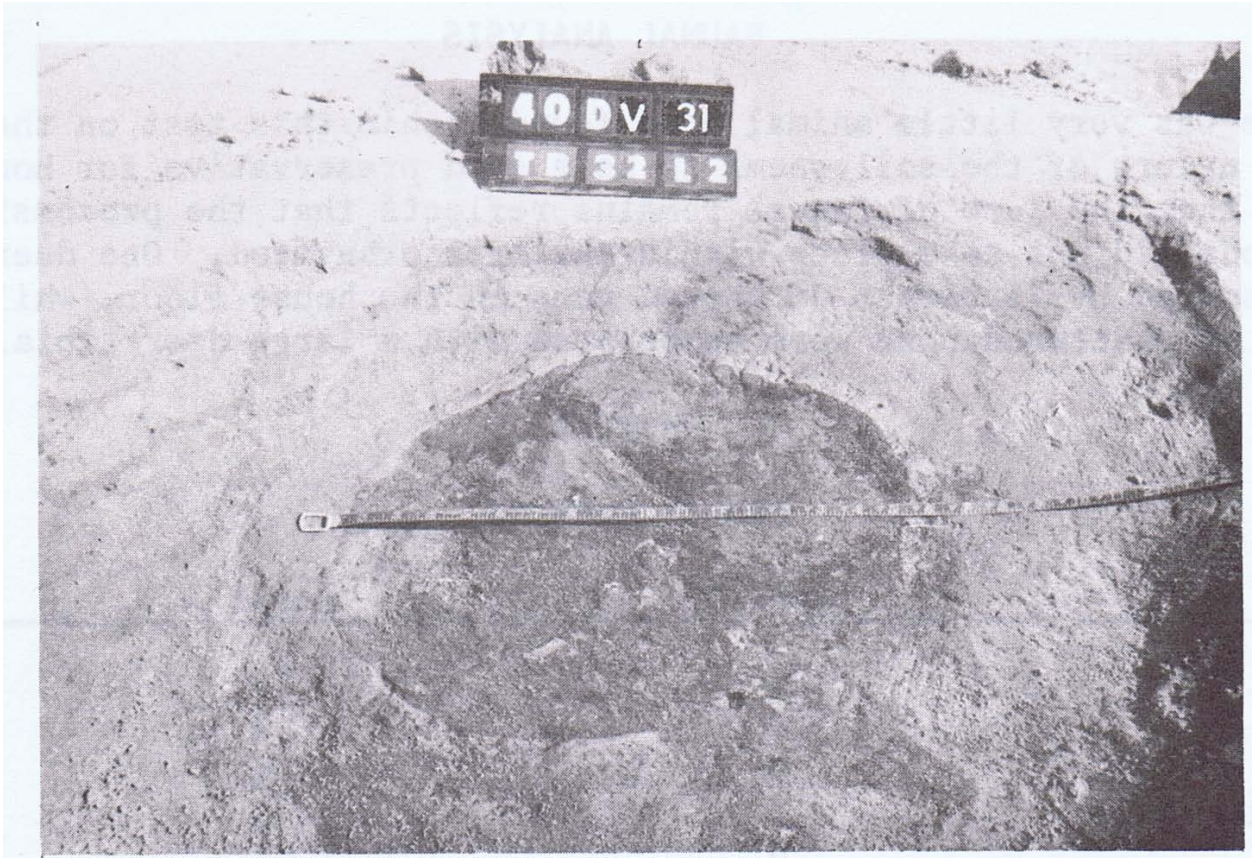

FIGURE 4. Test Pit B. Hearth during Excavation.

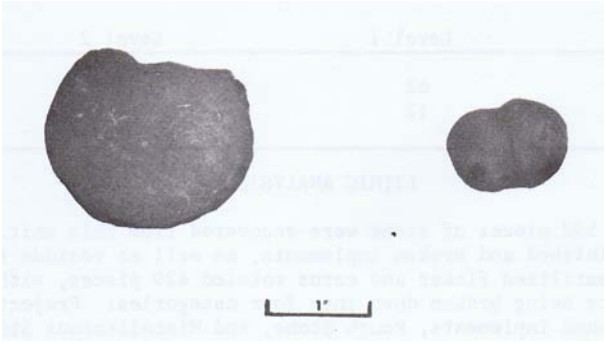

FIGURE 5. Ceramic artifacts; Left to right -- pottery disc and earplug.

TABLE 3. Faunal Remains.

Animal	Level 1	Level 2
Deer	29	70
Opossum		1
Squirrel		4
Cottontail Rabbit	1	1
Terrapin		4
Unidentified rodent		1
Unidentified Bird	3	4

TABLE 4. Freshwater Shell.

Type	Level 1	Level 2
Mussel shell	62	96
Periwinkle	12	13

pieces, with the remaining artifacts being broken down into four categories: Projectile Points, Ground and Polished Implements, Rough Stone, and Miscellaneous Stone.

Projectile Points

Of the 17 projectile points or sections of points recovered, 12 were identifiable as to established type (Figure 6; Table 5). We are indebted to James Cambron, who did the identification of these points.

Fort Ancient (Cambron and Hulse 1964). One projectile point of this type was found in the plow zone or Level 1. This point is recognized as a Mississippian type that even carried over into historic times.

Flint Creek (Cambron and Hulse 1964). This is a thick bladed stemmed late Archaic or early Woodland point. It was found in the wall trench in Level 2 and could have been brought up from a deeper level during the construction of the wall.

Gunthersville (Cambron and Hulse 1964). This is a broken base from a medium size lanceolate point. This type has been found in the Gunthersville Basin in association with trade goods in historic burials. Kneberg (1956) suggest a probable date of 1300 A.D. to 1800 A.D.

Madison (Cambron and Hulse 1964). Five exapmles of this small thin triangular projectile point were found during this excavation. This point is quite common on Mississippian sites in this area and fits comfortable in the range of "Middle Mississippian."

Sand Mountain (Cambron and Hulse 1969). Three examples of this small serrated triangular point were found and all were in Level 1 or the plow disturbed area. This point is designated from controlled sites in Alabama as being Early Mississippian.

Turkey Tail (Cambron and Hulse 1964). This is a broken base of what appears to be a small Turkey Tail. This piece was found on the house floor and is surely out of context being a late Archaic type. More than likely it either was brought in or washed in.

Ground and Polished Implements

Very few stone artifacts were found within the house floor area. A small flint chisel, which shows a high polish from use, was located in Level 2. This chisel was made of Dover flint and measured 3 ¾ inches long by 1 1/8 inches wide (Figure 7).

Three pieces of a large digging implement or possible celt, made of a very

FIGURE 6. Test Pit B; Projectile Points.

TABLE 5. Projectile Point Distribution.

Types	Level 1	Level 2
Fort Ancient	1	
Flint Creek		1
Guntersville		1
Madison	2	3
Sand Mountain	3	
Turkey Tail		1

coarse limestone, were found scattered along the limits of the structure. All of the breaks seem to be old, probably prehistoric (Figure 8).

An implement of fine grained limestone, in two pieces, was found on the level of the dwelling. Both edges along the longest margins had sustained heavy wear. The use of this implement is as yet undetermined.

Rough Stone

Six mullers and six pieces of mullers were located in a very concentrated area, which may represent some form of food processing unit. All six of the broken mullers were found in Level 1, and may have been broken by extensive plowing.

One nutstone was found in association with the mullers. This implement shows grinding wear as well as the characteristic pitting associated with what has come to be called nutstones. Two hammerstones and one abrading stone were also found in the house unit.

Miscellaneous Stone Artifacts

Many pieces of cannel coal have been found in surface collecting the site and three items were located in Test B, which appear to have been ground along the edges. This may be unintentional wear due to abrasion while being washed in by the river.

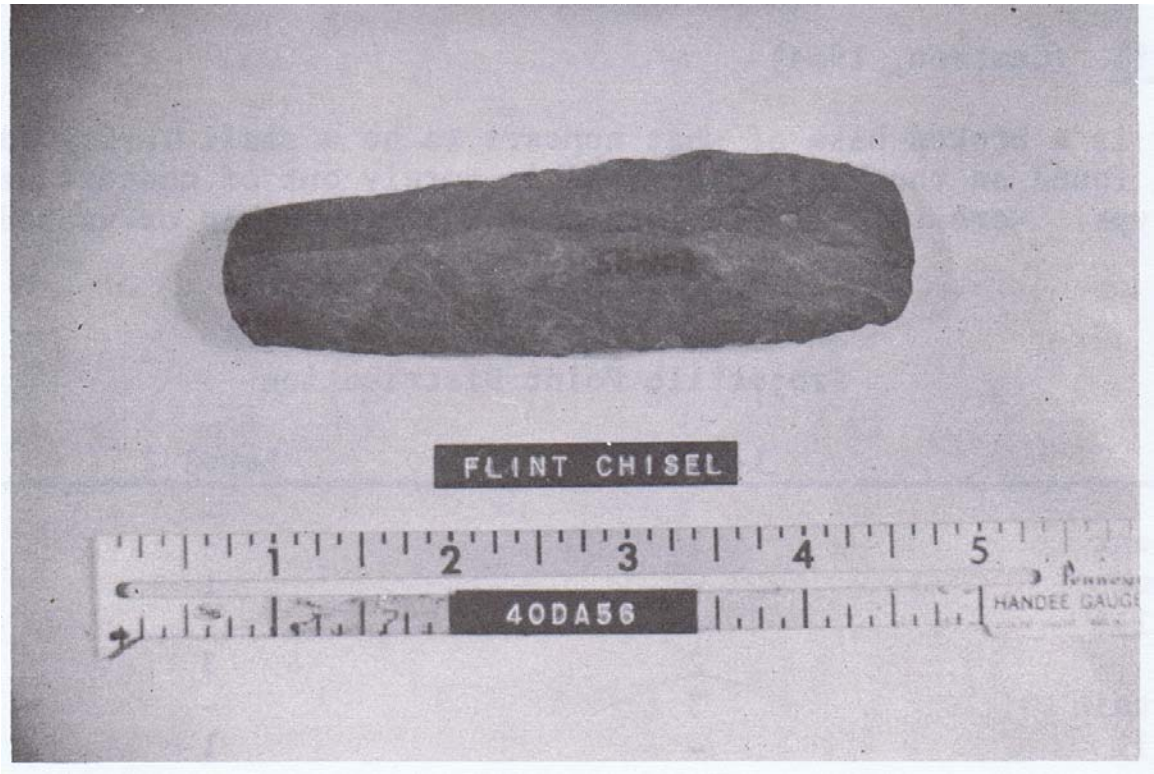

FIGURE 7. Flint Chisel. Test Pit B.

FIGURE 8. Test Pit B: Limestone celt or digging implement.

FIGURE 9. Test Pit B: Catlinite pipe.

One of the most remarkable artifacts was a broken pipe made from a piece of dark red Catlinite (pipestone) of a type found in Minnesota. The finding of this material proves that these people either traveled to this far off quarry or participated in a system of trading networks extending that far north (Figure 9).

Conclusions

It is unfortunate that we were not able to excavate fully one of the Mississippian structures, but the preliminary test provides a database for establishing a further research strategy oriented toward a more extensive study of the site.

Problems for future consideration will be the determination of the limits of both the Mississippian and Woodland occupations. Also of consideration will be the plotting of settlement pattern and population size for each of these time units.

All areas excavated were mapped and shot in with a compass, to a degree of accuracy which will allow us to plot in further excavations in relation to the spacial units already tested.

Annotation Notes:

[1] The Southeastern Indian Antiquities Survey created a site registry numbering system prior to creation of the official state site files. Their system included a sequential “SIAS Site No.” and a “Formal Site Number” based on the Smithsonian Trinomial System. Herein, Site No. 17C refer to SIAS Site No. 17C. In some of the photographs, labels are based on what was a changing set of “formal sites numbers” for this site including “40Da56” and “40DV31.” The current and "real" official site number for this site as maintained by the Tennessee Division of Archaeology is 40DV36.

[2] At the time these excavations were conducted and this article was originally written and published, John Dowd was beginning his career as a significant avocational archaeologist in the Nashville area and John Broster was at home on break from his pursuit of a graduate degree in anthropology in New Mexico.

[3] This is a reference to the site now known as 40DV35. For additional information, see “Archaeological Investigations at 40DV35: A Multicomponent Site in the Cumberland River

Valley, Davidson County, Tennessee" By Michael C. Moore, Emanuel Breitburg, John T. Dowd, C. Parris Stripling, and John B. Broster published in *Tennessee Anthropologist* 17(1):54-78. 1992.

[4]. Some of the identifications of ceramic and projectile point types in this and other tables are dated by the state of knowledge in 1969. For a reanalysis of these materials, see Smith and Moore 2012, this issue).

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CHANGING INTERPRETATIONS OF SANDBAR VILLAGE (40DV36): MISSISSIPPIAN HAMLET, VILLAGE, OR MOUND CENTER?

Kevin E. Smith and Michael C. Moore

Identification and recording of information from the Sandbar Village site (40DV36) was initiated between 1967 and 1974 by avocational archaeologist John T. Dowd. Dowd conducted surface collections during that period as well as limited test excavations in 1969. Additional test excavations were completed at the site in 1989 by Tennessee Division of Archaeology staff, and in 1990 by Vanderbilt University Archaeological Field School students. Here, we summarize the results of all documented artifacts, structures, and features from the site, along with a series of radiocarbon dates. Although Sandbar Village was previously interpreted as a Mississippian hamlet, we suggest that the apparent contradictions created by the presence of several artifacts usually associated with larger Mississippian communities can be resolved by understanding the site as a remnant of a more substantial settlement. Alternatively, we propose the (then) contemporary Cumberland River channel was located to the south of 40DV36, and that Sandbar Village represents a peripheral section of a large town (and possible mound center) that includes what is currently known as the Widemeier site (40DV9) located directly across the river.

Sandbar Village (40DV36) exhibits some evidence of earlier archaeological components, but the site is interesting primarily for a small (but intriguing) Woodland component as well as several Mississippian occupations that date between A.D. 1100 and 1450. Small-scale excavation projects have been conducted at the site on three occasions over the past several decades (1969, 1989, and 1990). This study summarizes the information on artifacts, structures, and features recorded during these investigations, along with a series of radiocarbon dates.

The Sandbar Village site is located on the northern end of Cockrill Bend, an approximate 2900-acre entrenched meander loop of the Cumberland River in western Davidson County (Figure 1). The bend extends from the junction of Richland Creek (ca. Cumberland River Mile 175.7) to a point opposite the confluence with Whites Creek (ca. mile 182.7). The terrain is fairly typical of the series of large Cumberland River bends within the Central Basin, including gently rolling hills dropping to the north towards a broad alluvial terrace and active floodplain.

Proposed developments on Cockrill Bend over the past thirty years (most associated with the state prison complex) led to a variety of archaeological survey and mitigation projects by the Tennessee Division of Archaeology (TDOA), several of which yielded information on Mississippian components (Butler 1977; Moore and Smith 2011; Moore et al. 1992a, 1992b; Norton and Broster 2004). Cockrill Bend can be confidently described as one of the most comprehensively examined Cumberland River meander bends in the Middle Cumberland region.

Sandbar Village has represented an interpretive enigma for decades, as prior investigations discovered a number of ceramic and lithic specimens that were unexpected for a rather small Mississippian site. These artifacts included a dog effigy bottle fragment, a Dover chert mace section, and a disc pipe made of red pipestone.

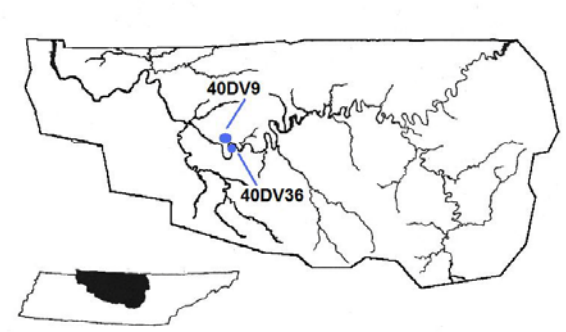


FIGURE 1. Location of 40DV36 and 40DV9.

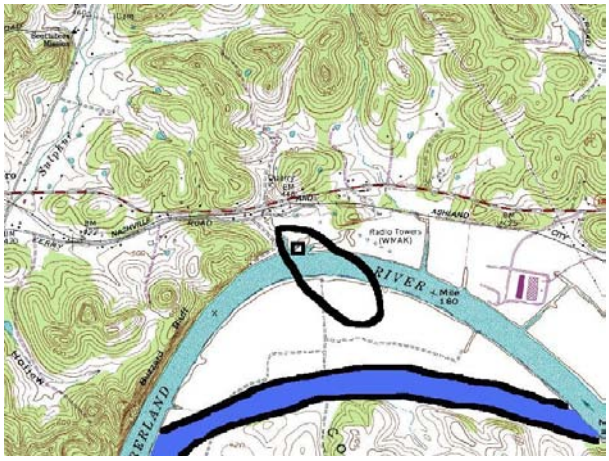


FIGURE 2. Hypothetical Location of Cumberland River Channel, 40DV36, and 40DV9 during Mississippian Occupation.

Surviving archaeological features prompted our original interpretation of Sandbar Village as a hamlet or small village located on a remnant sandbar (Smith and Moore 1996). A reexamination of the data in concert with recently obtained information from the Widemeier site (40DV9; see Broster et al. 2006) located directly across the current river channel has prompted a revised interpretation. We now propose the Sandbar Village and Widemeier sites were originally part of a single large Mississippian town located on the north side of a still-visible relic river channel (Figure 2). Observations of an apparent basket-loaded platform mound remnant in the northern river bank (Ellis Durham, personal communication, 2006) suggest this large site may have also served as a mound center. The presence of this probable mound would help explain the existence of select artifact types not expected to occur on Mississippian hamlets or small villages. Unfortunately, the last vestige of the apparent mound is not available for testing as it was lost to ongoing river bank erosion finalized by the dramatic May 2010 flood (Deter-Wolf et al. 2010).

Archaeological Investigations

John T. Dowd, a highly respected avocational archaeologist from Nashville, made several surface collections at Sandbar Village between 1967 and 1974, and conducted limited test excavations at the site with the assistance of H.C. “Buddy” Brehm and John B. Broster (see Editors Corner, Figure 2, this issue). Dowd formally recorded the site with the Tennessee Division of Archaeology in 1971 when the state site survey files were created. In the original site form, Dowd noted the site “could be a very important site in that Woodland and Mississippian cultures seem to almost blend together on this site” (Tennessee Division of Archaeology 1971). The Dowd and Broster excavations were reported in the one and only *Southeastern Indian Antiquities Survey Journal for 1972* (Dowd and Broster 1972). Due to the limited distribution of the *SIAS Journal*, their original article has been reprinted in this issue of *Tennessee Archaeology*. Artifacts from the various Dowd explorations have been reanalyzed for this work and are presented in the appropriate analytical sections.[1]

The site area was allowed to go fallow sometime after completion of Dowd’s

FIGURE 3. Site 40DV36, May 1990, view to west.

work in the cornfield atop the site. By the late 1980s, the site was once again in active production as part of the state "prison farm," prompting additional investigations by TDOA staff in 1989. Division personnel created a topographic map of the site area, conducted a surface collection, and completed a one-meter by one-meter test unit before terminating work in lieu of the Vanderbilt University Archaeological Field School planned for the summer of 1990 (Figure 3).

The three-week Vanderbilt field school yielded substantive evidence for intact features, structures, and midden deposits on the site. Fieldwork included an initial surface collection of all visible materials in 24 ten-meter square collection units (total of 2400 square meters). Dense concentrations of artifacts, particularly cane-impressed daub, were used to guide selection of areas for two-meter square excavation units (Figure 4). Twenty excavation units were placed during the course of the field school, all of which were 2x2 meter squares with the exception of N20E38 (2x0.5 NS); S6E5 (1x2 NS); S7E4 (1x2 NS); and S7E5 (1x2 EW). Sections of sheet midden visible in several of the units appeared to have been substantially deflated since the 1969 excavations. Deeper features (pits) are preserved across the site and at least one possible structure floor was identified.

Vanderbilt Field School Features

Thirteen feature numbers were assigned in the field during 1990. Pure sand comprised the primary matrix over much of the area investigated. This made digging and screening a simple process, but complicated identification of feature edges due to the homogeneity of matrix fill and the leaching of organics. Features 1 (S6E6/S6E8), 2 (N20E40), and 3

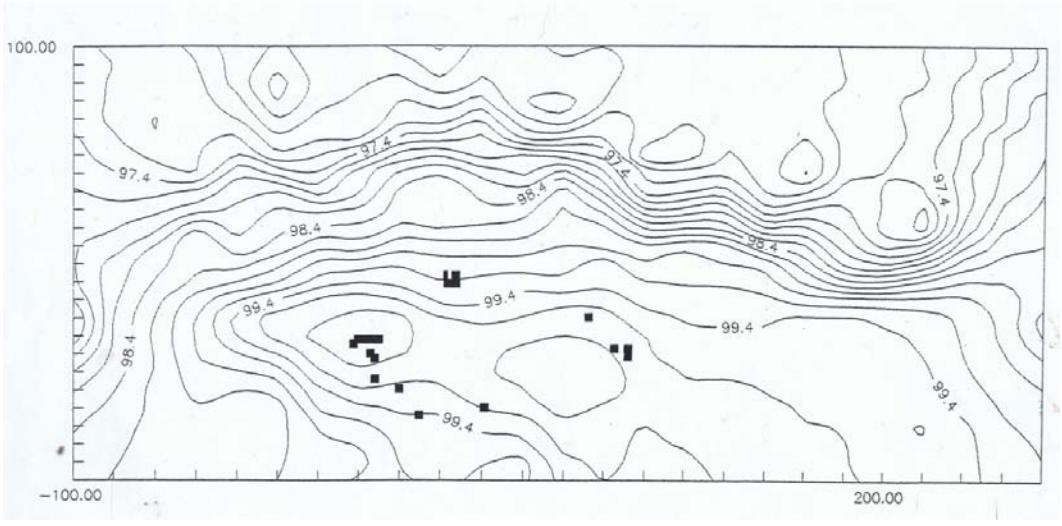


FIGURE 4. Location of 1990 Excavation Units and Site Topography.

