North Carolina Archaeology

Volume 57 2008

North Carolina Archaeology

(formerly *Southern Indian Studies*)

Published jointly
by
The North Carolina Archaeological Society, Inc.
109 East Jones Street
Raleigh, NC 27601-2807
and
The Research Laboratories of Archaeology
University of North Carolina
Chapel Hill, NC 27599-3120

R. P. Stephen Davis, Jr., Editor

Information for Subscribers

North Carolina Archaeology is published once a year in October. Subscription is by membership in the North Carolina Archaeological Society, Inc. Annual dues are $15.00 for regular members, $25.00 for sustaining members, $10.00 for students, $20.00 for families, $250.00 for life members, $250.00 for corporate members, and $25.00 for institutional subscribers. Members also receive two issues of the *North Carolina Archaeological Society Newsletter*. Membership requests, dues, subscriptions, changes of address, and back issue orders should be directed to: Dee Nelms, Office of State Archaeology, N.C. Division of Archives and History, 4619 Mail Service Center, Raleigh, NC 27699-4619.

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North Carolina Archaeology

Volume 57 October 2008

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TEMPORAL VARIATION IN QUALLA POTTERY AT COWEETA CREEK

by

Christopher B. Rodning

Abstract

The archaeological manifestation of protohistoric and historic Cherokee material culture and settlements in southwestern North Carolina is known as the Qualla phase. This phase, and the Qualla ceramic series, has generally been dated from A.D. 1450 to 1838. This paper reconstructs temporal trends in Qualla pottery based on quantitative analyses of sherd assemblages from several independently dated contexts at the Coweeta Creek site. Results of these analyses enable us to differentiate Middle Qualla (A.D. 1500–1700) and Late Qualla (A.D. 1700–1838) pottery, and they also enable us to propose at least an outline of the major characteristics of Early Qualla pottery, which is provisionally dated from A.D. 1300 to 1500. This proposed Qualla ceramic chronology—which should be tested with data from other sites and revised as necessary—enables us to assign dates to sherd assemblages, and the sites and proveniences from which they are derived, with greater precision than has been possible in the past. The characteristics of and the dates of Early Qualla pottery from Coweeta Creek also encourage us to reconsider our understanding of the relationship between the Pisgah and Qualla phases in southwestern North Carolina.

The material culture, architecture, settlements, and lifeways of protohistoric and historic Cherokee groups in southwestern North Carolina are typically attributed to the Qualla phase, which is conventionally dated from A.D. 1450 to 1838 (Cable and Reed 2000:112–124; Dickens 1976:200–201, 206–214, 1978:118–119, 1979:22–27; Keel 1976:214–216; Purrington 1983:148–151; Ward and Davis 1999:178–190, 267–272; Williams and Thompson 1999:97–99). This article considers evidence about temporal variation in Qualla pottery from selected and independently dated contexts at the Coweeta Creek site, and it outlines the major characteristics of Early Qualla (A.D. 1300 to 1500), Middle Qualla (A.D. 1500 to 1700), and Late Qualla (A.D. 1700 to 1838) pottery from this Middle Cherokee settlement in the upper Little Tennessee Valley (Rodning 2001a, 2001b, 2002a, 2002b, 2002c, 2004, 2007; Riggs and Rodning 2002; Schroedl 2000a, 2001; Ward and Davis 1999:183–189; Wilson and Rodning 2002).

Quantitative analyses of ceramic attribute data from the Coweeta Creek site enable us to differentiate assemblages that can be dated to these periods. The provisional model of temporal trends in Qualla pottery proposed here can be applied as an analytical framework to assign dates to assemblages of sherds from late prehistoric and post-contact Cherokee settlements in southwestern North Carolina.

Here, I review the major characteristics of Qualla pottery. I then discuss the Coweeta Creek site and the contexts with sherd assemblages being considered, and I propose an outline of attribute variation within Early Qualla, Middle Qualla, and Late Qualla pottery. I conclude with comments about the relationship between Qualla and Pisgah ceramics in western North Carolina, and the relationship between Qualla and Lamar ceramics in the greater southern Appalachians.

The Qualla Phase and the Qualla Ceramic Series

Qualla ceramics were first formally described and labeled as such in the 1960s and 1970s, and the general outlines of Qualla pottery and the Qualla phase developed then are largely intact today (Dickens 1976, 1978, 1979, 1986; B. Egloff 1967; Greene 1996; Keel 1976; Keel et al. 2002; Purrington 1983; Williams and Thompson 1999:97–99). Qualla ceramics are present at sites associated with the Valley, Out, and Middle Cherokee towns in the cultural and natural province in southwestern North Carolina known as the Appalachian Summit (Riggs and Rodning 2002:37–38) (Figure 1). Qualla vessel forms (Figure 2) include globular jars with folded/pinched rim strips (Figure 3), carinated bowls (Figure 4) and bottles (Figure 5), and restricted-rim bowls (Figure 6) (Ward and Davis 1999:181–183). These vessel types are represented both by vessel sections and by rimsherds diagnostic of particular vessel forms (Figure 7). Ceramic paste is typically tempered with grit.[1] Interior surfaces are burnished or polished. Complicated stamping is the predominant exterior surface treatment (Figures 8 and 9); corncob impressing, net impressing, fabric impressing, and cordmarking also occur in small percentages. Incised motifs are present on carinated, or cazuela, vessels (Figures 10 and 11). Incised motifs are present near the rims of cazuelas, between the lip and shoulder, with complicated stamped motifs often seen below the shoulder of those carinated vessels (Figure 5).