FIGURE 5. Feature 4, pre-excavation.

FIGURE 6. Feature 5, pre-excavation.

FIGURE 7. Feature 5 west profile.

(S6E8) were subsequently interpreted as non-cultural in origin, and may represent remnant sheet midden displaced into deep plow scars and rodent burrows.

Pits (Figures 5-7)

Several features were interpreted as probable pit features ultimately used for the disposal of trash, including Feature 4 (S6E5/S7E5/S7E4), Feature 5 (N18E38/N18E40), Feature 6 (S9E9), Feature 8 (S2219), and Feature 9 (S7E4). Feature 5, the largest of these features and only partially excavated, was buried beneath a level of sterile sand and exhibited a layer of freshwater shell "lining" the probable pit (Figures 6-7).

Surface fire

Feature 10 (S4E99) was identified as a large blackened area of sand with a concentration of limestone and charcoal.

Structure Floor (Figures 8-10)

Several feature numbers were assigned to a partially preserved Mississippian structure floor (Figure 9). Feature 7 (S4E102/S6E102, see Figure 8) was assigned to general fill overlying the entire structure floor. The floor was partially disturbed by farming activity, but some objects on the floor were apparently protected from plowing by concentrations of daub and charred timbers.

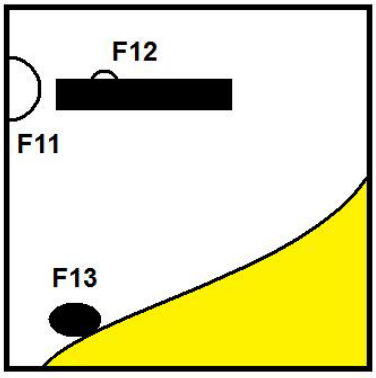


FIGURE 8. Plan view of Feature 7 (white), possible structure floor with associated features.

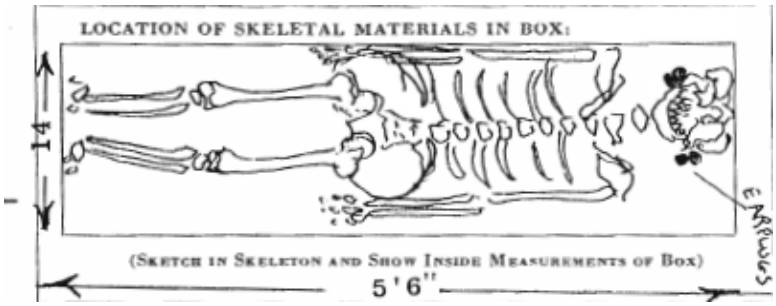
FIGURE 9. Feature 7, possible structure floor. Trowel handle is at approximate edge of burned floor.

FIGURE 10. Feature 12 – Charred timber, wall daub, and crushed ceramic bowl.

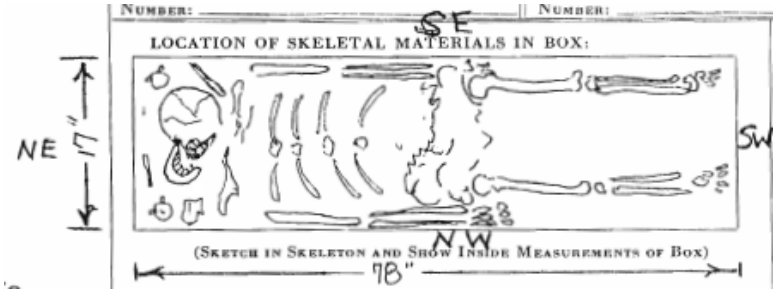
Feature 11 comprised a cluster of daub, a wall or roof timber, and a partially intact bowl. Feature 12 was another partial bowl on the floor protected by a wall timber and daub concentration (Figure 10). Feature 13 consisted of a concentration of charcoal and potsherds also on the structure floor.

Stone-Box Graves (Dowd Explorations)

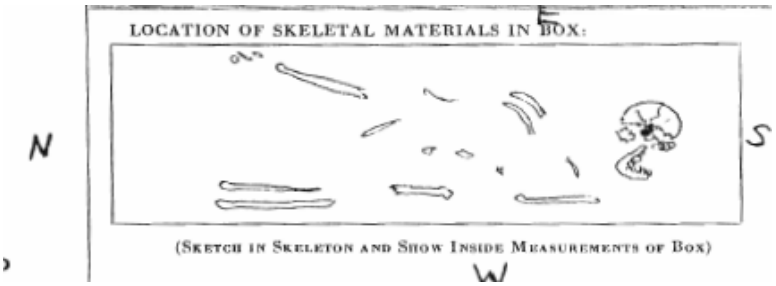
Dowd salvaged six stone-box burials between 1967 and 1974, with five graves (Burials 2-6) containing sufficient integrity for documentation (Figure 11). A brief summary of these burials is warranted since they have not been previously reported. Dowd sent the skeletal remains to the University of Tennessee, Department of Anthropology for examination. Preliminary observations provided to Dowd in 1975 by P. Willey (University of Tennessee Osteology Laboratory) are included herein with the caveat that they were not intended as a final analysis.



Burial 2

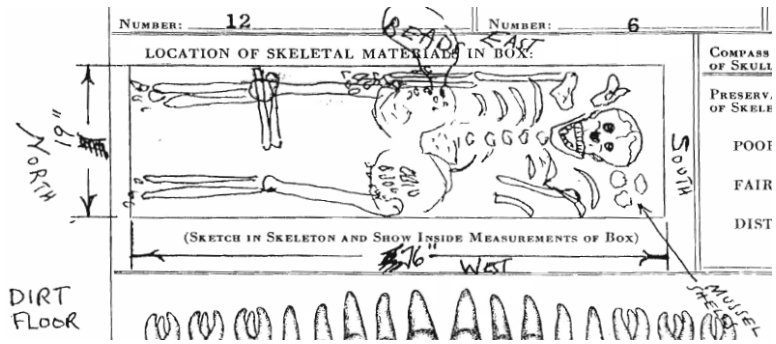


Burial 3



Burial 4

Burial 5



Burial 6

FIGURE 11. John Dowd field sketches of Burials 2 through 6.

Burial 2 consisted of a plow-disturbed stone-box grave. All of the topstones, the headstone, and most of the sidestones on one side had been displaced. The skeleton was extended and articulated. Both the skull and two hourglass-shaped ceramic earplugs (one on each side of the skull) had been crushed, presumably by heavy farm equipment. The box had an earthen floor and measured 35.5 cm in width, 167.6 cm in length, and 22.9 cm in depth. UT Observations: female, age 20-21, height 135.39 ± 3.82 cm; no caries; shoveling on both medial and lateral maxillary incisors.

Burials 3, 4, and 5 were in a cluster approximately 73 meters west of the house site excavated by Dowd (see Dowd and Broster, this volume). Burial 3 had twelve topstones in place, some of them quite large, but the upper portion of the skeleton was disturbed. The burial was 198.12 cm in length (NE-SW) and 43.2 cm wide (SE-NW) with the head to the northeast. The floor of the burial was earth. No artifacts were noted with this interment. UT observations: male, age 40-50, height 167.57 ± 3.80 cm; top of cranium exhibits an onoid antemortem cut (bone regrowth evident) caused by a sharp instrument. Slightly circumventially cradleboarding. One carie in the second right premolar, left first mandibular molar abscessed and lost antemortem. Shovel shaping on medial and lateral maxillary and mandibular incisors.

Burial 4 had been nearly entirely destroyed by the plow. Only two topstones were still in place and most of the sidestones were displaced. No artifacts were recovered from the burial, which had an earthen floor. Head to the south. The burial was located 0.6 meters north of Burial 3 and a few feet from Burial 5. UT Observations: female, age 21, height 150.75 ± 2.82 cm; extreme wear on first and second mandibular molars and on right mandibular canine; shovel shaping on the medial and lateral maxillary and mandibular incisors.

Burial 5 appeared to be undisturbed with the head to the south and an earthen floor. The burial was 193 cm long (north-south), 48.3 cm wide (east-west), and 30.5 cm in depth. Around the right wrist were a number of small mussel shell beads (109 recovered). Ten whole mussel shells were found inside the stone box, mostly around the head. UT Observations: male, age 22-24; height 174.92 ± 3.24 cm; right femur exhibited arthritic lipping; cribra orbitalia evident; anterioposterior deformation of the cranium; warped palate and facial region; no caries, but slight dental wear; pronounced shovel shaping on medial and lateral maxillary and mandibular incisors.

Burial 6 was located about 61 meters east of burials 3-5 and about 15.2 m from the excavated structure. The stone box was small, measuring 25.4 cm in width (north-south) and 58.4 cm long (east-west). No artifacts were found with the interred individual, whose head was to the west. The box was constructed with one stone at each end and two on each side and had an earthen floor. One of the sidestones was slate, while the remainder were limestone. UT Observations: sex indeterminate; age 4 months-1 year; height indeterminate; no signs of cradleboarding.

Radiocarbon Dates

Seven radiocarbon samples were submitted for assay, representing six features and one consolidated sample from the 1990 structure floor. These dates were initially reported by Smith (2002). The corrected dates range from A.D. 300-

1430 at two standard deviations, but some are earlier than anticipated from the overall artifact assemblage (Figure 12; Table 1).

A single date from Feature 6 was considerably earlier than anticipated (A.D. 400-690). One siliceous-tempered cordmarked sherd was recovered from the surface overlying the feature, but the feature fill contained only Mississippian period shell-tempered ceramics. The sample consisted of relatively small fragments of charred wood consolidated from feature fill, and the likelihood exists that the sample dates the Woodland occupation at the site. The small size of the sample (0.2 g carbon) and wide standard deviation (± 140 years) reduces confidence in the date.

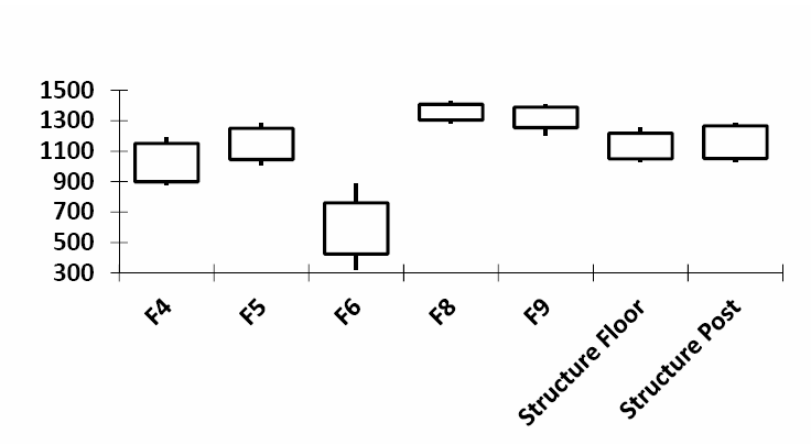


FIGURE 12. Radiocarbon dates (calibrated dates A.D. using Calib 6.0.1).

Feature 4 contained one third (*n*=10) of the shell-tempered cordmarked sherds recovered from the site, presumably representing an early Mississippian component. No later Mississippian materials were present in the feature. The calibrated date of A.D. 990-1190 is very comparable to the date range of A.D. 900-1150 for shell-tempered cordmarked sherds at the Spencer site (Spears et al. 2008), and A.D. 1030-1160 for similar ceramics at the Sogom site (Norton and Broster 2004).

Feature 5 contained another third (*n*=10) of the shell-tempered cordmarked ceramics along with a riveted loop handle. The calibrated date range of A.D. 1000-1280 from this feature is also supportive of an early Mississippian horizon of shell-tempered cordmarked ceramics in the region.

Dates from Feature 8 (ca. A.D.1290-1430) and Feature 9 (ca. A.D. 1210-1410) mesh relatively well with the associated artifacts. Feature 9 yielded a relatively earlier date (probably late 13th-early 14th centuries) and contained none of the diagnostic ceramics of the terminal phase of Mississippian occupations while Feature 8, containing a significant number of bowls with notched appliqué rim strips, appears most likely to fall within the A.D. 1300-1370 range.

The remaining two dates are associated with the Mississippian structure floor exposed in 1990. While internally consistent at A.D. 1030-1260 and A.D. 1030-1280, both appear too early for the notched rim bowls recovered from the structure floor. We are reluctant to accept these dates as valid for use and occupation of the structure given the preponderance of data from the Middle Cumberland region (and across the southeast) that indicate bowls with notched appliqué rim strips (Noel bowls) serve as a post-A.D. 1300 horizon marker (Moore and Smith 2009:211-213).[2]

Our interpretation of the radiocarbon dates -- in concert with the artifact assemblage -- is that the site was occupied for most of the Mississippian

TABLE 1. Radiocarbon Dates (calibrated using Calib Rev. 6.0.1).

Beta Analytic Lab #	Years B.P.	Calibrated 1 sigma (% under curve)	Calibrated 2 sigma (% under curve)	Provenience
65685	880 ± 60	AD 1032-1256 (1.0)	AD 1050-1090 (0.32) AD 1120-1140 (0.12) AD 1150-1220 (0.56)	Feature 7 (consolidated charcoal)
65686	1020 ± 70	AD 880-1210 (1.0)	AD 900-920 (0.09) AD 960-1050 (0.633) AD 1080-1125 (0.21) AD 1140-115- (0.07)	Feature 4
65687	700 ± 70	AD 1210-1410 (1.0)	AD 1255-1320 (0.65) AD 1350-1390 (0.35)	Feature 9
65688	870 ± 90	AD 1000-1285 (1.0)	AD 1045-1100 (0.29) AD 1120-1140 (0.12) AD 1150-1230 (0.52) AD 1250 (0.03)	Feature 5
65689	1450 ± 140	AD 260-300 (0.02) AD 320-890 (0.98)	AD 425-690 (0.98) AD 750-760 (0.02)	Feature 6
65690	590 ± 60	AD 1290-1430 (1.0)	AD 1300-1365 (0.71) AD 1385-1410 (0.29)	Feature 8
65691	840 ± 80	AD 1030-1280 (1.0)	AD 1050-1080 (0.15) AD 1130 (0.02) AD 1150-1270 (0.83)	Feature 7 timber

period as reflected in the Middle Cumberland region. Both dates and artifacts suggest occupation began by A.D. 1100 and continued through at least A.D. 1400. Even though the majority of the dates fall within the A.D. 1100-1300 range, a significant percentage of the diagnostic artifacts support an intensive occupation of the site area between A.D. 1325 and 1450 (see following artifact assemblage descriptions). Given the intensive agricultural use of the site in the past, we propose the latter site occupation (while preserved artifactually in the plowzone) has been largely deflated and is not significantly represented by surviving features in the portions of the site investigated in 1990. The relatively long time span reflected in both the dates and the artifact assemblage is also indirectly supportive of our proposition that the site was part of a larger and more intensively occupied settlement.

Prehistoric Artifact Assemblage

The three projects at 40DV36 produced a significant assemblage of lithics, ceramics, bivalves, gastropods, and cane-impressed daub, along with a small vertebrate faunal assemblage and a few botanical remains. The assemblage is presented in detail in tabular form, and summarized in terms of significant discoveries.

Lithics

Nearly 2,700 (*n*=2,687) lithic artifacts were examined for this study (Table 2). The vast majority of specimens comprise items (*n*=2,490) recovered during the Vanderbilt investigations. This study assemblage also included a wide array of chipped/ground stone tools and other items obtained by Dowd (*n*=136), and a modest sample of material (*n*=61) recovered by the TDOA. Over 90 percent (91.2 percent, *n*=2451) of the assemblage consists of chipped stone manufacture

TABLE 2. Provenience and Quantity of Lithic Artifacts Recovered from 40DV36.

Provenience	Tested cobble	Core	Thick biface	Thin biface	Primary flake	Secondary flake	Blank flake	Blocky debris	Modified Flake Scraper	Modified flake cutting	Modified flake spokeshave	Utilized flake scraper	Scraper	Drill	Projectile point	Ovate knife	Knife	Chisel	Mace	Celt	Hoe	Hoe rejuvenation flake	Gorget	Discoidal	Disc	Pendant	Pipe	Hammer stone	Nutting stone	Mano	Metate	Abrader	Unidentified groundstone	TOTAL
Dowd 1967-73 Collection	0	0	9	4	2	1	1	0	0	0	0	0	0	1	59	2	1	8	1	8	1	2	2	1	4	1	2	2	3	0	0	1	20	136
TDOA 1989 Collection																																		
General Surface	0	0	4	3	0	2	4	0	3	1	1	1	1	1	9	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	3	38
TU1	0	1	0	0	0	3	16	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23
Vanderbilt 1990 Collection																																		
Surface	6	30	10	1	22	103	237	97	0	0	0	0	1	0	11	0	1	0	0	4	3	3	0	0	0	0	0	1	0	1	0	0	0	531
Feature 4	1	2	1	0	0	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Feature 5	0	0	0	0	1	3	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Feature 6	0	3	0	0	0	19	39	18	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	83
Feature 8	0	6	0	0	1	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	20
N4E88	1	3	3	0	2	7	26	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
N18E38	0	9	0	0	4	3	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
N18E40	0	3	0	0	0	1	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
N20E38	1	4	0	0	4	37	65	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	135
N20E40	1	2	0	0	6	42	185	66	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	285
S4E99	0	1	0	0	1	12	25	15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	56
S4E102	0	5	1	0	10	17	136	56	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	226
S6E5	0	3	0	0	1	6	9	5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	26
S6E6	0	0	1	0	3	8	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
S6E8	0	6	0	0	5	24	53	44	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135
S610	0	5	1	0	2	16	32	20	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1	81
S6E102	1	6	0	0	1	13	47	25	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95
S7E4	0	2	0	0	0	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
S7E5	1	3	1	0	0		18	10	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	36
S9E9	2	7	0	0	6	15	20	14	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66
S10E10	0	7	0	0	8	35	170	70	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
S15E10	1	3	0	0	2	9	29	15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	62
S22E19	2	4	0	0	4	19	34	24	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
S30E50	2	1	0	0	0	9	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	22
S32E38	1	0	1	1	3	10	37	30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	85
TOTALS	20	116	32	9	88	424	1207	573	5	1	1	3	3	2	92	2	2	9	1	14	6	17	2	1	4	1	2	4	4	2	1	1	29	2678

and/or maintenance by-products such as tested cobbles, cores, flakes, and blocky debris. The remaining specimens represent a diverse sample of chipped and ground stone tools.

Select Chipped Stone Descriptions

A Dover chert mace fragment was recovered by Dowd (Figure 13). This bifacially worked artifact displays exceptional craftsmanship. Broken on both ends (hinge fractures), this specimen measures 83.5 mm in length and a consistent 18.1 to 18.7 mm in thickness. The fragment has a slightly trapezoid plan-view, with one end (68.4 mm) a bit wider than the other (54.1 mm). The profile on the wider end is generally rectangular, whereas the narrower end is rectangular to slightly ovoid. Flake scar ridges along the opposing broad surfaces are well-smoothed, but the flake scars themselves are plainly visible. The lateral edges have been heavily ground and exhibit a “squared-off” appearance. This fragment likely derives from the handle area given its general shape, dimensions, and heavily ground lateral edges.

Two ovate knives were present in the Dowd collection (Figure 14). One complete specimen made of Dover chert measures 130.7 mm long, 36.1 mm wide, and 10.9 mm thick. The second artifact, made of probable locally available chert, comprises a substantial fragment that measures 101.1 mm long (broken), 36.8 mm wide, and 9.6 mm thick.

The Dowd collection also yielded a total of nine chisels. One sizeable, nearly complete specimen of Dover chert is 142.4 mm long, 43.4 mm wide, and 12.7 mm thick (Figure 15a). Two other nearly complete chisels, one of Dover chert (Figure 15c) and the other of Kaolin chert (Figure 15d), favorably compare in width and thickness. Yet another Dover chert chisel is much narrower than the other artifacts, but this shape appears to be the result of extensive resharpening along the lateral edges (Figure 15b). The remainder of the sample consists of four Dover chert

FIGURE 13. Dover Mace fragment, Dowd Collection compared with complete Dover Mace, ca. 38 cm in length from Tennessee (*Photograph, Kevin E. Smith; Courtesy Arthur Cushman Collection*)

FIGURE 14. Ovate Knives, Dowd Collection.

FIGURE 15. Chisels, Dowd Collection.

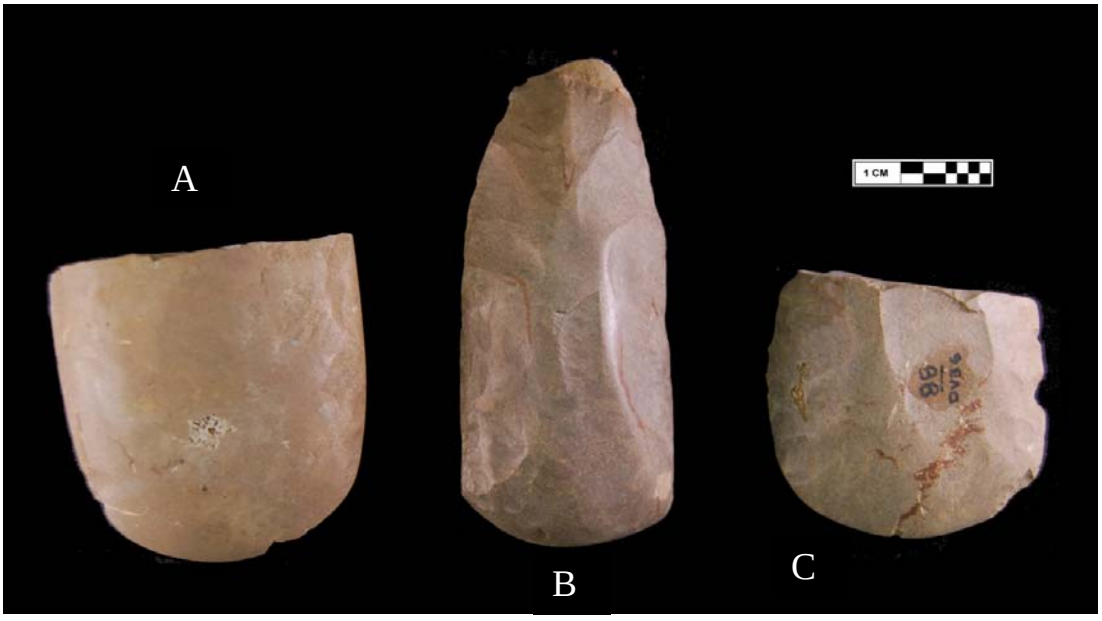


FIGURE 16. Celts, Dowd Collection.

and two unidentified chert fragments.

Of the 14 celts identified from Sandbar Village, six were recovered by the Vanderbilt excavations from severely disturbed contexts. Five of these specimens are highly polished midsection fragments, with the other a polished bit fragment. All items have been manufactured from locally available materials, including Ft. Payne chert (*n*=3), cherty limestone (*n*=2), and limestone (*n*=1). The TDOA investigation yielded one highly polished bit fragment of Dover chert. The remaining seven specimens assigned to this category were collected by Dowd (Figure 16). The Dowd sample consists of one nearly complete (but obviously reworked) Dover chert celt that measures 116.0 mm long, 46.9 mm wide, and 28.9 mm thick (Figure 16b); along with six midsection and bit fragments of Ft. Payne chert (Figure 16a, c).

Six hoes were defined in the site assemblage. One very large limestone implement measuring (at least) 181.2 mm long, 88.5 mm wide, and 54.0 mm thick was found on a house floor by Dowd in 1969. Three of the four hoes recovered during the Vanderbilt excavations were found on the site surface, including one complete Ft. Payne chert specimen that measures 109.1 mm long, 53.6 mm wide, and 25.6 mm thick. A second Vanderbilt surface specimen, made of Dover chert, displays a similar plan-view and measures (at least) 126.0 mm long, 89.0 mm wide, and 24.9 mm thick. The other Vanderbilt hoes comprise a fragment of Dover chert from the surface and a heavily ground limestone section from unit S7E5. One hoe fragment of Dover chert was recovered during the TDOA work.

The projectile point assemblage is composed of 14 darts, 54 arrows, and 24 unidentified fragments (Cambron and Hulse 1983; Justice 1987). The dart

FIGURE 17. Selected Dart Points.

FIGURE 18. Sand Mountain Points.

points include Early/Middle Archaic through Early Woodland types such as Big Sandy, Wade, Motley, and Adena (Figure 17). Some of these artifacts may represent “pick-ups” from nearby site 40DV35 brought back by the later Mississippian inhabitants (Moore et al. 1992a). Fifty-four small, triangular Mississippian arrow points (Table 3) include Madison (*n*=34), Sand Mountain (*n*=18), and possibly Nodena (*n*=2) types. A select sample of Sand Mountain points is displayed in Figure 18. Sand Mountain and Nodena points are not particularly common on sites within the study area, although a cache of Sand Mountain points was recovered from a burial at the Ganier site (40DV15) in southwest Davidson County (Broster 1972:61). Nodena points are more common on Mississippian sites in west Tennessee.

Select Ground Stone Descriptions

Dowd recovered a rather small, yet symmetrical discoidal of probable Ft.

TABLE 3. Identified Mississippian Points from 40DV36.

Provenience	Type	Max Length	Max Width	Max Thick	Collection Date/Source
General Surface	Madison	37.9	16.7	7.3	1967-71, John D
General Surface	Madison	28.5	18.2	5.4	1967-71, John D
General Surface	Madison	36	13	4.8	1967-71, John D
General Surface	Madison	30.5	14.7	3.5	1967-71, John D
General Surface	Madison	32.4	16.3	5	1967-71, John D
General Surface	Madison	39.9	17.6	6.8	1967-71, John D
General Surface	Madison	28.8	20.4	7.7	1967-71, John D
House area	Madison	25.4**	14	7.8	1969, John Dow
House area	Madison	24.7	13.5	3.4	1969, John Dow
House area	Madison	17.7**	14.1	5.3	1969, John Dow
House area	Madison	19.3**	18.1	3.3	1969, John Dow
House area	Madison	18.7**	15.9**	4.6	1969, John Dow
House area	Madison	28.0**	18.8	6.3	1969, John Dow
House area	Madison	17.3**	14.4	3.9	1969, John Dow
House area	Madison	16.5**	14.5	5.3	1969, John Dow
House area	Madison	18.9	14.3	3.4	1969, John Dow
House area	Madison	14	13.4**	2.8	1969, John Dow
General Surface	Madison	41.1	16.7	4.6	1970, John Dow
General Surface	Madison	44.9	15.1	6.4	1970, John Dow
General Surface	Madison	32.4	17.2	5.6	1971, John Dow
General Surface	Madison	21.9**	14.8	6.4	1972, John Dow
General Surface	Madison	25.5**	16.4	5.2	1973, John Dow
General Surface	Madison	32.3	16.6	6.9	1990, Vanderbilt
General Surface	Madison	30.9	17.1	7.4	1990, Vanderbilt
General Surface	Madison	26.1	17.1	8.5	1990, Vanderbilt
General Surface	Madison	27.7**	17.7	4.6	1990, Vanderbilt
General Surface	Madison	19.7**	14.8	5.3	1990, Vanderbilt
General Surface	Madison	14.8**	16.3	4.5	1990, Vanderbilt
General Surface	Madison	15.6**	15.5	3.9	1990, Vanderbilt
N10 E30, Surface	Madison	29.9	16.3	5.5	1990, Vanderbilt
S6 E102, Level 1	Madison	26.5**	15.4	3.9	1990, Vanderbilt
S6 E102, Level 1	Madison	22.4**	13	4.5	1990, Vanderbilt
S10 E10, Level 1	Madison	14.9**	20.8	3.6	1990, Vanderbilt
S10 E10, Feat 6	Madison	30.6**	16.1	5.8	1990, Vanderbilt
General Surface	Sand Mountain	32.5	16.5	6	1967-71, John D
General Surface	Sand Mountain	40.2	11.2	4.3	1967-71, John D
General Surface	Sand Mountain	34.7**	18.6	5.6	1967-71, John D
General Surface	Sand Mountain	20.1**	15.3	3.3	1967-71, John D
House area	Sand Mountain	14.4**	15.1	4.5	1969, John Dow
House area	Sand Mountain	22.1**	14.5	4.9	1969, John Dow
General Surface	Sand Mountain	23.9**	15.5	3.3	1970, John Dow
General Surface	Sand Mountain	19.8	15.7	3.4	1970, John Dow
General Surface	Sand Mountain	24.4**	15.9	5.1	1970, John Dow
General Surface	Sand Mountain	20.0**	12.3	3.3	1971, John Dow
General Surface	Sand Mountain	26.6**	13.3	4	1972, John Dow
General Surface	Sand Mountain	34.5	17.9	4.9	1973, John Dow
General Surface	Sand Mountain	24.2	14.1	3.8	1973, John Dow
General Surface	Sand Mountain	28.5	12.3	3.5	1990, Vanderbilt
S4 E99, Level 1	Sand Mountain	15.7**	16.5	4	1990, Vanderbilt
S4 E102, Level 1	Sand Mountain	33.2	12.6	4.3	1990, Vanderbilt
S10 E70, Surface	Sand Mountain	30.4	13.5	4.2	1990, Vanderbilt
S20 E40, Surface	Sand Mountain	34.3	14.7**	4.5	1990, Vanderbilt
General Surface	Nodena	21.3	10.3	2.6	1970, John Dow
General Surface	Nodena	33.7	17.1	6.4	1972, John Dow

* = measurements in mm.
** = broken.

FIGURE 19, Discoidal.

FIGURE 20. Greenstone gorget.

Payne chert (Figure 19). This artifact measures 36.4 mm in diameter and 22.6 mm thick. Interestingly, this specimen exhibits sides that have been (heavily) ground flat rather than concave.

Roughly half of a greenstone gorget was retrieved by Dowd (Figure 20). This fragment displays a somewhat rectangular plan-view with nearly parallel lateral edges that gently taper to a slightly rounded end. The artifact measures (at least) 63.5 mm long, 51.4 mm wide near the broken end, and a maximum 5.3 mm thick near the broken end. The flat, heavily ground broad surfaces and lateral edges give this gorget a wide (but very thin) rectangular profile. A drilled hole at the center of the broad surface (presumed to be one of two for suspension) measures 3.2 mm in diameter.

A steatite pendant section was present in the Dowd collection (Figure 21). The specimen form is generally cylindrical with a drilled hole near each flattened end. Roughly half of the pendant (lengthwise) has been sheared away by modern

FIGURE 21. Steatite pendant.

farming activity. Exterior surfaces that were not damaged display extensive cross-hatching. The artifact measures 52.6 mm long with a diameter of 23.2 mm. The drilled holes are similar in diameter (4.8 and 4.9 mm).

Perhaps the most interesting artifact to be recovered from Sandbar Village is a disk pipe made of red pipestone (Figure 22). Dowd uncovered this item from a house floor during his 1969 investigations (Figure 23). The stem end of this heavily ground specimen is completely intact, but most of the disk bowl end is missing. The thin, circular pipe bowl is flattened and has a very broad rim that sets parallel to the stem. The stem displays a somewhat rectangular profile with rather straight surfaces and rounded corners, and the intact end is serrated with four carved "teeth". Maximum pipe length is 46.8 mm, and maximum pipe height (at the bowl) is 21.3 mm. The stem height gradually decreases from 17.1 mm at the "serrated" end to 15.4 mm at the bowl edge. However, the stem width substantially increases from 8.0 mm at the "serrated" end to 14.2 mm at the broken end. Each side of the stem exhibits (at least) three centrally located and somewhat evenly spaced holes. These partially drilled holes range from 1.9 to 3.0 mm in diameter. Holes on one side of the stem are closely (but not symmetrically) aligned with holes on the opposing side.

Identified Lithic Resources

Over 97 percent of the chipped stone assemblage consists of cherts obtained from locally available sources. By far the most common local chert is Ft. Payne, a generally high quality resource found throughout the study area. Ft. Payne chert can vary widely in texture and appearance, but is generally a fine-grain,

FIGURE 22. Catlinite pipe fragment.

opaque, and non-lustrous material that ranges in color from blue to brown to tan (Amick 1987). These colors are often displayed in a mottled pattern. Most (if not all) of the raw Ft. Payne material utilized by the site residents was obtained from area stream beds based upon the smooth, waterworn cortex visible on numerous cores and flakes. Small amounts of St. Louis and Bigby-Cannon cherts are also present in the assemblage.

Dover chert was the most numerous of four non-local chert resources identified in

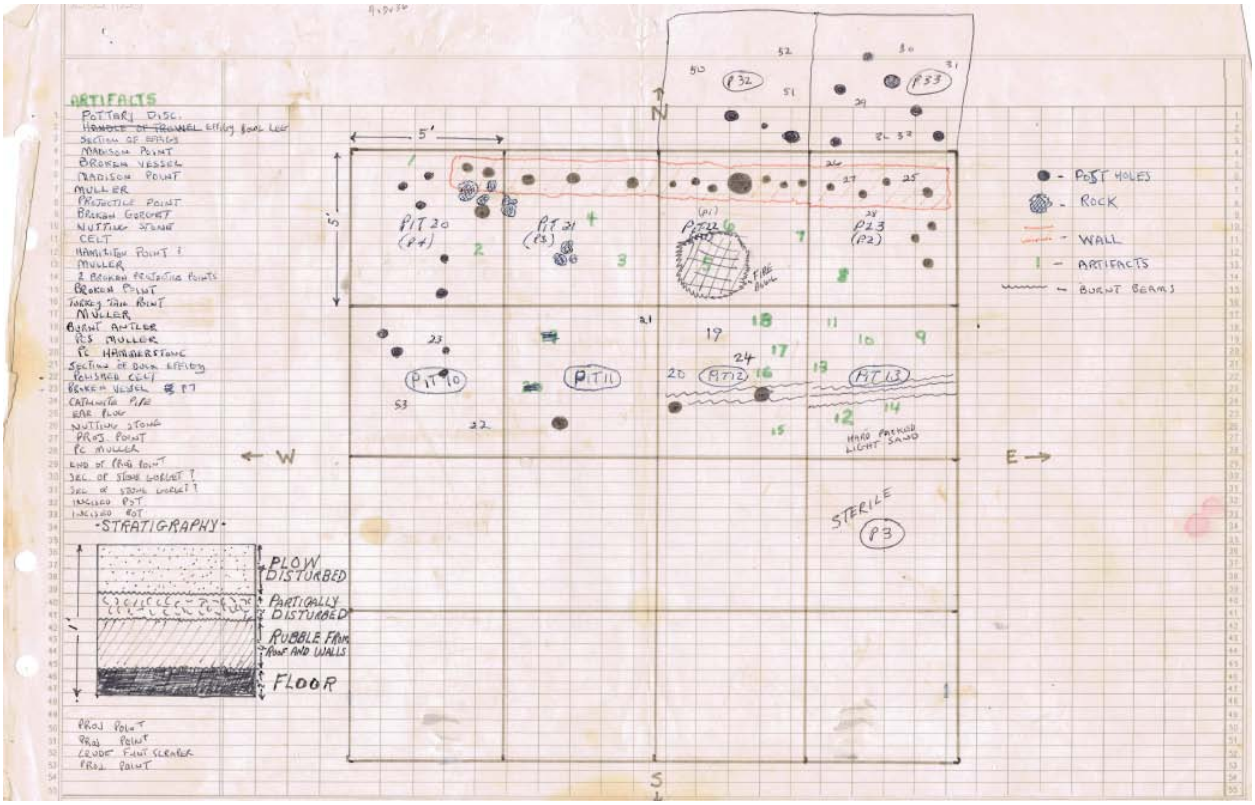


FIGURE 23. Field sketch of 1969 house floor and associated artifacts.

the assemblage. This material is traditionally associated with Stewart County, Tennessee roughly 90 km northwest of the study area. Additional outcrops have been recorded in Houston, Humphreys, and Dickson counties (Smith and Broster 1993). Dover is a homogeneous, non-lustrous, gray to brown colored chert with mottled black and gray inclusions that accounted for 2.0 percent (*n*=49) of the assemblage. Recovered specimens made of this exotic resource include a mace, ovate knife, chisels, celts, hoes, hoe rejuvenation flakes, modified flakes, and waste flakes (see Figures 13-16).

Four thinning flakes of Burlington chert were also recovered from the site and comprise 0.2 percent of the lithic sample. Burlington chert originates from the Burlington Limestone formation in the Central Mississippi Valley region of Illinois and Missouri some 350 km northwest of Sandbar Village (Meyers 1970; Morse and Morse 1983). This high quality chert is a fine-grain, homogenous, opaque, and lustrous resource that is white in color (with some linear tan mottling). Burlington chert is essentially unrecognized at many other Mississippian sites within the study area, although this may be a problem of identification rather than an actual absence of the material.

One chisel of Kaolin chert was collected by Dowd from the site surface (see Figure 15d). The Kaolin chert quarries are located on Iron Mountain in southwestern Illinois (Union County) roughly 225 km northwest of Sandbar Village (Cobb 2000). This resource was used to manufacture a variety of utilitarian and specialized bifacial implements including hoes, maces, and celts. A hypertrophic celt of probable Kaolin chert

was recovered from the vicinity of Mound Bottom during the late 19th century (Moore and Smith 2009:92). The Sandbar Village specimen is relatively fine-grain and displays a range of colors including yellow, tan, and red. This implement likely arrived in the Middle Cumberland region as a finished product.

The fourth non-local chert resource consists of a single flake of Waverly chert. Outcrops of this material occur near the town of Waverly in Humphreys County, Tennessee about 90 km west of the site (John Broster, personal communication, 2002). The specimen from Sandbar Village is homogenous, fine-grain, opaque, and lustrous with a clearly visible "wood grain" pattern and dark red color. The lustrous nature and dark red color are the result of heat exposure. As with Burlington chert, the virtual absence of this material from Middle Cumberland site reports may be due to recognition problems rather than an actual absence.

Greenstone is a common term for a variety of non-local green to bluish-green resources used to manufacture a range of items found in the Middle Cumberland region. The Sandbar Village specimen has yet to be tested, but one potential source derives from the Hillabee Metavolcanic Complex in central Alabama (Gall and Steponitis 2001), whereas another possible location is the (shale?) deposit along the Hiwassee River in Polk County, Tennessee (Riggs et al. 1988). Small samples of greenstone artifacts occur on most Middle Cumberland Mississippian sites and are believed to arrive as finished products (Smith and Moore 1999). Celts are the primary greenstone artifact recovered, with monolithic axes and smaller oddities also found (Jones 1876; Moore and Smith 2001).

Steatite is a metamorphic resource from the Appalachian Mountain chain roughly 250 km east of Sandbar Village. A small number of steatite specimens are known from Middle Cumberland Mississippian site burials, and as with greenstone items, are likely brought to the study area as finished products. Previously recovered objects include the spectacular human effigy pipe (male figure holding a bowl) from Sellars Farm (Putnam 1878), an earspool ring from Bowling Farm (Putnam 1878), and three earspool rings from Mound Bottom (Dye and Smith 2008). A steatite bowl recovered by Edwin Curtiss in 1878 also came from the Mound Bottom locality (Moore and Smith 2009).

Catlinite immediately comes to mind for most individuals when the subject of pipestone arises, although a variety of resources were used to manufacture pipes. The initial result from tests conducted on the Sandbar Village specimen suggests this pipe is, in fact, made of catlinite (Peacock 2009). This resource originates from the famous quarries located in southwest Minnesota. Several other pipestone items have been recovered within the study area, including a (red pipestone) disc pipe from the Noel Cemetery site, 40DV3 (Cox 1985; Thruston 1897) and a probable catlinite pipe blank from the Logan site, 40DV8 (Peacock 2009).

Several unidentified groundstone items collected from Sandbar Village are made of cannel coal. This resource is fairly common on the site, usually appearing as irregular-shaped objects with little to no apparent function. The material has been observed on other Middle Cumberland Mississippian sites as well without a second thought. Previous reports generally ignored this resource beyond a brief description. The authors have since learned this black, bituminous

TABLE 4. Ceramic Artifacts from 40DV36.