Qualla pottery is different in many respects from Overhill Cherokee ceramics from eighteenth-century sites in eastern Tennessee (Baden

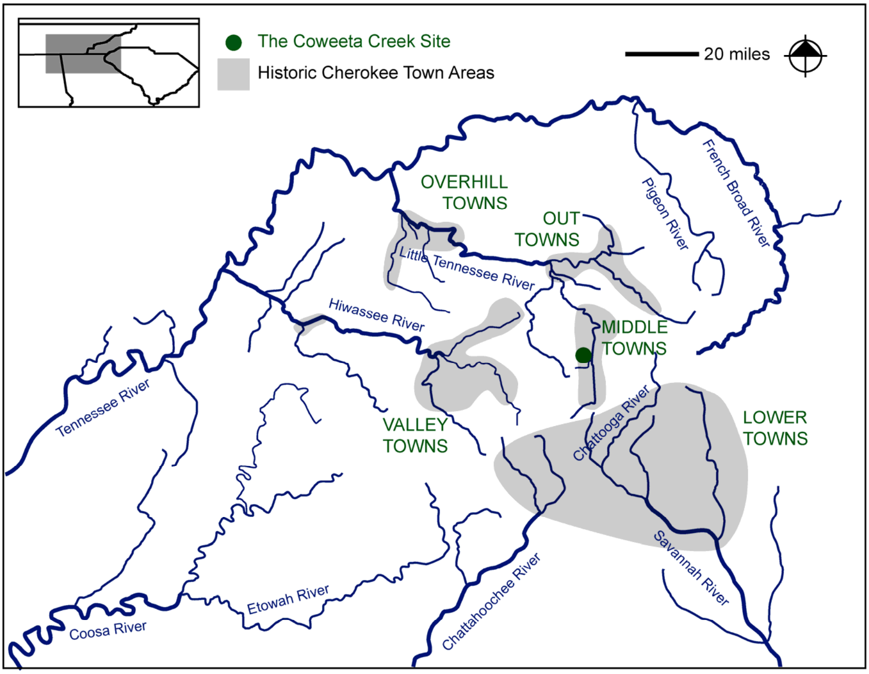

Figure 1. Historic Cherokee town areas in the southern Appalachians.

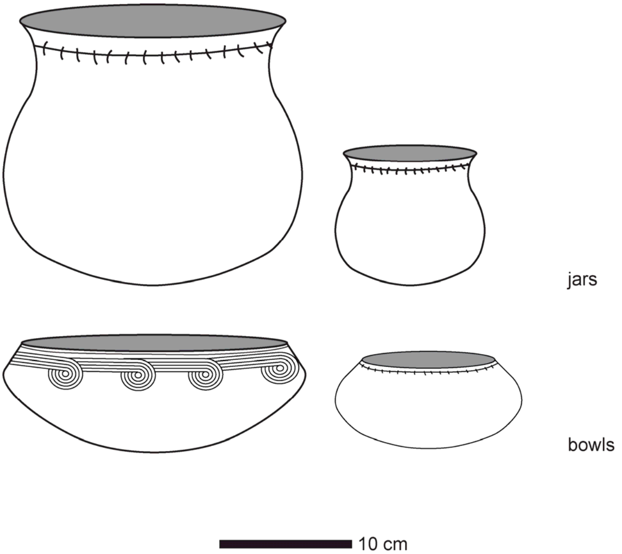

Figure 2. Qualla vessel types from Coweeta Creek.

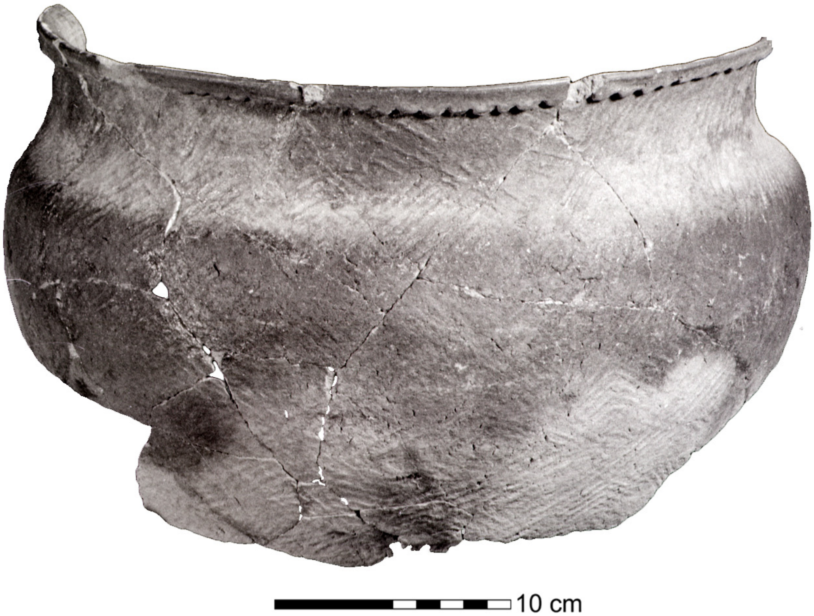

Figure 3. Globular jar from Coweeta Creek (photograph by Christopher B. Rodning and Gregory D. Wilson).