	Pre-Mississippian					Mississippian													Mississippian -- Ceramic Appendages										Misc		Non-Pottery Ceramics				
	Siliceous Tempered Cordmarked	Siliceous Tempered Plain	Limestone tempered, pinch pot	Limestone tempered, scalloped rim	Limestone tempered cordmarked	Mississippi Plain	Bell Plain	Bell Plain Notched Rim Strip	Fine shell tempered, possibly negative painted	Fine shell tempered Black slip	Shell tempered cordmarked	Kimmswick Fabric Impressed	Kimmswick Plain	Matthews Incised var. Manley	Matthews Incised var. Matthews	Beckwith Incised	O'Byam Incised var. Stewart	Pode or tripod leg	Effigy fragment	Single lug	Bifurcate Lug	ST Disk	Loop handle, riveted	Strap handle	Unidentified Incised	Untempered fine paste	Earplug	Trowel (mushroom)	Trowel (plastering)	Clay bead	Totals
Dowd 1969-1974 Collection																																			***125***
Surface	14			1	1	8	21	25			1	2	4	1	2		1	1	10	1	2	1		2			2	1	3	1	105
Burial 2																											2				2
House Site			2			1	1		2							2			8			1					1				18
TDOA 1989 Collection																																			***61***
TU1						52	4				1		1		1				1						1										61
Vanderbilt 1990 Collection																																			***3289***
Feature 4						13					10	8																							31
Feature 5	7	9				76	20				10			1								1													124
Feature 6						21					1	9											2												33
Feature 7						16	2					1																							19
Feature 8						169	10				2	2																							183
Feature 9						52					1	13																							66
Feature 10						4																													4
Feature 11							1																												1
Feature 12							2	1																											3
Feature 13						12																													12
N004E088	6					36	12								1			1																	56
N018E038	10	2				6	4																												22
N018E040	8					84	12																												104
N020E038	18					54	1					1		2									1	1											78
N020E040	11					169	25	2		1																									208
S004E099	1	1				42	8	1								1																			54
S004E102	2	1				171	39	2								2																			217
S006E005		2				7	1	1				1																							12
S006E006						37	1																								1				39
S006E008	6					205	34	4					1												1										251
S006E010	1					162	11	2																											176
S006E102	7					86	25																												118
S007E004						7	2																												9
S007E005	11					63	3	1			1	2																							81
S009E009	1					12	5					1		1									1				1								22
S010E010	5					149	30				1	1		1																					187
S015E010	13					24	12	1																											50
S020E020						3																													3
S022E019	6					248	40	1																		2									297
S030E050	2					21	5																												28
S032E028	0					75	28	1				1																							105
SURFACE	33	1				515	113	9			2	8						3	6	5							1								696
TOTALS	162	16	2	1	1	2600	472	51		1	30	50	6	6	4	5	1	5	25	6	2	3	4	3	2	2	8	1	3	1	3473

mineral is a non-local resource that originates from the Pennsylvanian age deposits of the Cumberland Plateau (Born 1936). Future studies definitely need to investigate the acquisition and use of cannel coal by Mississippian residents of the study area.

Ceramics

Over three thousand ceramic sherds (*n*=3,473) were examined for this study (Table 4). The majority of sherds were recovered during the Vanderbilt field project (*n*=3,289), supplemented by samples collected by Dowd (*n*=125), and recovered from the TDOA test unit (*n*=61).

Pre-Mississippian Ceramics

A Woodland component (or components) is represented by 182 sherds. Limestone-tempered sherds included in surface collected materials comprised a plain surfaced scalloped rim (pan or bowl) sherd and a cordmarked body sherd (Figure 24, right). A small "pinch pot" recovered from Dowd's Mississippian structure was also tempered with limestone. More specific chronological assignment of these sherds is difficult given the sample size, but would fit comfortably into either the Middle or Late Woodland periods.

A larger component is presented by plain-surfaced (*n*=16) and cordmarked (*n*=161) ceramics tempered with a mix of

FIGURE 24. Kimmswick Fabric Impressed (left) and limestone tempered cordmarked (right) sherds .

siliceous materials (quartzite and chert) that frequently include varying amounts of fired-clay/grog particles (Figure 25). Unfortunately, our understanding of the Woodland ceramic sequence in the Nashville area is incomplete, complicating refinement of the chronological placement of this component. A synthesis of available Woodland excavation data is sorely needed, but remains beyond the scope of this article. Hence, we will simply suggest the possibility that the siliceous tempered sherds may represent a local variant of the Late Woodland Mason phase (A.D. 600-1000) identified in the nearby upper Duck and Elk River valleys. Mason phase ceramics include pre-dominantly chert tempered wares with plain and cordmarked surfaces (Faulkner 1968:58-83). This ceramic series is associated primarily with small triangular projectile points and occasionally Jack Reef cluster points, both of which are documented on Cockrill Bend. While considered to be from a disturbed context, the radiocarbon date from Feature 6 does fall within the early part of this phase.

Mississippian Ceramics

The vast majority of the Sandbar Village assemblage was composed of shell-tempered ceramics, sometimes with minor (incidental) admixtures of rounded grit (Table 4). As is typical for Middle Cumberland ceramics, most sherds are plain-surfaced and fall into the two “supertypes” of Mississippi Plain (coarse shell temper) and Bell Plain (fine shell temper).

The presence of shell-tempered cordmarked sherds (*n*=30) is notable, although these specimens comprise less than one percent of the shell tempered assemblage. Similar ceramics have been documented on Cockrill Bend at 40DV68 (Norton and Broster 2004) and elsewhere in the Middle Cumberland region at a few sites (Spears et al. 2008). These sherds are generally associated with Early Mississippian components (pre-A.D. 1250) and may represent a transition from

FIGURE 25. Siliceous tempered cordmarked sherds.

Late Woodland cordmarked ceramics.

Approximately 80 percent of the sherds (*n*=2,600) were designated as Mississippi Plain. Jars are the predominant vessel form, with minor representations of bowls and hooded bottles. The bulk of the remaining plain sherds (14 percent, *n*=472) were designated as Bell Plain. Most of these appear to derive from bowls with notched rim appliqué strips (see discussion below) with a minor representation of bottles. The two types make up 94 percent of the shell-tempered sherds at the site. This figure is comparable to that found at the majority of Mississippian sites in the Middle Cumberland Region (Table 5). The remainder of the discussion will focus on the more temporally diagnostic ceramics.

A significant number of the Bell Plain rim sherds (*n*=51) derive from standard bowl forms with a notched appliqué rim strip just below the vessel lip. These bowl forms have been designated Noel bowls as a convenient way to identify this analytical mode (Moore and Smith 2009:213). This decorative technique is a regional horizon marker for Mississippian occupations between A.D. 1325 and 1450

TABLE 5. Mississippi Plain and Bell Plain, Selected Middle Cumberland Sites.

	Mississippi Plain		Bell Plain	
Site	No.	%	No.	%
40DV36	2606	79.5	470	14.3
Kelley's Battery (40DV392)	1396	73.6	354	18.7
Rutherford-Kizer (40SU15)	7283	75.0	1835	18.9
Old Town (40WM2)	527	79.5	100	15.1
Gordontown (40Dv6)	4806	81.1	722	12.2
Brentwood Library (40WM210)	5441	84.3	759	11.8
French Lick/Sulphur Dell (40DV5)	2985	90.4	4	0.1
East Nashville Mounds (40DV4)	24,688	95.0	98	0.4

FIGURE 26. Selected "Noel Bowl" rims with notched appliqué rim strips.

(Moore and Smith 2009:211-213). The size and shape of the notched strips is quite variable (Figures 26 and 27). Such variability has been noted within other Mississippian site assemblages (Moore, 2005; Moore and Smith 2001; Smith and Moore 2000).

Pan forms are relatively well represented at the site, including examples of both Kimmswick Fabric Impressed (*n*=49) and Kimmswick Plain (*n*=5; with the usual caveat that body sherds from plain pans are probably under-represented in the count; see Figure 24, left image).

As is typical of regional assemblages, a small percentage of the jars exhibit incised arcades on the shoulders. These include Matthews Incised vars. *Manly* (*n*=6) and *Matthews* (*n*=6), and Beckwith Incised (*n*=4). Three incised sherds from Dowd's 1969 structure appear to derive from a coarsely made shell-tempered effigy bowl (Figure 28). No comparable sherds are known from the Middle Cumberland region. Three additional incised sherds were too small to permit confident identification as to type or form.

A final interior incised sherd is also important in terms of chronology (and a

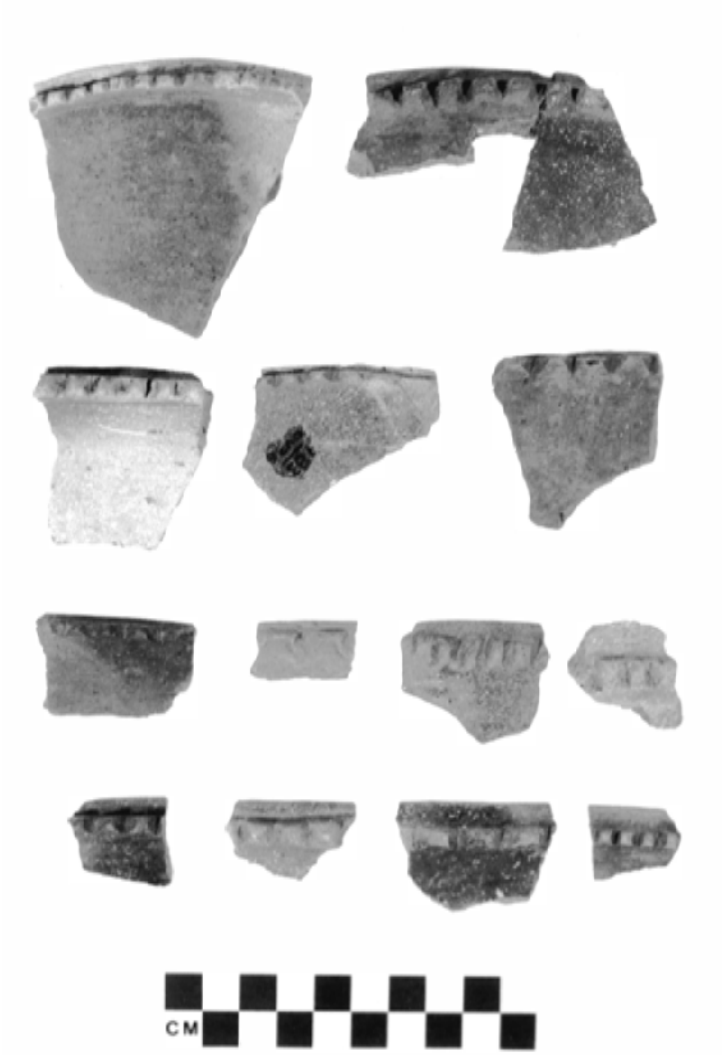


FIGURE 27. Selected “Noel Bowls” with notched appliqué rim strips.

relationship with the Widemeier site, 40DV9). This sherd derives from the rim of an O’Byam Incised var. *Stewart* plate (Figure 29). This ceramic type is relatively rare in the Middle Cumberland region and when present appears to date between A.D. 1300 and 1450 (Smith et al. 2004).

Mississippian Ceramics-Appendages

Both riveted loop (*n*=4) and strap (*n*=3) jar handles are represented in the sample. The riveted loop handles suggest a pre-1250 component, while the strap handles are indicative of a post-1250 component (including two very wide and thin handles that probably date to the very late 1300s or early 1400s). Other manipulatory appendages include both bifurcate (*n*=2) and single (*n*=5) rim lugs, neither of which are particularly diagnostic in terms of chronology.

Dowd recovered only wide and thin straps during his surface collections and excavations (i.e. no earlier handle forms). This observation, combined with the fact that almost all of the handles recovered during 1990 were loop or slightly flattened

FIGURE 28. Unidentified incised rim bowl sherds

FIGURE 29. O'Byam Incised plate rim.

loop handles, is supportive of our previous contention that the later Mississippian component has been largely deflated by intensive farming practices.

Mississippian Ceramics-Effigy Vessels

The assemblage is characterized by a significant number of effigy bowl fragments (*n*=25), including a variety of anthropomorphic and zoomorphic forms. This seemingly large number of effigies is partially the result of selective surface sampling by Dowd over the course of several years.

Of significant interest is the presence of a vessel fragment that can only originate from the foot of a negative painted “dog bottle” (Figure 30). The foot form is typical of the “Davidson Group” of dog bottles found in the Nashville and East Tennessee areas (Dye 2009). This vessel form is completely unexpected on a farmstead or hamlet site. The estimated date of these vessels is A.D. 1250-1400.

Other effigy sherds represented more naturalistic forms, including duck, fish, and frog. All of these forms are most common in the post-A.D. 1300 period within the Nashville area.

Two anthropomorphic heads are also represented. One is almost certainly a rim rider from a bowl, while the other probably derives from a solid ceramic figurine (Figure 31).

FIGURE 30. Foot of dog bottle from 40DV36 and Davidson Group dog bottle from Bowling Farm (40DV441).

FIGURE 31. Anthropomorphic head fragments (upper rim rider; lower figurine).

FIGURE 32. Ceramic plastering trowel (#281).

Mississippian Ceramics-Other Artifacts

Non-pottery ceramic artifacts recovered from the site include: (1) three shell-tempered discs; (2) one clay ball (no temper evident) with a very small diameter hole that may suggest a bead or rough pendant; (3) four trowels comprising one mushroom form and three plastering forms. One nearly complete plastering form is presented in Figure 32; and (4) eight ear ornaments commonly referred to as “earplugs” or “earbobs”. Select specimens are shown in Figure 33. All items are tempered with extremely fine

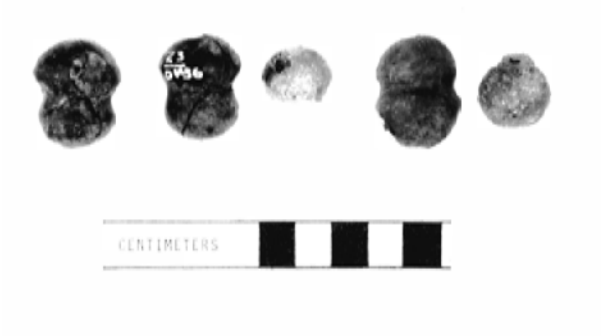


FIGURE 33. Selected ceramic ornaments.

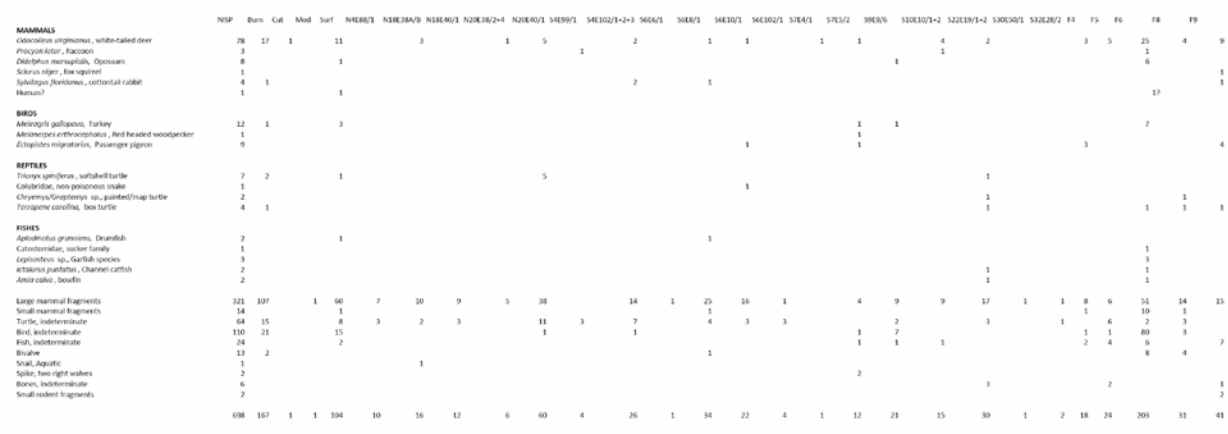
crushed shell temper, exhibit a blue-gray colored paste, and are the hourglass or dumbbell form. The location of two specimens in Burial 2 strongly supports their identification as ear ornaments (see Figure 11).

Faunal Remains

Nearly 700 faunal specimens (*n*=698) were recovered from a variety of contexts in 1990, with almost one-third of the total deriving from Feature 6 (Table 6). Deer, turkey and box turtle are well represented as is typical for the Middle Cumberland region. A significant quantity of freshwater bivalves and gastropods were recovered from many contexts on the site (Table 7), including a number of modified specimens (Table 8).

Some unusual vertebrate species are also worthy of note. Passenger pigeon is a rarity documented at just a few sites in the Nashville area (40CH8, 40DV5, 40DV6, 40SU15). The red-headed woodpecker is also an unusual species in local assemblages. Also notable is a significant representation of aquatic turtles and fishes. Breitburg was able to estimate some of the fish weights: drumfish, 5 pounds; sucker, 1/4 pound; gar, 1 pound; channel catfish, 5 pounds; and bowfin, 2 pounds. A single modified large mammal fragment was identified as the tip of a

TABLE 6. Faunal Remains.



	NISP	Burn	Cut	Mod	Surf	N4E88/1	N18E38A/B	N18E40/1	N20E38/2+4	N20E40/1	S4E99/1	S4E102/1+2+3	S6E6/1	S6E8/1	S6E10/1	S6E102/1	S7E4/1	S7E5/2	S9E9/6	S10E10/1+2	S22E19/1+2	S30E50/1	S32E28/2	F4	F5	F6	F8	F9	
MAMMALS																												
Odocoileus virginianus , white-tailed deer	78	17	1		11		3		1	5		2		1	1		1	1		4	2			3	5	25	4	9
Procyon lotor , Raccoon	3										1									1						1		
Didelphus marsupialis, Opossum	8				1														1							6		
Sciurus niger , fox squirrel	1																											1
Sylvilagus floridanus , cottontail rabbit	4	1										2		1														1
Human?	1				1																					17		
BIRDS																												
Meleagris gallopavo, Turkey	12	1			3													1	1							7		
Melanerpes erthrocephalus , Red headed woodpecker	1																	1										
Ectopistes migratorius, Passenger pigeon	9														1			1						3				4
REPTILES																												
Trionyx spiniferus , softshell turtle	7	2			1					5											1							
Colubridae, non-poisonous snake	1														1													
Chrysemys/Graptemys sp., painted/map turtle	2																				1						1	
Terrapene carolina, box turtle	4	1																			1				1	1	1	
FISHES																												
Aplodinotus grunniens, Drumfish	2				1									1														
Catostomidae, sucker family	1																									1		
Lepisosteus sp., Garfish species	3																									3		
Ictalurus punctatus , Channel catfish	2																				1					1		
Amia calva , bowfin	2																				1					1		
Large mammal fragments	321	107		1	60	7	10	9	5	38		14	1	25	16	1		4	9	9	17	1	1	8	6	51	14	15
Small mammal fragments	14				1									1										1		10	1	
Turtle, indeterminate	64	15			8	3	2	3		11	3	7		4	3	3			2		3		1		6	2	3	
Bird, indeterminate	110	21			15					1		1						1	7					1	1	80	3	
Fish, indeterminate	24				7													1	1	1				2	4	6		7
Bivalve	13	2												1												8	4	
Snail, Aquatic	1						1																					
Spike, two right walves	2																	2										
Bones, indeterminate	6																				3				2			1
Small rodent fragments	2																											2
	698	167	1	1	104	10	16	12	6	60	4	26	1	34	22	4	1	12	21	15	30	1	2	18	24	203	31	41

TABLE 7. Unmodified Mussel Shell and Gastropods (grams).

PROVENIENCE	**MUSSEL**	**GASTROPOD**
Feature 1 (S6E10)	74.5	
Feature 4 (S7E5)	118.5	15.5
Feature 5 (N18E38)	10312.5	114.0
Feature 6 (S9E9/S10E10)	809.0	61.0
Feature 8 (S22E19)	2794.5	7.5
Feature 9 (S7E4)	785.0	
Feature 10 (S4E99)	88.0	
N4E88/1	299.5	33.5
N18E38/1AB	2020.0	25.0
N18E40/1	409.0	183.5
N20E38/1+2+3+4	1028.0	6.0
N20E40/1+2	2585.0	263.0
S4E99/1	417.5	74.5
S4E102/1+2+3+4	1467.5	238.0
S6E5/1+2	1362.5	2.0
S6E6/1	117.0	15.0
S6E8/1	886.0	249.0
S6E10/1	1073.0	226.5
S7E4/1		21.0
S7E5/2		3.5
S9E9/1B	67.0	22.5
S10E10/1+2	601.0	203.5
S15E10/1	40.5	5.0
S22E19/1+2	3321.0	498.0
S30E50/1	26.5	3.0
S32E28/1+2	198.5	55.5
TOTALS	30901.5	2326.0

TABLE 8. Modified Freshwater Bivalves.

Provenience	#	Comments
S4E102, L1	1	Probable right valve fragment with two notches along proximal edge
S4E102, L2	2	One left and one right valve with one notch on distal edge
S4E102, L4	1	Unidentified valve fragment with notch on distal edge
S6E8, L1	6	Two eroding right valves exhibit one notch on distal edge. Other four are unidentified valve fragments with one to (possible) three notches.
S6E10, L1	1	Near complete right valve with two notches on lateral edge.
S6E106, L1	1	Small valve fragment with opposing notches near proximal/lateral edge
S7E4, L2	1	Hoe. Near complete right valve of moderate size with circular hole (11.5 mm in diameter) cut in center. Specimen weights 76.3 gm)
S22E19, L1	11	Nine near complete right valves with one to (possibly) three notches on distal edges, with one specimen exhibiting a very deep notch. Also present is one near complete left valve with one notch on distal edge. Ano her unidentified valve fragment has one shallow notch on distal edge.
Feature 8	7	Five eroding, near complete right valves with one notch on distal edges. One near complete left valve has two notches on distal edge. Ano her near complete left valve has a single notch on distal edge.

bone pin. Almost a quarter of the bone assemblage showed signs of burning, but minimal evidence for butchering or other cut marks was noted.