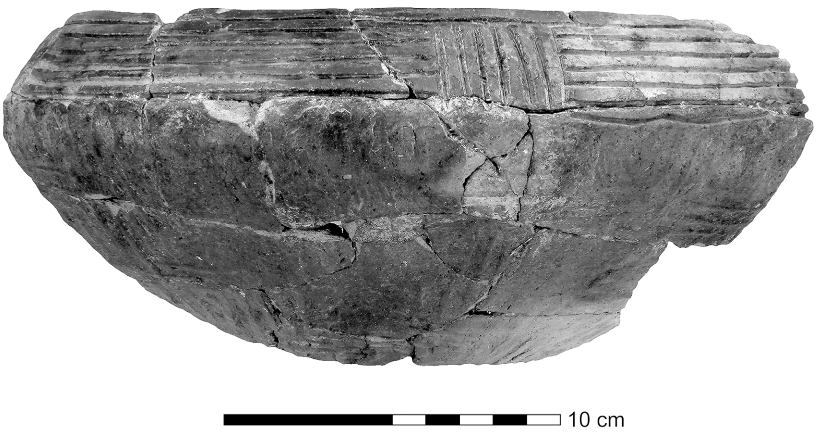

Figure 4. Carinated bowl from Coweeta Creek (photograph by Christopher B. Rodning and Gregory D. Wilson).

Figure 5. Carinated bottle from Coweeta Creek (photograph by Christopher B. Rodning and Gregory D. Wilson).

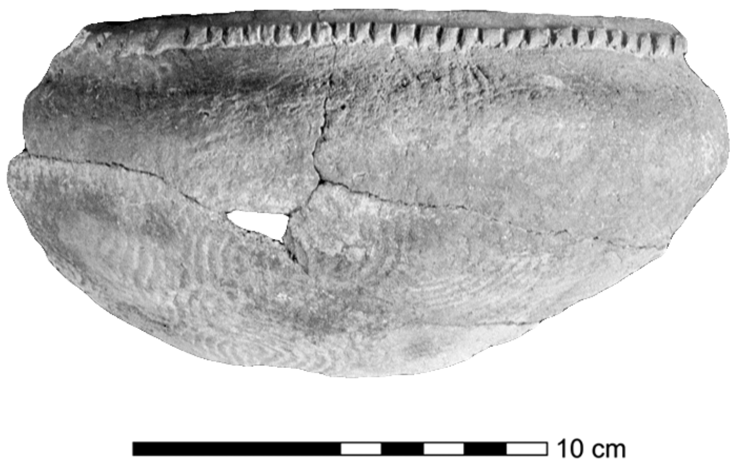

Figure 6. Restricted rim bowl from Coweeta Creek (photograph by Christopher B. Rodning and Gregory D. Wilson).

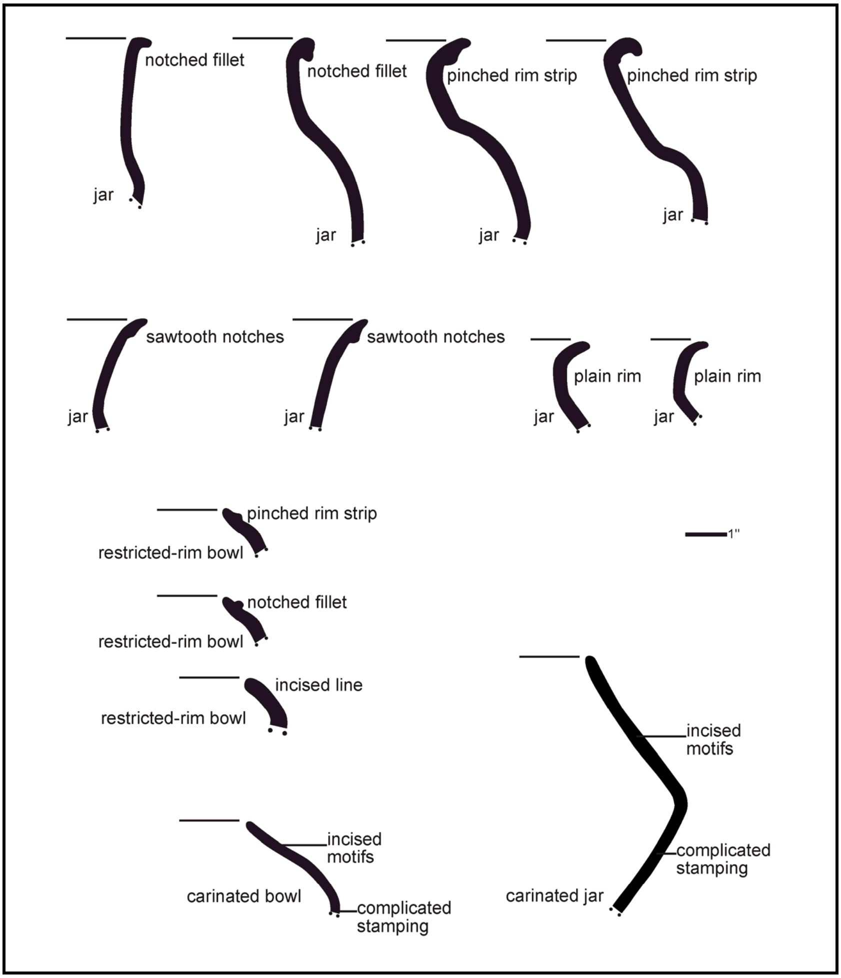

Figure 7. Qualla rims from Coweeta Creek.

1983; Chapman 1985; King 1977; Russ and Chapman 1983; Schroedl 1986a, 1986b, 2000a, 2001). Overhill ceramics are typically made with shell-tempered pastes, and they have burnished surface finishes, incised and engraved design motifs, and some complicated stamping. Vessel types include globular jars, restricted-rim bowls, and pans.

Given the differences between Overhill and Qualla pottery, archaeologists have been able to recognize some amounts of Qualla pottery at Overhill settlements in eastern Tennessee (Schroedl 1986a,

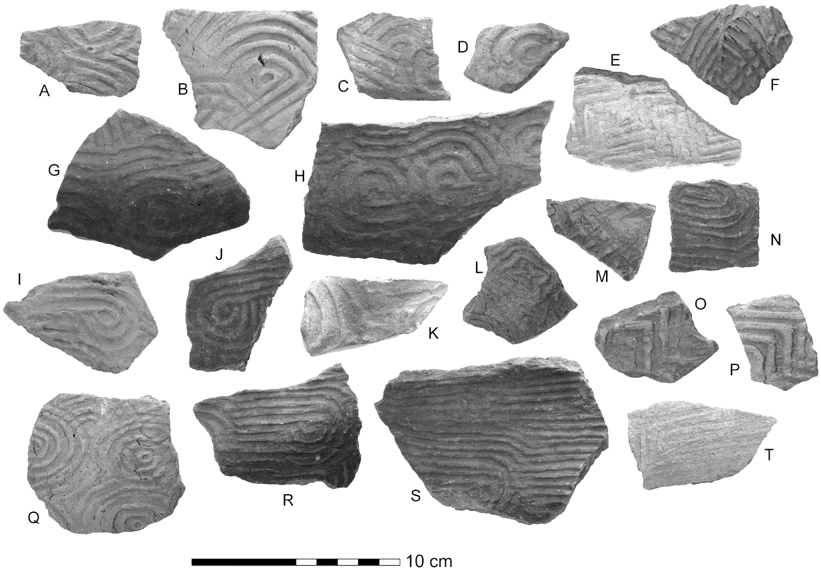

Figure 8. Qualla complicated stamped sherds from Coweeta Creek.

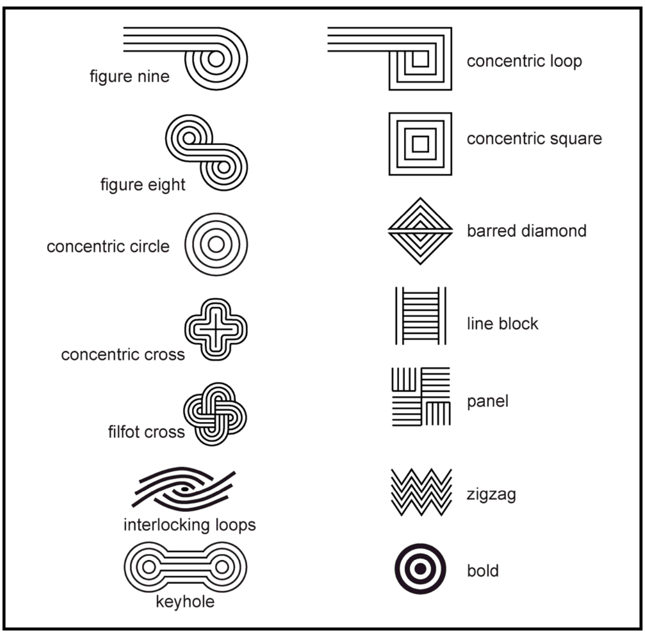

Figure 9. Complicated stamp motifs on Qualla pottery from Coweeta Creek (compare with Hally 1986b:105).

Figure 10. Qualla incised sherds from Coweeta Creek.

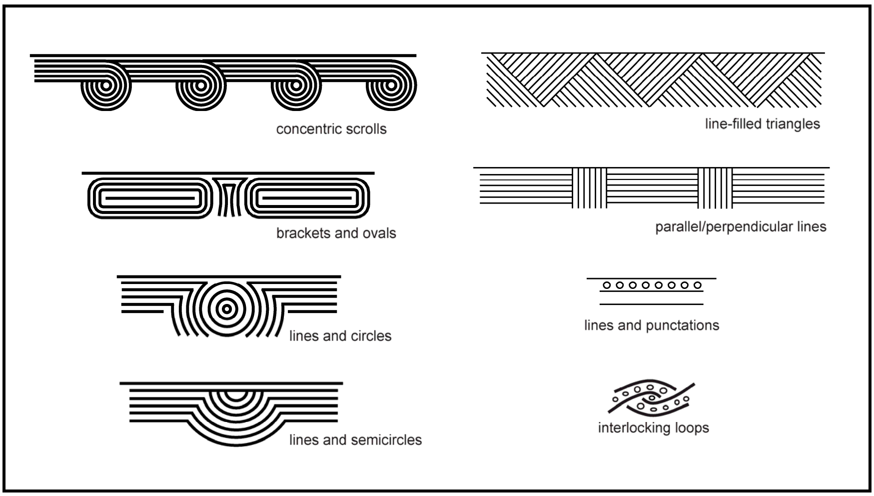

Figure 11. Bold incised motifs on Qualla pottery from Coweeta Creek (compare with Hally 1986b:103).