Botanical Remains

The preservation of charred organic material within features investigated in 1990 was surprisingly poor. Only a small quantity of botanical remains (Table 9) was recovered despite waterscreening soil samples from each feature through

TABLE 9. Identified Botanical Remains.

Species	Feature 8	Feature 12
WOOD/CANE CHARCOAL (0.3 g)		
Carya sp., Hickory	1f	
Liquidambar styrifica, Sweetgun	2f	
Quercus sp. Oak	4f	
NUTSHELL (5.3 g)		
Carya sp., Hickory	3.9g	
Juglans nigra, Black Walnut	1.4g	
SEEDS/FRUIT (<0.1 g)		
Diospyrus virginiana, Persimmon	---	1f
MAIZE (1.2 g)		
Cob	4f	
Kernel	1w	1f
Cupule	1w	
	1.2 g	<0.1 g

TABLE 10. Measurements of Maize, Feature 8.

Sample Type	Cupule Width	Cupule Length	Rachis Length	Wing Width	Glume Width	Kernel Width	Kernel Thick	Kernel Height	Estimated Row #
Kernel	---	---	---	---	---	9.2	3.5	6.0	---
Cob Frag	6.0	2.0	3.5	0.5	4.0	---	---	---	12
	6.0	2.0	3.5	0.5	4.0	---	---	---	12
Cob Frag	4.5	2.5	2.5	0.5	2.5	---	---	---	12
	5.0	2.0	2.5	0.5	2.5	---	---	---	12
Cob Frag	4.0	2.0	3.5	0.5	4.0	---	---	---	12
	5.0	2.5	3.5	0.5	4.0	---	---	---	12
Cob Frag	7.0	3.0	3.0	0.5	4.5	---	---	---	10
	7.0	2.5	3.0	0.5	4.5	---	---	---	10
Cupule	6.0	2.0	3.5	0.5	---	---	---	---	10

fine hardware mesh (1.5 mm). The small sample of analyzed wood charcoal (0.3 g) included fragments of hickory, sweetgum, and oak.

Nut shell remains (5.3 g) were by far the best represented non-wood charcoal in the botanical assemblage. The nut shell sample is dominated by hickory (3.9 g), with a smaller but substantial representation of black walnut (1.4 g). Wild fruits are denoted by a single persimmon seed fragment from Feature 12.

Cultivated plants are represented by maize in the available sample (1.2 g). Features 8 and 12 yielded maize remains, but only Feature 8 yielded samples sufficient for analytical purposes (Table 10). Despite the small sample size, the identification of only 10- and 12-row specimens from the site is supportive of the general pattern observed on many local Mississippian sites.

Concluding Statements

Dowd and Broster (1972) noted surface evidence of 10-20 structures based on cane-impressed daub in the late 1960s. Only five potential structures were noted on the surface at the time the Vanderbilt excavations were conducted. Nonetheless, the site does retain significant integrity in terms of midden remnants, features, and artifacts. Information resulting from these studies was used to nominate Sandbar Village to the National Register of Historic Places where it was listed in 1994 (NR #94000749; Smith 1994).

The authors previously defined site 40DV36 as a Mississippian hamlet or small village. The presence of several significant objects not expected at such a small settlement, in concert with new site information for nearby site 40DV9, has led us to offer an alternative interpretation. We now propose that Sandbar Village was originally part of a larger community that includes the Widemeier site (40DV9). The known distribution of artifacts on both sides of the river allows the construction of a speculative boundary for the site (see Figure 2). The resulting site area is well within the 10-20 acre size typical of large villages and mound centers in the heart of the Middle Cumberland region (Moore and Smith 2009).

Artifacts and radiocarbon dates suggest the settlement was established by around A.D. 1100 and was occupied until sometime in the fifteen century. Shell-tempered cordmarked ceramics, jars exhibiting riveted loop handles, and select radiocarbon dates provide a fairly secure basis for asserting an early Mississippian component. Evidence the site was also occupied during the florescence of Middle Cumberland mound centers (between about A.D. 1250-1350) also seems firmly established through the presence of a Dover mace and negative painted dog bottle. The presence of significant numbers of Noel bowls (standard bowl forms with a notched appliqué rim strip), animal effigy bowls of various forms, and a catlinite pipe support the continuing occupation of the site into the terminal phases of Mississippian occupation in the region.

Redstone disk pipes may date as early as A.D. 1350 in the Oneota culture area of the upper Mississippi Valley, although most seem to date from about A.D. 1400-1650. They did continue in use in small numbers into the early nineteenth century (Brown 2006). The structure excavated by Dowd in 1969 appears to represent something more than a simple farming residence. In addition to the catlinite pipe fragment, this structure contained a number of presumably high status ceramics. Unfortunately, while this late component was intact in 1969, the more recent 1990 excavations indicate this particular component is now represented only by residual artifacts in the plowzone.

Finally, several scholars have previously noted the relatively even spacing of mound centers along the Cumberland River to the west of Nashville (Autry 1983; Jolley 1980). While not necessarily compelling, our proposed re-interpretation of 40DV36/40DV9 as a possible mound center does fill part of an obvious gap along this portion of the Cumberland River.

Notes:

[1] John Dowd's work on several sites on Cockrill Bend was conducted with permission of the state land manager (prior to creation of the Division of Archaeology). Dowd subsequently donated his notes and collections to the Tennessee Division of Archaeology, where they are now curated.

[2] Although untested and entirely speculative at this point, the authors have noted some potential patterned discrepancies in radiocarbon ages deriving from local sites. The MCR lies in a limestone catchment with the potential for reservoir effects -- i.e., the incorporation of "dead carbon" from dissolved limestone. Most of the available research suggests that this is not typically a significant factor for dates deriving from wood charcoal, since plants derive the majority of their carbon from the atmospheric reservoir. However, there seems to be a patterned discrepancy in the radiocarbon dates from the few MCR Mississippian sites located in alluvial settings with backwater sloughs -- standing water that might provide an alternative carbon reservoir more closely approximating lacustrine and marine reservoirs. If some of the wood being harvested at these alluvial sites is incorporating a sufficient percentage of "dead

carbon" through water uptake in "slough settings," radiocarbon dates could appear too old by a few decades or more depending on the percentage contribution. The authors offer this only as a potential consideration, since further consultation with radiocarbon experts and testing of this hypothesis is necessary.

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Collections information: Artifacts collected and excavated during the 1990 Vanderbilt Field School are curated by the Tennessee Division of Archaeology under Accession Number 90-53. Artifacts recovered during the 1969 excavations are also curated by the Division of Archaeology under Accession Number 07-46.

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SKELETAL EVIDENCE OF AQUATIC ACTIVITIES FROM A MIDDLE CUMBERLAND MISSISSIPPIAN SITE IN DAVIDSON COUNTY, TENNESSEE

Courtney L. Cox

This study provides an overview of human skeletal remains recovered from the West site (40DV12), a Mississippian village and cemetery located on the Cumberland River in middle Tennessee. The burials were excavated in 1967, with limited skeletal analyses conducted prior to this research project. Among the more significant results from the current analysis is the presence of auditory exostoses in three adults. These bony growths in the auditory canal are associated with prolonged exposure to cold water. Further evidence for aquatic subsistence at the West site includes mussel shells found in association with several human burials. Furthermore, it is notable there are fewer skeletal indications of nutritional stress than typically associated with an agricultural diet in the Mississippian period.

The West site (40DV12) is a Mississippian period village and cemetery situated along the Cumberland River in Davidson County, Tennessee (see Deter-Wolf and Peres, Figure 1, this issue). The site is on a sharp southern bend in the river that nearly isolates the land within it. Land access to this peninsula (Bells Bend) can only be achieved from the north. The site includes a stone-box cemetery nestled in a bend of a small tributary that also serves as the northern site boundary. The village associated with the site is located just south of the cemetery on the east bank of the Cumberland River.

Excavations during the late 1960s and early 1970s resulted in the documentation and recovery of 82 individuals (Dowd 1972). Of these remains, 45 are currently available for analysis (Dowd 1972; Wright et al. 1973). All of the excavated skeletal remains were interred in stone-box graves. Variations of this grave style can be found throughout portions of the southeast and lower Midwest (Brown 1981). The West site graves were constructed with large slabs of limestone used to form vertical side walls and horizontal capstones. This specific grave construction is considered distinctive of the Middle Cumberland culture (Breitburg and Moore 2001; Brown 1981; Dowd 1972, 2008). In addition, the West site has been defined as a typical representation of the Middle Cumberland stone-box style (Dowd 1972, 2008).

The site has produced radiocarbon dates of 565 ± 110 BP and 640 ± 115 BP (Dowd 1972; Smith 2002; Wright et al. 1973), placing it within the late Regional III to early Regional IV period as recently defined by Moore and Smith (2009:208-210). The onset of the Regional IV period is marked in part by the widespread appearance of village cemeteries throughout the Middle Cumberland region.

Previous Research

Avocational archaeologist John Dowd began excavating the West site in 1967 along with H. C. “Buddy” Brehm, and later published a site report with descriptions of each burial (Dowd 1972). The Dowd report provides detailed descriptions of each burial and stone-box, including information on construction quality, floor

type, materials, grave goods, preservation, depth to top stone, and some biological data for each individual. The report does not, however, address the site demography or generate any direct conclusions from the skeletal remains.

The skeletal collection was donated to the University of Tennessee and subsequently analyzed (Wright et al. 1973). This analysis expanded on the biological data for the population, providing age, sex, stature, and a description of pathological conditions for each individual. This work identified an unusually large number of subadults that dominated the collection, and also reported a low frequency of pathological conditions (restricted to the dentition and one periosteal lesion observed on the fibula of an adult male, individual 23A).

Methodology

The analysis results presented in this article corroborates and builds on the previously mentioned analyses. This work will suggest the unique suite of characteristics seen at the West site indicates a different way of life than is common at contemporary Mississippian sites.

The West site skeletal collection is particularly well-suited for demographic analysis because the cemetery was completely excavated and documented. However, the relatively small population sample still available for analysis is problematic. The primary method of age estimation for this study is dental formation and eruption for subadults (Ubelaker 1979). Dental wear was an important age indicator for adult individuals because of the lack of postcranial material (Lovejoy 1985). Aging skeletons based on dental wear can be prone to error, as the rate of wear varies among individuals due to status, subsistence, and biological factors. However, this method was chosen given the absence of more complete skeletal remains.

In order to develop an understanding of dental wear patterns for this site, a comparison was made between the dental wear patterns of the four most complete and securely aged individuals. Individuals 19A, 28A, 38A, and 50B had the most numerous and well-preserved skeletal and dental elements in the population, so they could be aged more precisely and then used as a standard of comparison for the rest of the population. Cranial suture closure was used as a secondary method for aging when possible. In most cases, individuals could be assigned decadal age range categories similarly used in other Middle Cumberland site analyses, including Ganier and Arnold Village (Ferguson 1972; Ward 1972). Sex estimation for adults is based on cranial morphology following standard cranial morphological indicators (Buikstra and Ubelaker 1994).

Pathologies and trauma were recorded for all individuals, although the incidence was low. All skeletal remains were examined for cribrae orbitalae, porotic hyperostosis, dental carious lesions, linear enamel hypoplasias (LEH), trauma, and any other abnormalities. The number, location, and severity of dental pathologies were noted for each individual with preserved dentition (Goodman and Rose 1990). A preliminary prevalence rate is presented in this analysis. As neither prior publication on the skeletal assemblage noted any exostoses, special attention was given to all temporal bones. Exostosis was recorded per individual, with unilateral and bilateral treated the same. Each exostosis was graded by

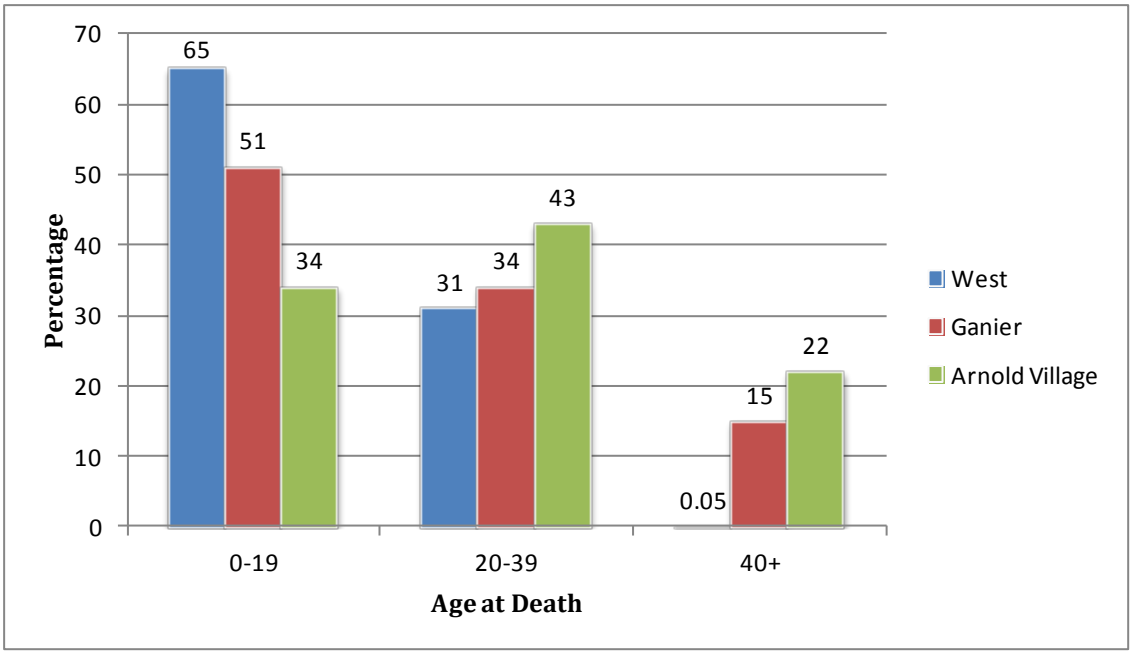

FIGURE 1. Age at Death at selected Middle Cumberland Mississippian sites.

degree of occlusion, with location and number also noted. Each exostosis was graded as 1/3, 2/3, or greater than 2/3 occlusion (Crowe et al. 2010; Kroon et al. 2002; Standen et al. 1997).

General Observations on Demography and Health

The 45 individuals available for analysis suggest this population had a high subadult mortality rate. Only 18 individuals (40%) reached adulthood, while 27 individuals (61%) died younger than age 10. The raw demographic data are reported in Table 1, and compared with two other Middle Cumberland sites (Ganier and Arnold) in Figure 1. The statistical significance of these differences was calculated by regrouping the populations into three broader age ranges to include the four West site adults that could not be assigned a decadal age range. These comparisons show the proportion of West subadults is greater than either Ganier or Arnold. This trend is significant based on chi-square tests comparing the West site to Ganier (χ^2 = 5.87; df = 2; p≤ 0.05) and to Arn old (χ^2 = 20.05; df = 2; p≤ 0.05). In addition to the significant overrepresentation of subadults, the West population has more than twice as many males (*n*=11) as females (*n*=5). The population size for adults is too small for a statistical analysis of sex distribution.

TABLE 1. Age at Death by Sex.

Age Group	Male	Female	Sex Indeterminate	Total
B-9	N/A	N/A	27	27
10-19	1	1	0	2
20-29	7	0	0	7
30-39	1	2	0	3
40-50+	1	1	0	2
Indeterminate Adults	1	1	2	4
Total	11	5	29	45

Pathologies and trauma are generally absent from West site individuals, with the exception of dental pathologies. Dental caries and linear enamel hypoplasias (LEH) are present, although not in a large portion of the population. Thirty-seven individuals in the collection had dentition

TABLE 2. Dental Pathologies at the West Site (the condition is reported as either present or absent for all individuals with some dentition preserved).

Age Group	Linear Enamel Hypoplasias		Caries	
	Absent	Present	Absent	Present
B-9	23 (96%)	1 (4%)	17 (71%)	7 (29%)
10-19	1 (50%)	1 (50%)	1 (50%)	1 (50%)
20-29	5 (83%)	1 (17%)	4 (67%)	2 (33%)
30-39	3 (100%)	0 (0%)	0 (100%)	3 (100%)
40-50+	2 (100%)	0 (0%)	1 (50%)	1 (50%)
Total Subadult	**23 (96%)**	**1 (4%)**	**17 (71%)**	**7 (29%)**
Total Adult	**11 (85%)**	**2 (15%)**	**6 (46%)**	**7 (54%)**

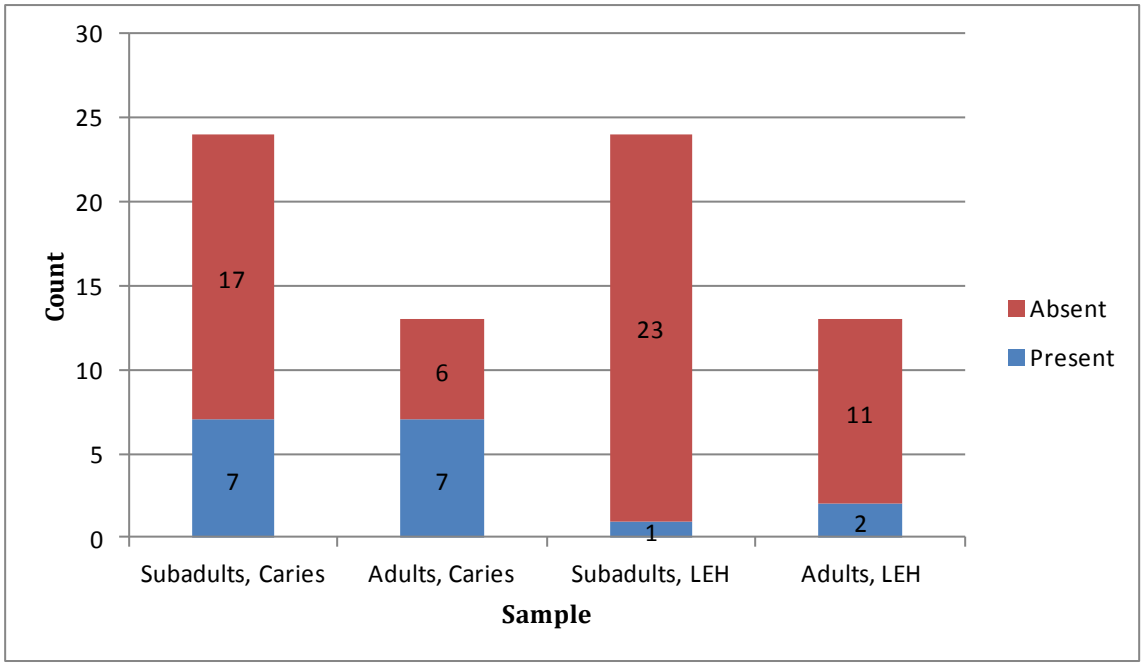

FIGURE 2. Dental Pathology Count: Individuals (these are not frequencies, but numbers of individuals with at least one dental carie or linear enamel hypoplasia).

available for analysis. Of these, 38% (*n*=14) have at least one carious lesion. Four individuals have either large or multiple caries. Linear enamel hypoplasias are present in less than one percent (*n*=3). One adult female has a large abscess. Carious lesion and LEH data are shown in Table 2 and Figures 2-3 as preliminary prevalence rates.

This relatively low frequency of dental disease could suggest that the West site was not inhabited by intensive agriculturalists. The lack of evidence for nutritional stress could also indicate this population was utilizing Cumberland River aquatic resources to supplement agricultural subsistence. Future analysis of the West site population should include data collection of a true prevalence rate of dental caries and linear enamel hypoplasias to make an accurate comparison to contemporary sites possible.

Of the 18 adults in the collection, only four had at least one temporal bone complete enough to examine for exostoses. Adults are the focus of this report since exostoses require years to

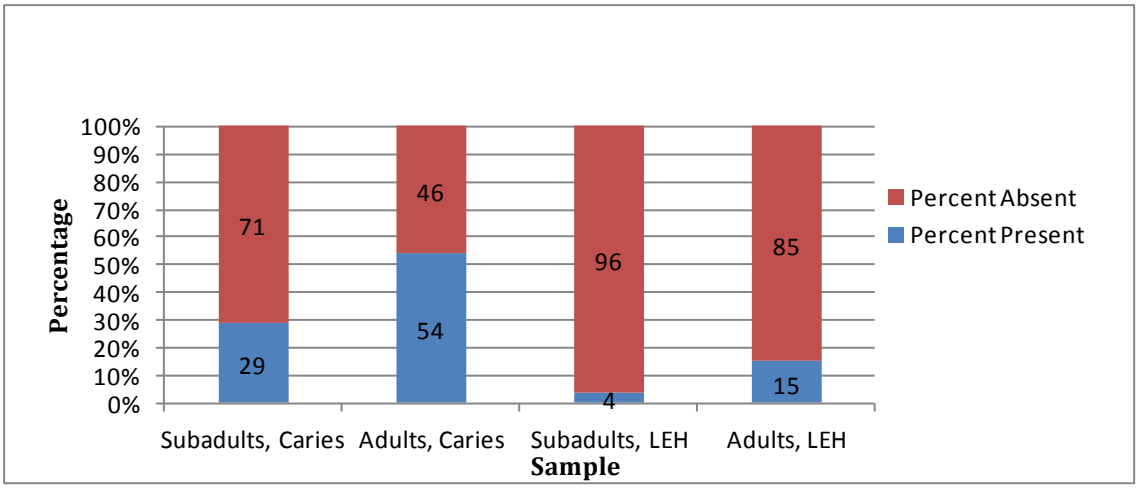

FIGURE 3. Dental Pathology Percent: Individuals (these are not frequencies, but percentages of individuals with at least one carie or linear enamel hypoplasia compared to those without).

form (DiBartolomeo 1979; Kennedy 1986). Subadults may have engaged in the same activities, but they would not have done so for a long enough period of time to develop the condition. Three of the four individuals examined (two males and one female) have exostoses, with two severe cases (greater than 2/3 occlusion) and one mild presentation (1/3 occlusion). The discovery of this condition within the West site population is surprising since the site occurs in a moderate climate zone and Middle Cumberland Mississippian populations are not thought to have relied heavily on aquatic resources. The prevalence and severity of exostoses observed, however, support the suggestion that this condition is the result of deliberate behavior involving extended exposure to cold water.

Auditory Exostoses

An auditory exostosis is a benign bony growth in the external auditory meatus of the temporal bone that can be severe enough to nearly completely obstruct the ear canal (DiBartolomeo 1979; Graham 1979). This pathological condition is caused by a combination of environmental and behavioral factors, and likely has no genetic component (Godde 2010). The tumors are usually asymptomatic until the degree of obstruction becomes great enough to affect hearing (Graham 1979; Gregg and Bass 1970).

Exostoses are similar in appearance to osteomata, another type of bony growth found in the ear canal, but it is important to differentiate between them because they have different etiologies. Exostoses are often bilateral and symmetrical with a broad base, nodular appearance, and histological structure lacking fibrous tissue (Graham 1979). While osteomata originate in the tympanomastoid or tympanosquamous suture, and they are not correlated with aquatic activities (Hutchinson et al. 1997; Okumura 2007). Exostoses are rarely reported in those who do not frequently engage in aquatic activities (Moore et al. 2010). However, Hutchinson et al. (1997) challenge the cold water etiology of exostoses, cautioning against relying solely on their presence in low frequencies as an argument for aquatic subsistence strategies.

While factors other than cold water exposure may contribute to the development of auditory exostoses (such as wind chill and ambient temperature), the correlation between cold water exposure and high frequencies of the condition remains strong (Hutchinson et al. 1997; Kennedy 1986). Auditory exostoses are commonly used in bioarchaeological studies as an indicator of aquatic subsistence strategies and other aquatic activities. The condition has been reported in moderate frequencies in populations from prehistoric Brazil, up to 56%; prehistoric Chile, up to 58%; and Imperial Rome, between 1–38% (Crowe et al. 2010, Manzi et al. 1991; Okumura et al. 2007; Standen 1997). In Tennessee this condition has been found at Archaic period sites including Ensworth (Deter-Wolf et al. 2004) and Eva (Lewis and Lewis 1961), and in low frequencies at several other Mississippian sites. Ledford Island, Cox, Fains Island, and David Davis Farm are all situated near major waterways in East Tennessee and exhibit frequencies of auditory exostoses ranging from 8–14 % (Harle 2010). The severity and frequency observed at the West site, along with supporting archaeological evidence, is significant enough to suggest utilization of aquatic resources.

Three West site adults have auditory exostoses, two males (23C, 28A) and one female (23D). Even if none of the other adults had exostoses, the frequency for the adult population is at least 16.7 %. Both males have bilateral presentations, with exostoses obstructing more than 2/3 of the external auditory meatus. The female has one temporal bone present, with 1/3 of the external auditory meatus obstructed.

Two of these individuals (male 23C and female 23D) were interred in a single grave. Dowd (1972) described the Burial 23 coffin as well-constructed with a stone floor, and slightly wider than most other graves at the site. Burial 23 contained one extended adult, two bundled adults, and one bundled child. Two ceramic vessels, two other ceramic artifacts, and a stone artifact were recovered from the grave.

The third affected individual (male 28A) was also interred with another adult individual whose temporal bones were not preserved. Burial 28 was a very narrow grave with well-made walls, a solid stone floor, and more topstones (*n*=17) than most graves at the site (Dowd 1972). No artifacts were present in the grave.

The most severe case of auditory exostoses is seen in individual 28A, a young adult male represented by an intact right portion of the cranium and face, an isolated left temporal, a complete mandible, and both femora. The cranium exhibits bilateral auditory exostoses that are generally symmetrical and occlude more than 2/3 of the external auditory meatus, extending from the base of the meatus to the opposite margin of the meatus (Figure 4). The left exostosis is slightly larger, nearly completely occluding the ear canal (Figure 5).

Individual 23C, a young adult male, is represented by the cranium minus the left side of the face. There are symmetrical and bilateral exostoses on the anterior margin of each external auditory meatus that extend almost to the opposite margin of the ear canal, also occluding more than 2/3 of the canal (Figure 6).

The least severe manifestation seen in this population is Individual 23D. This older adult female displayed one 1/3 obstruction of the external auditory meatus. If these three individuals do in fact represent the population norm, then they provide a strong indication that aquatic activities were an important part of everyday life for both males and females.

FIGURE 4. Auditory Exostosis in the right external auditory meatus of Individual 28A.

FIGURE 5. Auditory Exostosis in the left external auditory meatus of Individual 28A.

Other Signs of Aquatic Activities

Auditory exostoses at the West site are the most direct indicator of aquatic activities. The project analysis also noted the lack of severe nutritional stress, tooth wear, and large percentages of dental caries. These pathologies are common in other Middle Cumberland Mississippian skeletal populations and have been linked to an intense reliance on maize (Larsen 1994; Ward 1972). Insight into how often the West site population exploited aquatic resources to supplement their diet is, unfortunately, impossible to determine with the available information.

Aside from mussel shell, otter and fish bone from Burial 12 comprise the only direct zooarchaeological evidence for aquatic resources from the site (Dowd 1972:24). However, their placement within a ceramic bowl inside the grave

FIGURE 6. Auditory Exostosis in the right external auditory meatus of Individual 23C.

begs the question of their importance as food items or ritual paraphernalia. Three bone fishhooks were recovered from Burial 14 (Dowd 1972).

There are additional indicators that aquatic resources were important to the site population. Mussel shells were laid on the floors of four stone-box graves (Burials 9, 33, 36, and 40) (Dowd 1972: 20-21). Their inclusion within a limited number of graves suggests the shell held some meaning to either the interred individuals or site residents. Unfortunately these individuals could not be evaluated for exostoses to assess a possible connection.

Another consideration is that mussel shells were crushed and used as tempering agents in Mississippian ceramics. Perhaps the site residents intentionally (even selectively) harvested shells directly from the Cumberland River channel or larger tributaries to make certain vessel types or effigy styles.

Summary

The West site represents a small Mississippian village and cemetery that dates to the late Regional III and early Regional IV periods, roughly AD 1275-1375 (Moore and Smith 2009). The Mississippian period throughout the study area is characterized by the intensification of maize agriculture along with nutritional stress and poor dental health. However, new skeletal analysis results suggest this may not be an accurate portrayal of the West site population. Dental caries, a common indicator of agricultural subsistence, are relatively rare (38%), and the low prevalence of linear enamel hypoplasias (< 1%) indicate this population experienced less nutritional stress than other Middle Cumberland populations.

The presence, frequency, and severity of auditory exostoses observed in the West site population suggest intensive exploitation of the nearby aquatic resources. This unique combination of characteristics hints at a different way of life than is commonly seen in other Middle Cumberland Mississippian period sites.

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MISSISSIPPIAN CERAMICS AND SETTLEMENT COMPLEXITY: INSIGHTS FROM THE BEASLEY MOUNDS (40SM43), SMITH COUNTY, TENNESSEE

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Although the Beasley Mounds site (40SM43) has been known since the early nineteenth century, only brief antiquarian notes and limited collections have been available to evaluate its relationship to the Middle Cumberland culture sites of the Central Basin. As part of the on-going efforts of the Middle Cumberland Mississippian Survey to refine the boundaries and chronology of the region, we directed a small-scale mapping and excavation project at Beasley Mounds in early 2008. Resulting ceramic samples suggest that the site residents were more closely affiliated culturally to those of the upper Cumberland and East Tennessee than to their nearer neighbors to the west. A single radiocarbon date from platform mound construction at the site suggests that it served as a socio-political center contemporaneous with those at the nearby Castalian Springs and Sellars sites to the west and south -- but was occupied by people whose material culture was (ethnically?) distinct from those to the west and south and more closely related to those from the east and north.

Historically, several different descriptive names have been used in reference to site 40SM43, including "Old Town at the Mouth of Dixon Creek," "Dixon Mound," and "Dixon Springs fort," among others. In the absence of a consistent published name, we refer to the site as "Beasley Mounds," recognizing the current landowners who recently placed the site under conservation covenants. During March 2008, the authors directed a small-scale testing project to generate some modern archaeological information about the site under the auspices of the Middle Cumberland Mississippian Survey, a long-term collaborative project of the Tennessee Division of Archaeology and Middle Tennessee State University. More specifically, the project was designed to augment on-going research at the Castalian Springs Mounds (40SU14), the nearest polity downriver (to the west) in Sumner County (Figure 1).

Three mound sites are approximately evenly spaced around Castalian Springs -- Beasley Mounds, 22 km to the east; Rutherford-Kizer (40SU15), 27 km to the west; and Sellars (40WI1), 26 km to the south. Of the three, both Rutherford-Kizer and Sellars have experienced relatively extensive well-documented antiquarian and modern excavations (Butler 1981; Moore and Smith 2001, 2009). The results of the 2008 project provide some limited but critical suggestions about the complex interactions of Mississippian polities and their residents on the eastern periphery of the Central Basin of Tennessee.

Historical Background

The earliest known mention of the Beasley Mounds was published by John Haywood (1823:158) in his "aboriginal history" of Tennessee:

> *Twelve miles below Carthage on the Cumberland River is a cave in which are human bones of all sizes, about a mile from the river. There is a burying ground near to the fortification. In this burying ground 15 years ago were many skeletons, and with many of them were found pipes*

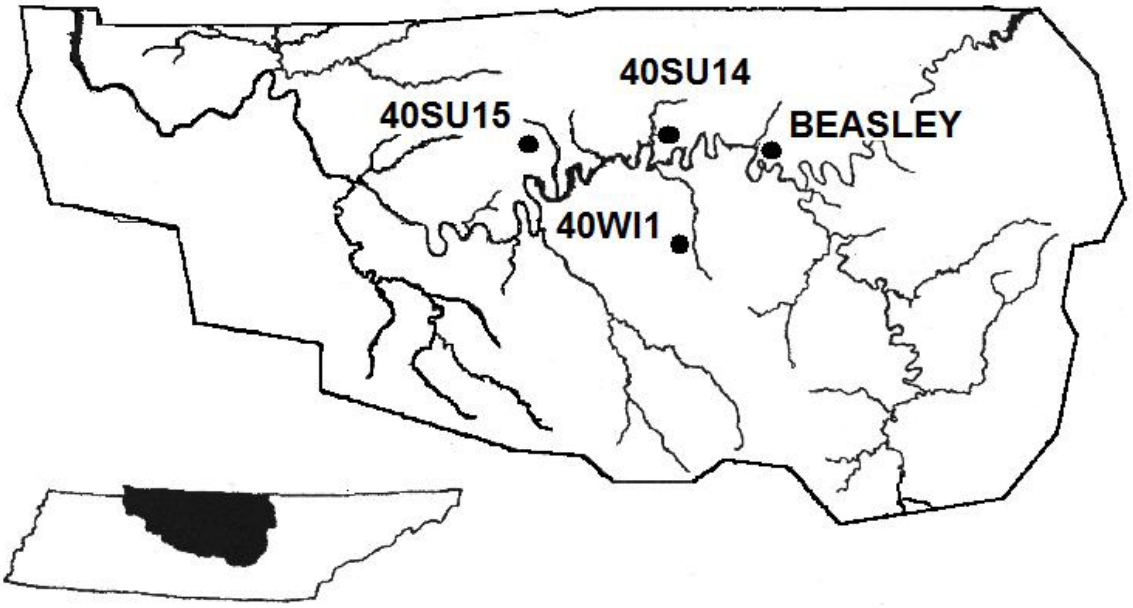

FIGURE 1. Location of Beasley Mounds (40SM43), Castalian Springs (40SU14), Rutherford-Kizer (40SU15), and Sellars (40WI1) in the Cumberland River Valley.

> *and water vessels of earthen ware. Near to the burying ground is a deep creek running into the river, forming an acute angle. At some distance from the junction is a ditch from the creek to the river, and the remains of a parapet. Opposite to the entrance way and about six feet from it, is the appearance of a wall in the inside, so formed as to turn those who entered to the right or left. In the interior were several mounds.*

While brief, this description suggests the presence of extensive late prehistoric cemeteries and remnants of a possible bastioned palisade enclosing several mounds.

More substantive maps and notes are found in the unpublished records of William Edward Myer (1862-1923), an early archaeologist from nearby Carthage, Tennessee who explored much of the Middle Cumberland region both independently and as an employee of the Smithsonian Institution (Smith 1998).[1] Myer's unpublished notes include a sketch map and dimensions for each of the five presumed mounds and other earthworks (Figure 2). Smith and Miller (2009:55) provide a summary of Myer's notes:

> *...the "village area" was dominated by a large mound 8 ft (2.5 m) in height and approximately 180 ft (55 m) in diameter... Three hundred feet east of the main mound was a second mound, 3 ft (1 m) high and 125 ft (38 m) in diameter. To the south and southeast of these two primary mounds were three other smaller mounds 2 to 3 ft in height and averaging 100 feet in diameter. Along the eastern side of the village, between the river and the creek, were earthworks originally 4 to 6 ft in height.*

Myer's unpublished manuscripts also document the discovery of seven or eight Tennessee-Cumberland style stone statues at the site between 1898 and

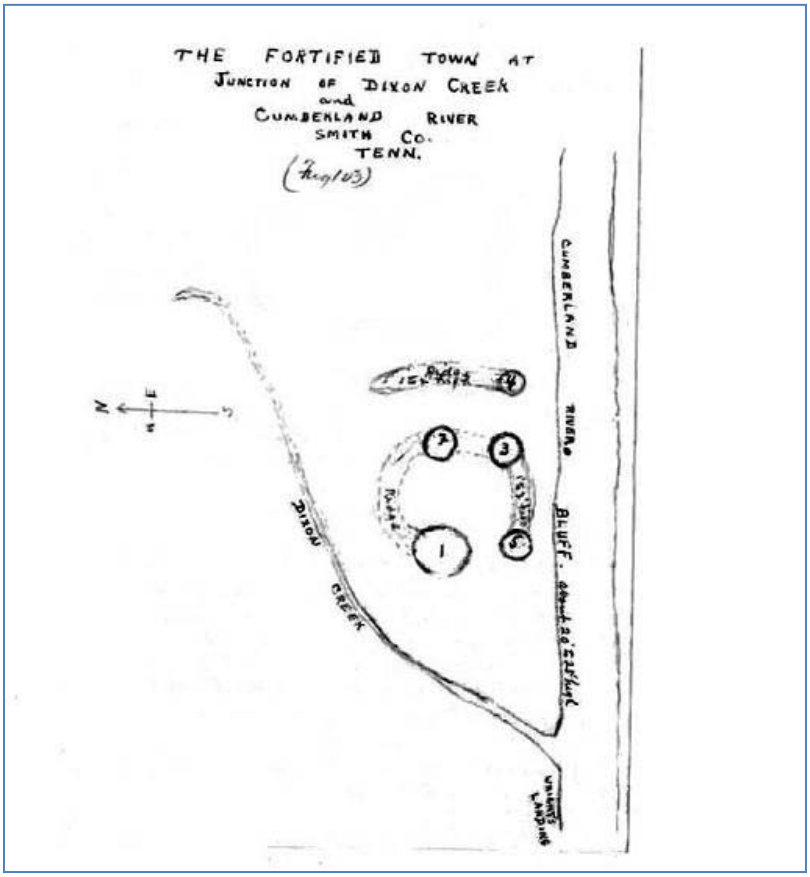

FIGURE 2. Myer sketch map of Beasley Mounds, oriented with north to the left (*NAA 2570, National Anthropological Archives, Smithsonian Institution*).

1923 (previously described in Smith and Miller 2009:53-61), the largest single concentration of such artifacts in Tennessee.

Myer further documents explorations at the site by his friend Sam Stone Bush in 1895. Bush was a long-time resident of Louisville, Kentucky, but his wife, Mary Allen, was from the community of Dixon Springs, Tennessee (Kerr 1922). During visits to Smith County, Bush dug extensively at a number of local sites, including both Beasley Mounds and Castalian Springs (Figure 3). He later gave several of the recovered artifacts to Myer, some of which survive in a separate Myer collection at the National Museum of the American Indian.

Assuming Myer's sketch map and measurements are accurate, extensive plowing of the site for various crops during the nineteenth and twentieth centuries substantially impacted the earthworks. By the time James Miller visited and photographed the site in the 1980s, it had been converted to pasture (Figure 4). Mound 1 was still clearly visible with some possible remnants of the other mounds and earthworks traceable. After acquisition by the Beasley family, the site was placed under a forest stewardship plan and planted in a stand of yellow poplar in 1991. The trees were planted on a grid about three paces apart (i.e., roughly 2.5-3 m or 8-10 ft). From the south side of the site, the rows run approximately 20 degrees east of current magnetic north (Figures 5 and 6).[2]

FIGURE 3. Five ceramic vessels. Handwritten notes on reverse reads “Pottery from old town at mouth of Dixon's Creek, excavated by Sam Stone Bush 1895 - 2&3 show rounded, indented, lotus conventional form - sorry not able to get better photo.” (*Photograph in William Myer collection, Courtesy Samuel D. Smith*)

FIGURE 4. Beasley Mounds, ca. 1985 facing east. Mound 1 is visible at the upper left (*Photograph courtesy James V. Miller*).

Beasley Mounds Archaeological Project 2008

During early March 2008, the authors directed a small-scale mapping and excavation project at the site (Smith and Beahm 2008). Our goals were to field truth the accuracy of the Myer sketch with reference to postulated earthworks, assess current integrity of archaeological deposits, obtain artifact and carbon samples to facilitate determination of site chronology, and support nomination of the site to the National Register of Historic Places.

Elevations for a significant portion of the site core were recorded using a Trimble total station, which were subsequently used to generate a topographic map rendering (Figure 7). Mound 1 remains a very prominent feature of the landscape, retaining some indications of its flat-topped status despite decades of plowing. Mound 2, although deflated, remains visible both to the eye and as a map feature. Although not always clearly visible to the eye in the

FIGURE 5. Mound 1 and rows of poplars, view to north. Volunteers are ascending the slope of Mound 1 in the background (*Photograph: March 5, 2008*).

FIGURE 6. Mound 1 after removal of poplars, view to northwest (*Photograph April 2, 2011*).

poplar grove, the ridges flanking the central "plaza" are marginally discernible. Mound 3 appears to be largely deflated, although basal remnants might be preserved. Portions of Mound 5 also appear to be extant. Due to time constraints and intervening trees, we were not able to extend the topographic map to include Mound 4 and its associated "ridge" – these features were not visible during a surface inspection. Although speculative, the low elevations adjacent to the southeast flank of Mound 1 may represent backdirt resulting from the "tunnel" excavated by Sam Stone Bush in 1895.

During the 2008 fieldwork, ten 1x1 m test units were placed intuitively to provide some general information about different parts of the site (Figure 8). These units were oriented with magnetic north and labeled with letters A through J. Due to

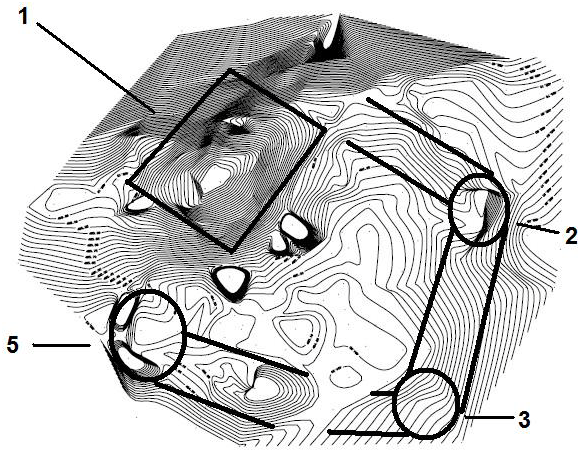

FIGURE 7. Topographic map generated from 2008 Beasley Mounds project overlaid with interpretation of surviving mounds and ridges shown in Myer sketch map.