1986b). The presence of Qualla pottery at these sites probably represents the movement of some Cherokee households and towns from the western Carolinas to the Overhill settlements during the late 1600s and 1700s (Goodwin 1977; Smith 1979). These movements were, in part, responses to encroachment by European traders and settlers in the southern Appalachians and the general pattern of geopolitical destabilization in the colonial Southeast created during early stages of the deerskin and hide trade, the slave trade, and the new kinds of conflict and warfare spurred by these developments (Ethridge 2006; Gallay 2002; Harmon 1986; Marcoux 2008; Martin 1994; Hatley 1993; Smith 1992, 1994, 2002).

Qualla ceramics from sites in southwestern North Carolina are closely comparable to ceramics from Lower Cherokee settlements in northeastern Georgia and northwestern South Carolina (Cable and Reed 2000; Caldwell 1955; Dickens 1979; Hally 1986a, 1986b, 1994; Heye et al. 1918; Kelly and de Baillou 1960; Kelly and Neitzel 1961; Riggs and Rodning 2002; Schroedl 1994; Sears 1955; Smith 1992; Smith et al. 1988; Wauchope 1948, 1950, 1966; Williams and Thompson 1999:68–72, 97–99; 128–129; Wynn 1990). These ceramics are attributable to the Tugalo (A.D. 1450–1600) and Estatoe (A.D. 1650–1750) phases, as seen in ceramic assemblages from the Chauga, Estatoe, Tugalo, and Chattooga sites, and in the Little Brasstown Valley (Anderson 1994; Cable and Reed 2000; Hally and Langford 1988; Hally 1986a, 1986b; Schroedl 1994, 2000a, 2000b, 2001). Tugalo series ceramics are characterized by grit temper, complicated stamping on exterior surfaces, burnished interior surfaces, bold incised motifs on carinated vessels, and folded/pinched rim strips on globular jars and restricted-rim bowls. Estatoe series ceramics demonstrate the same characteristics of temper, surface finish, and vessel form as seen in the Tugalo series, although check stamping is also present in Estatoe pottery, and rim strips commonly have fillet strips (also known as applique strips) rather than fingernail or fingertip notches placed along the bottoms of rim strips. These two ceramic series are associated with the broader Lamar tradition in the greater southern Appalachians, with roots in the preceding Etowah, Savannah, and Wilbanks phases (Dickens 1979; Hally 1994; Hally and Rudolph 1986; Wauchope 1966; Williams and Shapiro 1990).

Although archaeologists have long acknowledged the influence of Lamar pottery in the development of the Qualla series, the Pisgah series in western North Carolina has often been considered the major late prehistoric source from which Qualla pottery was derived in western North Carolina (Dickens 1978, 1979). For example, the temporal sequence of Pisgah and Qualla pottery has been recognized at the Garden Creek mounds, where Pisgah pottery is present in mound deposits predating mound layers that contain Qualla ceramics (Dickens 1978). And whereas Qualla sherd assemblages are commonly present at sites known to date to the 1600s and 1700s—such as Tuckasegee, Alarka, and Coweeta Creek (Dickens 1976:14–15; Keel 1976:40–45; Ward 2002)—sites with Pisgah pottery such as Warren Wilson clearly predate European contact in the Southeast.

The Coweeta Creek Site in the Upper Little Tennessee Valley

The Coweeta Creek site (31Ma34) was excavated by the Research Laboratories of Anthropology (RLA) at the University of North Carolina (UNC) in the 1960s and early 1970s as part of its Cherokee Archaeological Project (Coe 1961; Dickens 1967, 1976:14–15, 100, 132; K. Egloff 1971; Keel 1976:15–16, 2002; Keel et al. 2002; Rodning 2001a, 2001b, 2002c, 2004, 2007; Schroedl 2000a, 2001; Ward 2002; Ward and Davis 1999:138–139). This regional project focused on the origins and long-term development of Cherokee culture in western North Carolina. The abundance of Qualla potsherds on the ground surface at the Coweeta Creek site made it a good candidate for investigation as part of a project that included excavations at late prehistoric sites such as Warren Wilson and Garden Creek, and eighteenth-century sites such as Tuckasegee and Townson, and it was thought that Coweeta Creek would date to the period between late prehistory and the eighteenth century.[2]

Excavations were conducted at Coweeta Creek from 1965 to 1971 (Figure 12). Several structures—and successive stages of many structures—were uncovered, along with dozens of hearths, pit features, burials, and thousands of postholes. Including all the potsherds, several hundred thousand artifacts were recovered from the site. These are curated by the RLA and have been housed on the UNC campus since they were removed from the ground.

Upon first glance, the most recognizable pattern on the Coweeta Creek site map is the arrangement of the townhouse, the town plaza, and the domestic structures and activity areas around the plaza (Figure 12). This community pattern was in place during the 1600s, but by the early 1700s, most of the domestic houses nearby had been abandoned, even