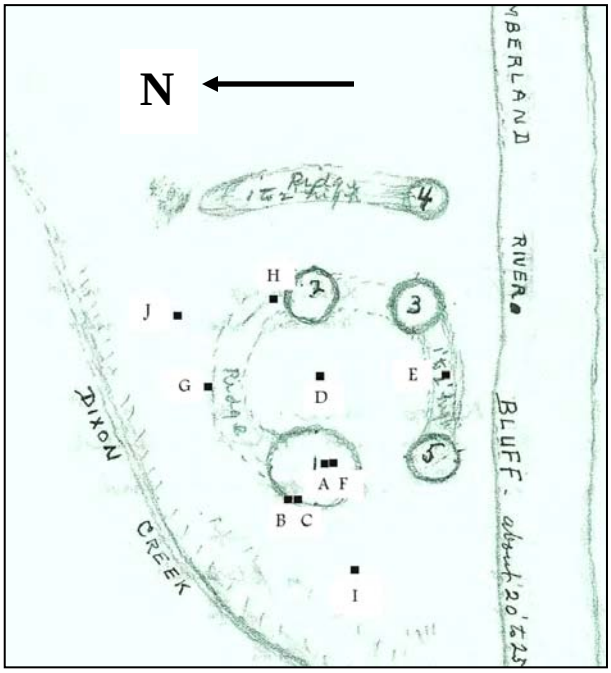

FIGURE 8. Location of 2008 test units overlaid on Myer sketch map (not to scale).

the dense stand of poplars, no effort was made to place these units on a consistent grid, although corners were recorded relative to a permanent concrete benchmark placed in the plowzone atop Mound 1.

Mound 1 Excavations (Test Units A+F, B+C)

Test Unit A encountered the highly disturbed remnants of a human skeleton as evidenced by a molar, fragments of cranium, and a mandible fragment. Based on associated artifacts (two cut nails and a screw), the burial appears to be from the mid-late nineteenth-century A.D. The presence of at least one additional historic burial was noted by a former owner of the property who exposed a skeleton on the mound summit several decades ago that was reportedly accompanied by "gold-plated" (gilt) coat buttons and a copper shoe plate. Who these skeletons might represent remains unknown. None of our informants were aware of any historic cemetery on the property, although one speculated that they might be associated with the steamboat landing formerly located directly across Dixon Creek from Mound 1. Pursuant to consultation with Michael C. Moore, State Archaeologist, excavation of Unit A was terminated.

Unit F was opened adjacent to Unit A. Beneath the plowzone, apparent basket-loaded moundfill was identified. Portions of the fill also appear to incorporate debris resulting from demolition of a prehistoric structure. The basket-loaded fill extended to a minimum depth of 60 cm below the current surface, where the excavation was terminated. Incorporated in the fill or demolition debris was a poorly preserved mussel shell pendant or gorget with two paired drilled suspension holes at the maximal end of the shell.

The most fortuitous discovery during the short project was a series of several distinctive mound stages in a 1x2 m trench (Test Units B and C) on the northwest flank of Mound 1. At least two and possibly four different stages of flat-topped mound construction were

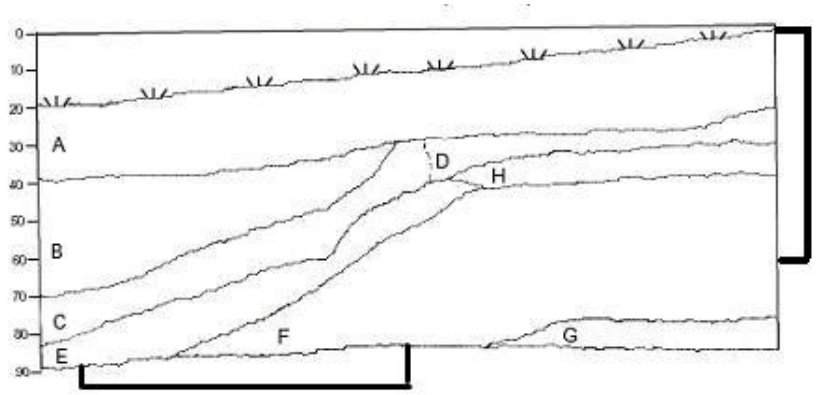

FIGURE 9. East wall profile of Test Units B&C in Mound 1. Lower bracket shows the location of Figure 10 while right bracket shows the location of Figure 11.

FIGURE 10. Portion of east wall of Test Unit B and C in Mound 1 (see lower bracket in Figure 9 for location).

documented (Figures 9-11). The base and profile of an early stage of mound construction was clearly identified (marked "F" in Figure 9). Although not clear from the current excavations, it is possible that this represents the initial stage of mound construction. A clear second mound stage overlying F was also identified (marked C, D, E, and H in Figure 9). Although further excavation would be necessary to corroborate, it appears that strata E and H represent a second stage and C and D represent yet a third construction stage. Overlying all of these stages was a dense charcoal packed deposit (Stratum B) that likely represents the displaced remnants of a burned structure. Stratum B terminated in the plowzone, making it unclear whether this represents an area of refuse dumping

FIGURE 11. East wall of Test Units B&C, partially excavated (see right bracket in Figure 9 for location).

that accumulated during use of an active mound summit or a mound construction episode incorporating a burned structure from the mound summit (Smith and Williams 1994).

A charred wood sample from the apparent burned structure remnants yielded a calibrated radiocarbon date of A.D. 1280.[3] Working on sites of a similar time frame in northern Georgia, David Hally concluded that the average use life of platform mound summits was 15-20 years (Hally 1996). With two and possibly three preceding summits documented, we extrapolate that mound construction was probably initiated by at least the early thirteenth century.

Other Units

"Plaza" Area. Test Unit D was placed near the center of what appeared to be an open flat plaza. Very few artifacts were recovered, supporting an interpretation that this area might have been a plaza kept clear of residential debris. The stratigraphic profile of this unit supports Myer's assertion that the area may also have served as a borrow area (possibly for moundfill).

South-Central "Ridge." Test Unit E was placed near the center of the "ridge" remnant on the south central portion of the site. The plowzone yielded a few artifacts, but no midden or significant concentration of artifacts were noted.

North-Central "Ridge." Test Unit G[4] yielded a dense and concentrated midden deposit containing significant quantities of ceramics, lithics, and fauna including large quantities of freshwater gastropods and bivalves. This apparent midden extended to a depth of 50-55 cm. At the base of the midden, a short segment of a probable wall trench was identified and excavated. No postmolds or stains were noted in the wall trench. After completion of this unit, a 50-cm square column sample was excavated adjacent to this unit in 5-cm levels for future detailed analysis.

North-East "Ridge." Test Unit H was placed on the apparent "ridge" near the remnants of Mound 2. No evidence of

TABLE 1. Beasley Mound Ceramics.

	Test Unit										
	Mound 1 Summit		Mound 1 Flank		South Central "Ridge"	North Central "Ridge"	North East "Ridge"	Periphery		Feat	
Provenience	**A**	**F**	**B**	**C**	**E**	**G**	**H**	**I**	**J**	**1**	**Total**
Limestone tempered plain		3	1	1	1			2	4		**12**
Limestone tempered cordmarked				2					1		**3**
Mississippi Plain	1	8	19	13	4	135			2	10	**192**
Bell Plain			1			1	1		2		**5**
Kimmswick Fabric Impressed						4					**4**
Shell and limestone tempered plain			1	3	1	2			2		**9**
Shell and limestone cordmarked body				2		13					**15**
Shell tempered cordmarked/ smoothed over cordmarked		4	1	2		28					**35**
Shell tempered checkstamped	1		3	3		41				2	**50**
Shell tempered, unidentified incised				1		1					**2**
Shell tempered, unidentified impressed						2					**2**
Shell tempered cordmarked and red filmed						1					**1**
Shell tempered, red on buff		1				2					**3**
Shell tempered, white wash or slip				1							**1**
Gritty paste, no apparent temper			1				3				**4**
Fine paste, no apparent temper				1		1				1	**3**
Total	**2**	**16**	**27**	**29**	**6**	**231**	**4**	**2**	**11**	**13**	**341**

deliberate earthwork construction was noted, and relatively few artifacts were recovered. Although clearly additional investigations would be necessary to confirm, the results from this unit tend to support Myer's notion that the ridges surrounding the "plaza" are primarily a by-product of borrowing "fill" from the interior than adding "fill" to create ridges.

Western Periphery. Test Unit I was placed to the west/southwest of Mound 1 on a relatively flat area. The unit contained dark black midden from the plowzone base down to about 40 cm. Two limestone tempered plain body sherds were identified in this unit as well as significant amounts of lithics, burned limestone, and faunal remains. A possible posthole was identified at the base of the excavation unit.

Northeastern Periphery. Test Unit J was placed approximately 20 meters east of Test Unit G to determine if the midden continued in this direction. The midden was not noted in this unit, and artifacts were very sparse.

Artifact Assemblage

Although our focus here is on the ceramic assemblage, some brief notes on the overall artifact assemblage are warranted. One of the most striking features of the Beasley Mounds assemblage is the large quantity of freshwater shell present in the midden -- nearly three kilograms were recovered (over 0.7 kg of mussel shell and over 2.2 kg of gastropods) with the majority from Test Unit G. This concentration facilitated the excellent preservation of nearly 0.5 gm of bone fragments in the Test Unit G midden.

A total of 2,693 lithic artifacts was recovered, most of which are chert flakes and other stone tool manufacturing debris.

Three Dover chert flakes represent a clear non-local stone resource in the sample. Six projectile point fragments were recovered (including the base of a Mississippian triangular point), along with six biface fragments, an abrader, and a hammerstone.

The Beasley ceramics (*n*=341) are clearly distinct from any Mississippian period assemblage previously examined from the Cumberland River portion of the Central Basin (Table 1). While the majority of the ceramics were plain surfaced, significant percentages are cordmarked/smoothed-over cordmarked (15%), and check-stamped (15%), along with a minor representation of fabric-impressed pans (1.5%). Figures 12-13 illustrate the distribution of temper type and surface decoration.

Shell-tempered cordmarked ceramics (Figure 14) are known from Central Basin Mississippian ceramic assemblages, but appear to derive almost entirely from components that pre-date A.D. 1200 (Spears et al. 2008). Most distinctive in the Beasley assemblage is the presence of shell-tempered sherds exhibiting square and diamond shaped check-stamping (Figure 15). This type of surface treatment on shell-tempered ceramics is virtually unknown from the Central Basin, although two small check-stamped sherds were recovered at the Rutherford-Kizer Mounds (Moore and Smith 2001). In addition, several sherds of shell-tempered red-filmed ceramics were recovered at the site from both the Mound 1 and midden contexts (Figure 16). Red-filmed surface treatments are even rarer than check-stamping in Central Basin assemblages.

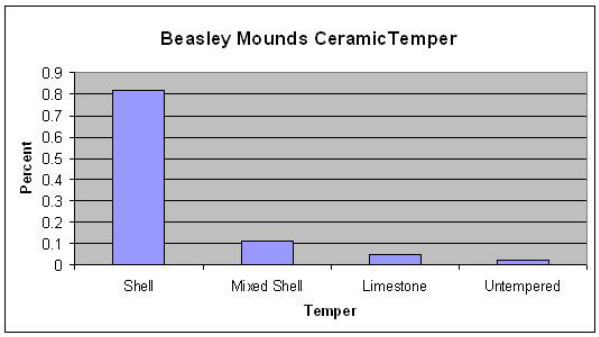

FIGURE 12. Temper/inclusions of Beasley Mound ceramics.

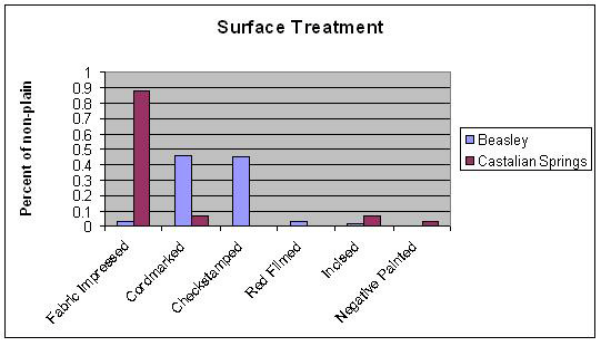

FIGURE 13. Surface treatment of Beasley and Castalian Springs ceramics.

FIGURE 14. Shell tempered cordmarked ceramic sherds. Top right from column sample, top middle and left from Test Unit F, lower right and left found in Test Unit G.

Discussion

The Beasley Mounds ceramic assemblage is clearly distinct from the

previously defined Middle Cumberland assemblages in the heart of the Central Basin. The question then becomes whether the distinctiveness is a result of chronological or cultural factors (or both). The single radiocarbon date from Beasley Mounds is well within the range of dates obtained from Castalian Springs, the mound site 22 km to the west (Beahm et al. 2010). In the larger picture, the Beasley Mounds ceramic assemblage not only contrasts with that of Castalian Springs, but also contrasts strongly with ceramics assemblages at any known point in time in the Middle Cumberland region. When present, shell-tempered cord-marking makes up <1% of surface treatments. Further, very few Middle Cumberland sites yield any shell-tempered check-stamped sherds. For example, the Rutherford Kizer assemblage contained only six examples of shell-tempered cordmarked and two specimens of shell-tempered check-stamped ceramics out of the over 9500 shell-tempered sherds recovered from modern excavations (Moore and Smith 2001).

The Beasley Mounds ceramic assemblage is more similar to Mississippian assemblages in the upper Tennessee River Valley such as DeArmond and Hiwassee Island based on the abundance of cordmarking and red-filmed surface treatments, but check-

FIGURE 15. Shell tempered check stamped ceramic sherds from Test Unit G.

FIGURE 16. Red Filmed ceramic sherds. Left and top sherds from Test Unit G, sherd on right from Test Unit F.

stamping at these sites is much less common or absent (Koerner 2005; Lewis and Kneberg 1946). In the Norris Basin area in northern Tennessee, James Griffin reported cordmarking present on shell-tempered sherds from several sites (Griffin 1938:302). Two examples of shell-tempered check-stamped sherds were found and red-filmed ceramics were present in small quantities at four sites (Griffin 1938:305). In addition, very limited testing at the Frogge Mound and Village site (40FN180) on the northern Cumberland Plateau produced a total ceramic assemblage of one shell-tempered cordmarked sherd (Site Information Files, Tennessee Division of Archaeology).

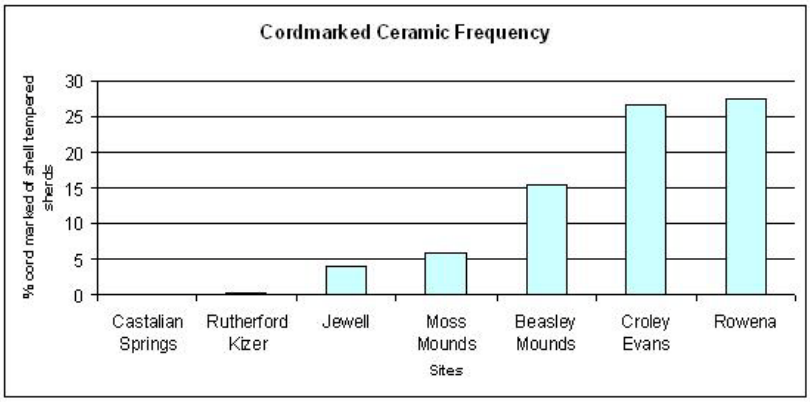

FIGURE 17. Cord Marked ceramic frequency at selected sites (comparative data from Hanson 1970; Jefferies et al 1996; Moore Smith 2001;Weinland 1980).

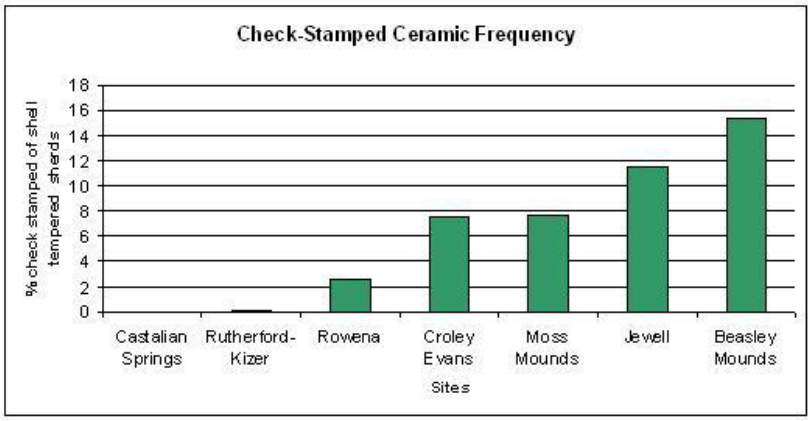

FIGURE 18. Check Stamped ceramic frequency at selected sites (comparative data from Hanson 1970; Jefferies et al 1996; Moore and Smith 2001;Weinland 1980).

Although few of the Mississippian sites on the Cumberland River east of the Beasley Mounds in Tennessee have been investigated, some potentially comparable Mississippian assemblages have been identified along the upper Cumberland River in Kentucky. Investigations at the Rowena Mounds (15RU27; Weinland 1980) yielded significant quantities of shell-tempered cordmarked (cf. McKee Island Cordmarked) and shell-tempered check-stamped (cf. Wolf Creek Check-Stamped) ceramics. Red-filmed ceramics were not observed in the Rowena assemblage, although a few sherds of probable black-filmed ceramics were noted. More recent excavations at the Croley-Evans site (15KX24; Jefferies 2001; Jefferies et al. 1996) also yielded ceramics comparable to the Beasley Mounds assemblage, including shell-tempered plain, cordmarked, check-stamped, fabric impressed, and red-filmed examples (Figure 17-18).

The ceramic assemblage suggests that the occupants of the Beasley Mounds were not closely affiliated with sites to the west. Current observations suggest closer affiliations with Mississippian groups to the east and north in the upper Cumberland and Norris Basin region (Webb 1938).[5]

Conclusion

The 2008 Beasley Mounds Archaeological Project provides some of the first detailed evidence for a Mississippian presence in the eastern Highland Rim distinct from the better defined "Middle Cumberland" Mississippian sites of the Central Basin. Prior definitions of the "Middle Cumberland region" placed the eastern boundary at approximately the mouth of the Caney Fork River (Moore and Smith 2001). Results of the investigations at Beasley Mounds and other sites in the vicinity suggest that the boundary is more accurately somewhere between the mouth of Dixon Creek and Spring Creek. Ongoing research along the eastern edge of the Middle Cumberland Region promises to expand our understanding of these ceramic differences and further explore their sociopolitical implications.[6]

Notes

[1] The unpublished notes and manuscripts of William Edward Myer are curated by the National Anthropological Archives, Smithsonian Institution, Smithsonian Support Center, Suitland, Maryland. Materials relevant to the Beasley Mounds are in two collections. NAA 2570, includes a large number of documents in a "Subject File" apparently maintained by Myer from the late 1800s through his death in 1923. The Beasley Mounds notes were filed in Volume 2, M-Z under the subject heading of "Mounds" and are undated. NAA 2566 is Myer's planned magnum opus titled "Stone Age Man in the Middle South," with various portions dating between 1917 and his death in 1923.

[2] Subsequent to the 2008 project, Mr. Beasley removed the majority of trees from Mound 1 and the core of the site to reduce future impacts to intact archaeological deposits from root growth and treefalls.

[3] University of Tennessee Center for Archaeometry and Geochronology. Radiocarbon years before present 730 ± 70 (UTCAG 08-023 V1; charcoal; δ13C=-25.9 ± 0.02 per mil). Calibrated range using OxCal4.0: A.D. 1220-1380 (1 S.D.); A.D. 1160-1400 (2 S.D.).

[4] As this article went to press, an additional radiocarbon date of A.D. 1340 from the 2008 excavations was obtained from carbonized wood from the midden in Test Unit G. The sample was from beneath the plowzone (20-40 cmbs) and approximately 15-35 cm above the possible wall trench. Beta 323839: Radiocarbon years before present 660 ± 30 (δ13C=-25.3 ± 0.00 per mil). Calibrated range using OxCal4.0: A.D. 1285-1306 (p=0.49) and 1363-1385 (p=0.51) (1 S.D.); A.D. 1278-1322 (p=0.50) and 1347-1392 (p=0.50) (2 S.D.). Funding for this date was provided by the Tennessee Historical Commission through a grant to Dr. Tanya M. Peres (Middle Tennessee State University) and Aaron Deter-Wolf (Tennessee Division of Archaeology).

[5] Although not reported here in detail, additional excavations in 2011 at the Beasley Mounds expanded the ceramic sample considerably, and confirm the distinctive nature of the assemblage. In addition, excavations during 2011 at the nearby Moss Mounds site (40SM25) in Smith County yielded a distinctive ceramic assemblage comparable to that noted at Beasley (Beahm 2012).

[6] With encouragement from Tom "Wish" Beasley, information resulting from the 2008 test excavations was used to nominate the Beasley Mounds to the National Register of Historic Places. The site was listed (NR# 10000465) in the National Register on July 16, 2010.

Acknowledgements: First, we acknowledge the assistance of Sam Smith, a native of Smith County, in making initial contacts with the current owners of the property. Our field crew consisted of a number of present and past MTSU students along with several Middle Cumberland Archaeological Society members, including Raymond Falkenberry, Lacey Fleming, Lynn Funkhouser, George Heinrich, Susan Hollyday, Teresa Ingalls, Erik Porth, Cy Taylor, and Jesse Tune. Dr. Tanya Peres (MTSU) volunteered on two days and will be examining the faunal assemblage as part of her research on Cumberland Valley subsistence. We also appreciate the assistance of Aaron Deter-Wolf from the Tennessee Division of Archaeology. We extend special thanks to Tom "Wish" Beasley and Lewis Beasley for permitting and encouraging the

project. Our thanks also to Willy Shinault, the caretaker on the property. Funding for travel to the National Anthropological Archives and for the radiocarbon date was provided in part by a grant from the College of Liberal Arts, Middle Tennessee State University.

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DISCOVERY AND EARLY INVESTIGATIONS OF THE DOVER QUARRIES BY PARMENIO E. COX AND WARREN K. MOOREHEAD, 1926-1932

Kevin E. Smith

The "Dover Flint Quarries" of Stewart County, Tennessee have achieved an almost mythological status in the archaeological literature, based primarily on the widespread distribution of hypertrophic weapons and "eccentric flints" made from this high-grade chert during the Mississippian period. Recent historical research suggests that the Dover quarry sites were first formally identified and investigated by Warren K. Moorehead (Curator of the Department of Archaeology at Phillips Academy, Andover, Massachusetts) and Parmenio E. Cox (Tennessee's first official State Archaeologist) between 1926 and 1932.

Warren King Moorehead (Figure 1) is best known for his explorations at numerous Ohio mound sites, Cahokia in Illinois, and at the Etowah in Georgia (Byers 1939; Guthe 1939; Kelly 2000). Moorehead appears to have become interested in quarry sites along the Cumberland River as a byproduct of his discovery of an enormous deposit of flint discs at the Hopewell mound site in Ohio (Figure 2):

> *The largest deposit [of flint discs was in Mound number 22 of the Hopewell group, and from this we took out 7532 flint discs about six inches in diameter and a half inch thick... in 1891-2... Squier and Davis had taken out about six hundred in 1845, and prior to our official count, we gave to Mr. Hopewell and others about fifty, so the grand total was nearly eighty-five hundred...* (Moorehead 1910:218)

In April 1903, he led a survey of part of the lower Cumberland River valley -- excavating over 100 graves at a stone-box cemetery site on the Willis farm in Hopkinsville, Kentucky. After ending that exploration, he travelled upriver into Tennessee on a barge with his "negro laborers" where he investigated an approximately 50-acre flint quarry on the Johnson farm in Montgomery County, Tennessee about 18 miles from Hopkinsville (Figures 3-4).

Moorehead seems to have been quite excited by the discovery of the quarry site: "This was a very important discovery, as nodular flint had not been previously found in Tennessee in any considerable quantities, so far as the writer is aware" (1906:126). He went on to describe the context of his interest as follows:

> *... Mr. Fowke and other searchers have been unable to find any large quarry from which the gray or bluish nodular flint was obtained. That is, flint in particular of the same character as the Hopewell discs. An examination of the Montgomery county deposit will reveal the same kind of material as that found in the Hopewell mound... The nodules vary from ten to twenty cm. in diameter, with a coating of grayish chalk-like formation on the exterior, and within are of the same color and appearance as the Hopewell discs... Continued searching in the Clarksville region (northwestern Tennessee) may result in the discovery of much larger deposits.... (Moorehead 1906:131).*

A later description of the same expedition underlines his conviction (albeit incorrect) that the Cumberland

River was the source of much of the Ohio Valley chert:

Many years later I discovered the quarries on Little River, Tennessee, eighteen miles south of Hopkinsville, Kentucky, whence, I am persuaded, this flint was obtained. It was of the nodular variety, gray-blue in character, and could be easily worked. The quarry showed signs of extensive working... After a thorough investigation I concluded that the ancient people had quarried this flint, worked it down to convenient disc form for distribution, and taking it in canoes down the Little River to the Cumberland, down the Cumberland to the Ohio, up the Ohio to the Scioto, and then to North Fork of Paint Creek, landed it one half mile from the Hopewell village. The distance by water would be seven or eight hundred miles, as near as I can judge (Moorehead 1910:218-220).

FIGURE 1. Warren K. Moorehead, 1898 (frontispiece Moorehead 1910).

Although quarries closer to the Ohio mounds have since been identified as

FIGURE 2. Flint discs (7,232) from a mound of the Hopewell Group (Moorehead 1910)

FIGURE 3. Ravine at Johnson's Farm Near Herndon, Tennessee. The nodules are seen outcropping in two layers (Moorehead 1906).

FIGURE 4. A ledge in which are flint nodules. Johnson's farm, near Herndon, Tennessee (Moorehead 1910).

more likely sources of the Hopewell site discs, Moorehead's interest in the chert sources of the Cumberland River valley was to continue for nearly three decades, eventually involving Parmenio Edward Cox during the late 1920s and early 1930s.

In 1924, P.E. Cox picked up the reins to become the most visible individual in Tennessee archaeology after the death of William E. Myer in late 1923 (Figure 5; Smith 1998, 1999, 2008ab). That year, Governor Austin Peay appointed P.E. Cox as the first “official” State Archaeologist

for Tennessee, a position he held until his death in 1932 (Smith 1999). Cox was born in Williamson County near Franklin on September 19, 1865 and spent his boyhood at “Coralto,” the family estate on Cox Pike. After receiving his law degree from the Cumberland School of Law in Lebanon (then one of two dozen or so university law schools in the country), Cox worked for the United States land office for several years. Later, he returned to Tennessee to focus his interests on creation of the State Library and Archives and State Museum, along with archaeological preservation issues (Obituary, *Review Appeal*, Franklin Tennessee, October 27, 1932). Working in cooperation at the national level with Jesse Walter Fewkes and A.V. Kidder, Cox extended a call in August 1924 for the creation of a new organization - the Tennessee Archaeological Society. The organizational meeting was held in the Senate chamber at the state capitol on November 17, 1924 (Smith 2008b). Moorehead was in Europe during this organizational meeting, but made his first contact with Cox in November 1925 concerning future work in Tennessee:

> *a short time ago, Dr. [A.V.] Kidder told me of his interesting trip to Tennessee last year when I was in Europe... the death of our mutual friend Myer was a heavy blow to me both personally and professionally... I would like to come up from Etowah and see you about the middle of March and go out with you... I hope you will be able to go about with me and help in the work, our academy will of course to pay your expenses* (Tennessee State Library and Archives, Record Group 27, Box 2, Folder 10).

As Moorehead's Etowah (8BR1) excavations continued in 1925-1926, he made a number of discoveries that would lead him to further communications with

FIGURE 5. Parmenio Edward Cox, ca. 1926 (Tennessee State Library and Archives).

Cox. His excavation of spectacular “flint” swords made from a mysterious and unknown chert further stimulated his interests in exploring the source of this material (Figure 6). As he noted with regard to his first discoveries at Etowah:

> *with the first burial, which was enclosed in a very neat stone box, and contained a decayed skeleton at full length, was a flint sword, ceremonial implement, twenty-six and one-fourth inches in length... It is beautifully chipped, and is said to be the third or fourth largest flint implement in the world. A number of similar objects, apparently made by the same clan or master artist in flint chipping, were discovered years ago on Duck River, Tennessee. The longest was twenty-eight inches... It is extremely difficult to find any clear flint in blocks of such length, and the quarry from which the Indians obtained the material to make these extraordinary blades has never been discovered* (Ohio Historical Society, Warren King Moorehead Papers, MSS 106, Box 4, Folder 38).

FIGURE 6. Dover "swords" on display at Etowah Mounds Museum, April 2008.

Moorehead did make it to Nashville in March 1926, where he presented the evening address on March 24 to a joint meeting of the Tennessee Academy of Science and Tennessee Archaeological Society hosted by P.E. Cox (Smith 1999, 2008b). Moorehead's identification of the Tennessee-Cumberland region as the source area for this mysterious flint was reinforced during that visit when he either remember or was informed of two sword-sized Dover chert preforms from Tennessee housed in the Peabody Museum of American Archaeology and Ethnology at Harvard University. C.C. Willoughby, then Director of the Peabody Museum, sent a telegram (March 31, 1926) to Moorehead at Etowah titled “Burial Mound A.J. Stall's farm one mile above Dover Stuart [sic] County 1879” providing information on their provenience.

In 1879, Edwin Curtiss, working for Frederic Ward Putnam and the Peabody Museum, visited several sites in Stewart County, including A.J. Stall's farm. Excerpts from his fieldnotes and correspondence describe the preforms and their source as two different sites near Stalls farm (Moore and Smith 2009):

> *On the large mound in Mr. Banister's field I found three large flints that were two feet long or over I saved one and put the other two away I can't tell for what purpose they were used for they are all one shape and about one length but don't show evidence of use and I came to the conclusion that they were for making smaller tools out of... Since I left Dover I found one at the Wests and will send it with the one from Dover and I want your opinion on the big flints please give it...*
>
> *... I got one large flint here [at Dr. West's farm] that is in a rough state that is over two ft long it was used by the old ones for some purpose but for what is more than I can tell unless for a plough. I also got one from Mr. Banister's field whare I left two others on account of their being so heavy that is ten miles below Indian Mound...*

With this clue in hand, Moorehead corresponded further to obtain the assistance of P.E. Cox for information about the location where these objects had been found (Figures 7-8).

In May 1926, Cox wrote to Moorehead in Cartersville following up on their earlier conversations:

> *In regard to the flint slabs shipped to Harvard University at Cambridge, Mass. in compliance with your request, on my first trip to Dover, understanding that these slabs were said to have been procured at the A.J. Stalls farm, one mile above Dover, I went to the office of the Register of Deeds and found the location of A.J. Stalls farm, which is across the river and one and one-half miles up the river from Dover. I made an examination of this area but was unable to find any indication of quarried or natural*

FIGURE 7. "Dover" chert preform ("25 inches in length") from Stalls Farm near Dover collected by Edwin Curtiss (Peabody Museum 79-4-18338; *Photograph, William Edward Myer Collection, Courtesy Samuel D. Smit*h).

flint deposit, either nodular or stratified. I interviewed a number of the oldest citizens and was unable to get any definite information. One gentleman, Mr. Sam Dabbs, whose address is Dover, Tennessee, who is much interested in Archaeology, stated to me that he had some indistinct recollection that some slabs were shipped from Dover by the father of Harry Johnson, of Clarksville, Tennessee, but I was unable to get any information as to where the slabs were procured. There being no railroad at Dover, and Cumberland River being used to make shipments I made inquiry of the boat lines but was unable to find any record of such shipment. These slabs may have been shipped by rail from Cumberland City or Erin, both of which are on the L&N Railroad, and within easy distance of Dover. I found on a portion of what was originally the A.J. Stalls farm very interesting burying grounds, and opened a number of graves, report of which will be sent as early date as possible. It is my judgement that if these flint slabs came from this area they were most likely found on what is known as Cain Hollow on land of Brigham (Tennessee State Library and Archives, Record Group 27, Box 2, Folder 10).

Cox described his second trip to Dover as follows:

I did not have the opportunity to carefully examine the reputed site of the flint quarry on my first visit to Dover... I was there last week and made a careful examination using two and one-half days, and found as follows: The land is on Long Creek about four miles east of Dover, Tennessee, and about one mile south of the highway leading from Erin to Dover, land belongs and Chas. Brigham and is the property formerly known as the Stacker place. There is an area of about one hundred and twenty five acres, all of which

FIGURE 8. Large Dover preform from Stalls Farm with Mike Moore for scale (Peabody Museum 80-20-22351).

is on the right hand or west side of the creek, practically all in timber, hilly land. Over this area of one hundred and twenty five acres, there are great numbers of pits and ditches, the exact number of which I was unable to count because the area is now covered with spring vegetation, weeds, grass, bushes and briers, but I feel sure I am safe in saying there are not less than five pits and ditches per acre. I caused five pits to be dug, two of which were in the bottom of the pit originally excavated, both of which are located about 1000 feet northwest of the natural well, which is a natural crevice or opening, upon which has been recent work done with steel implements. I used this site as a basis because there is nothing else in the neighborhood to mark the site. The greater part of the openings are north of this well, which has a depth of about twenty five feet and now contains water. I found on the surface a flint slab 24 inches long, 9 inches across, which had never been worked. The whole area is covered to an average depth of ten inches with flint flakes, varying in size from one inch in length to ten inches, and in weight from one-fourth pound to three to five pounds. The excavating which I did failed to disclose any stratification of flint material, but did disclose some large nodules of flint at the greatest depth three and one half feet. Some of the nodules had been worked, some were in their original condition. The weather was excessively hot, and very difficult to dig because of roots and leavings of timber. My conclusion is that this site was a large flint quarry, where there being no flint stratification as I explored the land by pits to limestone which is the basic rock, the extensive work covering a very great period of time, utilized the flint nodules for roughing out the implements which were then removed eastwardly toward the creek bottom, where there is an area of one and one fourth acres, practically covered to a depth of six to ten inches with smaller flint flakes, and quite a number of incomplete utensils have been found there, some of which I procured. (Tennessee State Library and Archives, Record Group 27, Box 2, Folder 10).

Cox published a brief mention of his spring 1926 investigations in the Dover vicinity:

...I spent about ten days in Stewart County in the vicinity of Dover, Tennessee. This site being located between the Tennessee and Cumberland rivers where they run parallel for quite a distance I concluded that primitive man must have utilized this condition, and found that he did. A short distance south of Dover in an area of 125 acres, there are thousands of tons of flint flakes and the whole area seems to have been dug up at some remote time. In and among the flint flakes are embedded flint implements in all stages of rought construction. There is no stratified flint but

there are tons of flint nodules, from which, I have reached the conclusion, that this is the site of the primitive flint quarry for this section of Tennessee, a portion of Kentucky and probably the articles were conveyed into the State of Alabama. There is extensive evidence of working covering a very long period in extracting thses natural flint nodules for he purpose of making flint implements.

*Across the river from Dover, on the farm of Mr. Hogan, I explored 18 stone graves, which were rich in flint implements and pottery. Detailed report of which will later be made….(*Cox 1926:26)

In August, after returning from Maine, Moorehead replied to Cox:

I note you speak about the flint deposits. I wish you would get me some of these, as previously mentioned, and the nuclei, some of the large ones, etc... I would like to have a series for study of the Dover deposit... I mentioned these in detail to you since no one had ever work up the quarry site, the manufacture, etc., of the problematical swords. There is an important and new field there. I hope I can come down to Dover and make some personal inspection this fall or winter. (Tennessee State Library and Archives, Record Group 27, Box 2, Folder 10).

Cox continued to correspond about the flint quarries with Moorehead, whose work continued through the winter of 1926-1927 at Etowah:

The site is located on Long Creek, in what is known as Cane Hollow, about four miles east of Dover and about one mile south of the highway leading from Dover to Erin. Mr. Charles Brigham is the owner and the property was formerly known as the Stacker place.

The greater part of the evidences of excavation is in hilly land which was covered with timber. The village site, as I determined it, was in a cultivated field which was in a bottom.

I am exceedingly anxious to go with you on this trip for the reason that there are other places there that I am anxious for you to look over and as I wrote you, I see no reason why I cannot go with you on the afternoon of the 17th. There is an advantage of looking over at this time in that it is void of vegetation. We can make arrangements to stay at Mr. Brigham's house, he has a nice home... I do not understand what you mean in telegram that you could come April 1st on your way East. I think it would be much better to go about the 17th or 18th than to wait until April, vegetation will then be out. Kindly advise me if you can conveniently make this arrangement as it is only a few days. (Tennessee State Library and Archives, Record Group 27, Box 2, Folder 10).

Surviving correspondence with Charles Brigham and R.E. Gorham indicates that Moorehead and a companion (possibly Gerald Towle, Moorehead's top field assistant at Etowah) accompanied Cox and his driver to a large quarry site near Dover on March 27 or 28, 1927.[1] Several different sources provide some indirect documentation of their visit:

1) *In company with Dr. Warren K. Moorehead, [we] discovered and explored what is probably a flint quarry for a large area of country, near Dover Tennessee* (Cox to Elizabeth D. White, Letter of November 8, 1928, Tennessee State Library and Archives, Record Group 27);
2) Charles K. Peacock (1932:50) writing after Cox's death noted: *several years ago Mr. Cox, at the request of Dr. Moorehead, attempted un-successfully to locate the supply of the flint from which the famous Duck River swords were made*
3) In *The Etowah Papers*, Moorehead

discusses the relationship of the Dover flint to his discoveries in Mound C: *While we note this scarcity of chipped objects, yet we present in figures 39 and 55 five remarkable problematical forms in flint. It is unfortunate we were unable to discover the source of material from which these remarkable objects were fashioned. Near Dover, Tennessee, is a large flint quarry which the survey visited and spent some three days in examination. The largest block of natural flint we could discover in a search of some 50 acres of Indian work and outcrops, was some 16 inches in length. This Dover chert or flint, is light yellow in color, whereas the problematical forms are of darker stone. In the Peabody Museum at Harvard College are three long, roughly blocked-out masses of this same material, one of which is nearly 30 inches in length. They are labeled from near Dover, Tennessee...* (Moorehead 1932:99-100)

A manuscript in the P.E. Cox Papers apparently dating to the late 1920s or early 1930s provides another description of the Brigham quarry:

The flint found in the quarries of Stewart County is the blue or black variety. This is the kind the Indian preferred to make their most used tools and weapons, because it is very hard and tough... The largest flint quarry in Stewart County is located about four miles east of Dover on the farm of W.L. Brigham. This quarry is known to be the largest flint quarry south of the Ohio and is thought to be the largest in the world. It covers to hundred sixty acres. There are still numerous holes, all over this territory, ranging from four to twelve feet in depth. This gives proof to us how the busy Indians worked to get their flint to the surface. Also many large and small slabs and chips of flint are scattered over the hill and hollows of the noted old quarry. Doubtless Indians came a great distance to the old quarry to get flint. About one half mile from that large flint quarry is a place, where evidently some of the expert Indian workmen fashioned the flint into tools, for there are several piles of flint chips about eighteen inches high, scattered over a level valley... If in years to come the flint quarries of Mr. Brighams farm is found to be the largest in the world, there may then be a State Museum built on those rugged hills...

Cox's later correspondence about the Dover area work is somewhat difficult to interpret as he refers several times to the Reagan or Ragan quarry:

1) *The outstanding quarry is on the farm of Mr. Reagan some three or four miles east of Dover* (Cox to Wofford, March 10, 1928, Tennessee State Library and Archives, Record Group 27)
2) *...the Ragan quarry which you examined with me* (Cox to Moorehead, March 29, 1932, Tennessee State Library and Archives, Record Group 27)
3) In a draft pamphlet titled “Automobile Club Archaeology, Prehistoric Locations,” the site is described as: *Stewart County: ... about three miles south of Dover on farm of Mr. Reagan, ancient flint quarry where hundreds of thousands of rocks were quarried in ancient times to manufacture flint implements which were distributed by way of Tennessee, Cumberland, and Ohio Rivers* (Tennessee State Library and Archives, Record Group 27).

These contradictory references can be interpreted in different ways: 1) Cox and Moorehead investigated two enormous quarry sites on both the Brigham farm and the “Reagan/Ragan” farm; or 2) Cox's

memory was slipping and he remembered Reagan rather than Brigham. Having reviewed a considerable amount of the Cox correspondence and other archival records, I suspect that these are simply references to the Brigham quarry -- my interpretation is that during the last few years of his life, his memory for names, directions, and other details was slipping a bit. Recent archaeological surveys and investigations of several quarry sites in the Dover area (Parish 2010) would seem to support this interpretation.

About six months before his death, Cox continued to correspond with Moorehead concerning the search for more information on the Duck River flint source. In a letter headed "Personal and Confidential," Cox described his efforts to secure permission from the owners of the Link site in Humphreys County -- source of the famed "Duck River Cache" -- for excavations by Cox and Moorehead in the fall of 1932 (Cox to Moorehead, March 29, 1932, Tennessee State Library and Archives, Record Group 27). He further noted the discovery of a new site in Stewart County:

> *I am glad to advise you that I found another site... It is located in Stewart County, about one (1) mile north of the Cumberland River... about five miles up the river from Dover... and in the vicinity of where it is thought the large flint slab that Mr. Willoughby has was procured. It is across the river about five or six miles from the Ragan quarry which you examined with me.*

Only a few months later in October 1932, P.E. Cox died -- and so apparently did the dreams of and arrangements for further excavations at both the Link site and Dover quarries. Moorehead apparently had no other major contacts in Tennessee -- and passed away in 1939.

This early discovery and investigation of the Dover quarries was to disappear from archaeological knowledge until the 1950s when the second version of the Tennessee Archaeological Society turned attention again to documenting the important sites of Tennessee. When the next official State Archaeologist of Tennessee (Mack Prichard) was appointed almost five decades later in the early 1970s, both the Link Farm site and the Dover quarries were on a list of important sites to acquire as state parks. The core of the Link site was purchased, but purchase of the Dover quarries proved elusive and remains in private ownership today.

Notes

[1] Although the author has thoroughly examined the available records at the Tennessee State Library and Archives and the Warren King Moorehead collections housed by the Ohio Historical Society in Columbus, additional significant records and/or correspondence pertaining to the 1926-1932 Moorehead/Cox investigations of the Dover quarries may exist in the Warren K. Moorehead papers housed at the Robert S. Peabody Museum of Archaeology in Andover which have not yet been examined.

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