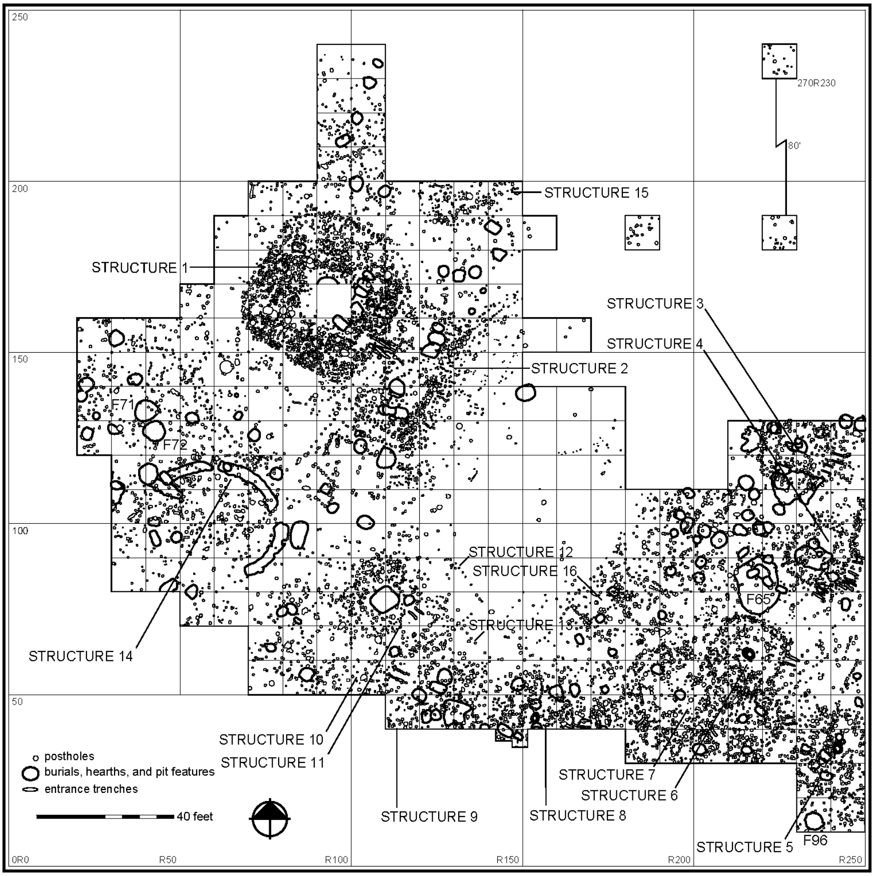

Figure 12. The Coweeta Creek site in southwestern North Carolina.

though late stages of the townhouse were placed atop the burned and buried remnants of its early stages (Rodning 2007). Only one excavated domestic structure and a few pit features appear to date to the 1700s, while a few other features date as early as the 1400s, if not earlier (Rodning 2004). The development of the Coweeta Creek community plan is an interesting and important topic in its own right. Here, my focus is simply to identify the similarities and differences in the Qualla pottery associated with independently dated contexts at the Coweeta Creek site, for the purposes of reconstructing the history of settlement at the site and advancing our understanding of temporal variation in Qualla ceramics more generally.

Table 1. Radiocarbon Dates from Coweeta Creek.[1]

Context	Measured Radiocarbon Age	Conventional Radiocarbon Age	Intercept	13C/12C	1-sigma (68% probability)	2-sigma (95% probability)	Sample
Feature 72	220 ± 60 BP	200 ± 60 BP	cal AD 1670	-25.9	cal AD 1930-1950 cal AD 1730-1810 cal AD 1650-1680	cal AD 1630-1950 cal AD 1530-1560	Beta-167072
Structure 1F	220 ± 50 BP	210 ± 50 BP	cal AD 1660	-25.9	cal AD 1930-1950 cal AD 1740-1800 cal AD 1650-1680	cal AD 1920-1950 cal AD 1840-1880 cal AD 1720-1820 cal AD 1630-1700 cal AD 1530-1550	Beta-167067
Structure 1D	230 ± 60 BP	210 ± 60 BP	cal AD 1660	-26.2	cal AD 1930-1950 cal AD 1740-1810 cal AD 1650-1680	cal AD 1910-1950 cal AD 1630-1890 cal AD 1520-1580	Beta-167068
Structure 7D	280 ± 60 BP	250 ± 60 BP	cal AD 1650	-26.8	cal AD 1780-1800 cal AD 1630-1670 cal AD 1530-1550	cal AD 1920-1950 cal AD 1730-1810 cal AD 1490-1690	Beta-175805
Feature 96	300 ± 40 BP	290 ± 40 BP	cal AD 1640	-25.8	cal AD 1630-1650 cal AD 1520-1580	cal AD 1490-1660	Beta-167073
Structure 1A	350 ± 40 BP	340 ± 40 BP	cal AD 1620 cal AD 1590 cal AD 1520	-25.7	cal AD 1470-1640	cal AD 1450-1650	Beta-243960 (AMS)
Structure 1A	360 ± 40 BP	380 ± 40 BP	cal AD 1470	-24	cal AD 1590-1620 cal AD 1450-1520	cal AD 1440-1640	Beta-243961 (AMS)
Structure 1A	410 ± 60 BP	390 ± 60 BP	cal AD 1470	-26.1	cal AD 1580-1630 cal AD 1440-1520	cal AD 1420-1650	Beta-167069
Structure 7D	390 ± 60 BP	370 ± 60 BP	cal AD 1490	-26.1	cal AD 1550-1630 cal AD 1450-1530	cal AD 1430-1650	Beta-175804
Structure 7D	450 ± 60 BP	450 ± 60 BP	cal AD 1440	-25.1	cal AD 1420-1470	cal AD 1580-1630 cal AD 1400-1520	Beta-175803
Structure 7D	560 + 70 BP	520 + 70 BP	cal AD 1420	-27	cal AD 1400-1440	cal AD 1300-1480	Beta-167070
Feature 65	740 ± 60 BP	750 ± 60 BP	cal AD 1270	-24.5	cal AD 1240-1290	cal AD 1370-1380 cal AD 1180-1310	Beta-167071

[1] All charcoal samples listed here were taken from the Research Laboratories of Archaeology, at the University of North Carolina at Chapel Hill, and radiocarbon determinations were made by Beta Analytic, Laboratories, Incorporated, in Miami, Florida.

Charcoal samples from selected pit features and structure floors at Coweeta Creek have recently been radiocarbon dated (Table 1). Each of these charcoal samples, and the corresponding radiocarbon determinations, are associated with large numbers of potsherds attributable to the Qualla series. These different sherd assemblages therefore give us snapshots of the general characteristics of Qualla pottery at different points in time.

The presence of artifacts acquired from European colonists, such as glass beads, kaolin pipes, brass items, and peach pits, are additional temporal markers for later pit features and structure floors at the Coweeta Creek site (Table 2). Generally, the types of glass beads from the site are typical for assemblages dating to the late 1600s or early 1700s (Rodning 2004:205–217; Smith 1987). Meanwhile, the pipe stem date estimates for kaolin pipe fragments from the site fall within the early eighteenth century (Binford 1972; Rodning 2004:217–224). European trade goods are clearly associated with late stages of the townhouse, and perhaps associated with all stages of the townhouse. Meanwhile, they are also present in several pit features in the area near the townhouse and in deposits of clay and sand covering the plaza. However, they are not present, or present in only small numbers, in domestic structures at the site and in nearby pit features. The structures to the south and east of the plaza must have been abandoned prior to the last stages of the townhouse and other contexts that, by virtue of the presence of European trade goods, probably date to the late 1600s or early 1700s.

Sherd Samples

The following discussion compares and contrasts the characteristics of ceramics — focusing primarily on surface treatments (Table 3) and rim modes (Table 4) — from five structure floors (1A, 1D, 1F, 6B, and 7D) and four pit features (65, 71, 72, and 96) at Coweeta Creek for which we have radiocarbon dates and, in some cases, European trade goods (Table 5). Each of these assemblages includes a large number of sherds, enough to demonstrate a substantial amount of the variation in rim form, surface finish, and temper and paste characteristics that were present at these different points in time. Structures 1A, 1D, and 1F are the first, fourth, and sixth stages, respectively, of the townhouse (Rodning 2004:113–128). Structure 6B, likewise, is the second (and last) known stage of Structure 6 (Rodning 2004:168–169). Structure 7D is the fourth and last stage of Structure 7 (Rodning 2004:168–172). Structures 6 and 7 overlap, and from spatial and stratigraphic relationships between them, it is clear that Structure 7 predates Structure 6. With the exception of Feature 71 and Structure 6B, all of these

Table 2. European Trade Goods from Coweeta Creek[1].

	Glass Beads	Kaolin Pipe Fragments	Brass Bell	Brass Buttons	Brass Beads	Brass Fragment	Copper Wire	Metal Blades	Wrought Nails	Metal Axe Head	Metal Ring	Metal Fragment	Gunflints	Musket Ball	Musket Spring	Peach Pits
Mound																
Slump	5	8											1	2		
Surface and Plow Zone	28	19			2	1	1	1			1		10	2		2
Structure 1F	2691	46				1		1			1		2			1
Structure 1E	269	1														1
Structure 1D	716	4		2		1										
Structure 1C	210				1											2
Structure 1B	324	4		1	1						2					2
Structure 1A	5	2									1					2
Structural Debris	8															
Entrance Trenches	2															
Postholes Under Mound	131	2			1											
Feature 3		1														
Feature 8	245	6														
Feature 19	44															
Feature 26	9															
Area Southwest of Mound																
Surface and Plow Zone	12	18							1				1	4		
Plaza																
Surface and Plow Zone	26	44								1			1	6	1	
Sand Covering the Plaza	7	5												1		
Feature 37	2															
Feature 38								1								
Feature 41	8															
Feature 51	7															
Feature 71		3														
Feature 72	373	5	1		4						1					
Feature 73		1														
Feature 74	50															
Area Southeast of Mound																
Surface and Plow Zone	25	25							1					1		
Feature 68									1							
Feature 83	1															
Burial 84	4															
General Surface	44	7														
Site Totals	5246	201	1	3	9	3	1	3	3	1	6	0	15	16	1	10

[1] All artifacts enumerated here part of the collections of the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill.

Table 3. Surface Treatments.

Exterior Surface Treatment		Interior Surface Treatment
Complicated Stamped		Burnished
Curvilinear Complicated Stamped		Smoothed
Figure Nine	Concentric Circle	Plain
Figure Eight	Concentric Oval	Red Filmed
Wavy Lines	Concentric Cross	
Filfot Cross	Interlocking Loops	
Keyhole	Bold	
Indeterminate		
Rectilinear Complicated Stamped		
Concentric Scroll	Line Block	
Concentric Square	Barred Diamond	
Zigzag	Panel	
Indeterminate		
Smoothed Over Complicated Stamped		
Bold Complicated Stamped		
Elongated Complicated Stamped		
Linear Stamped		
Simple Stamped		
Check Stamped		
Diamond		
Rectangular		
Paneled		
Incised		
Burnished		
Smoothed Plain		
Coarse Plain		
Red Filmed		
Corncob Impressed		
Cord Marked		
Fabric Impressed		
Net Impressed		
Roughened		
Brushed		
Engraved		
Punctated		

contexts are radiocarbon dated, but there are independent temporal markers from Feature 71 in the form of glass beads and kaolin pipe fragments. Furthermore, Feature 71 is located in close proximity to Feature 72.[3]

Features 71 and 72 are located southwest of the townhouse. Both of these circular basins have gently sloping sides and rounded bottoms (Figure 13), and they are adjacent to one another (Figure 14). The major surface treatment seen on sherds from Feature 72 is rectilinear complicated stamping (Figure 15), although curvilinear complicated stamping is present, as is check stamping. The most common jar rim

Table 4. Rim Modes.

Jars	Bowls
Everted	Carinated
Rim Strip	Incised
Pinched Rims	Plain
Sawtooth Notching	Inverted
Punctated	Rim Strip
Unnotched	Pinched Rims
Fillet Strip	Sawtooth Notching
Notched	Fillet Strip
Unnotched	Notched
Thickened and Rounded	Unnotched
Collared and Incised	Collared and Incised
Rolled	Incised Line Parallel to Rim
Plain	Plain
Straight	Punctated

Table 5. Selected Sherd Assemblages from Coweeta Creek.

	Sherds	Radiocarbon Dates	Stratigraphy	European Trade Goods
Structure 1F	1340	1	X	X
Feature 72	2034	1		X
Feature 71	840			X
Structure 1D	2896	1	X	X
Feature 96	1703	1		
Structure 6B	299		X	
Structure 1A	385	1	X	
Structure 7D	291	4	X	
Feature 65	1315	1	X	

type has notched fillet strips (Figure 16). Most everted jar rims at Coweeta Creek have some form of notched rim strips. Some everted jars have rim strips that are formed by folding and pinching the clay rim strips, and on these rimsherds, the "notching" is visible as fingernail or fingertip impressions. Other everted jar rims (like many of those from Features 71 and 72) display notching on clay beads that are added to the rim strips, either at the lip of the rim or in the middle of the rim strip. Rims with notched fillets at the lip sometimes have been referred to as "L-shaped-rims." Those with notched fillets in the middle of rim strips,

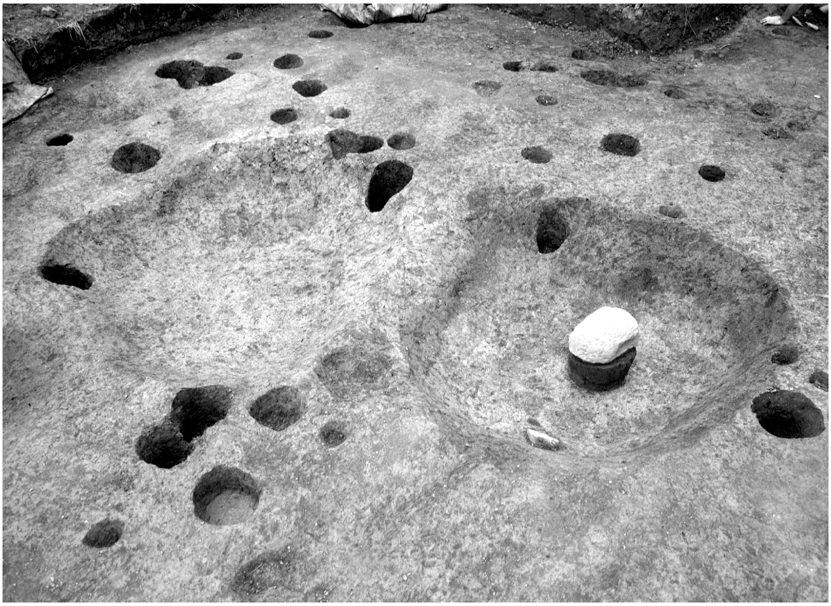

Figure 13. Photograph of Features 71 (left) and 72 (right) (courtesy of the UNC Research Laboratories of Archaeology).

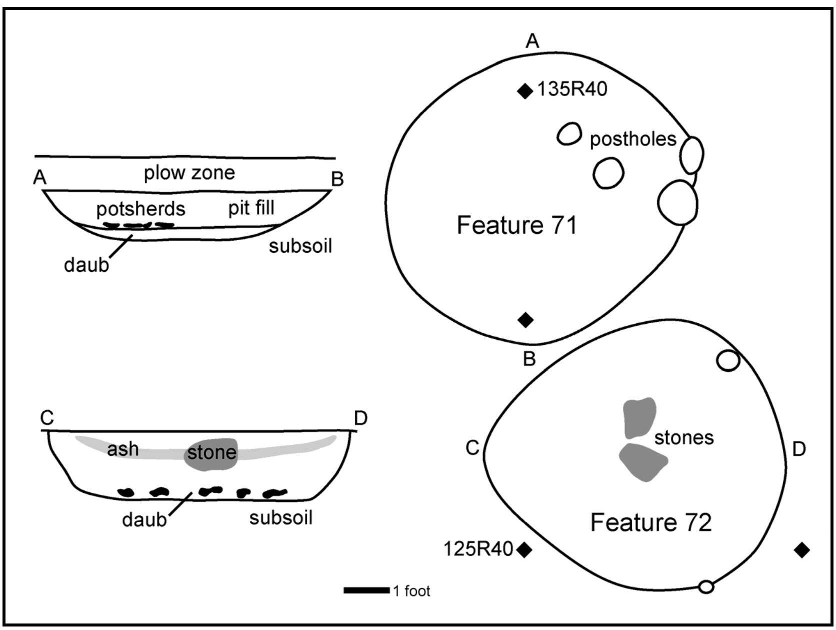

Figure 14. Plan views and profile views of Features 71 and 72.

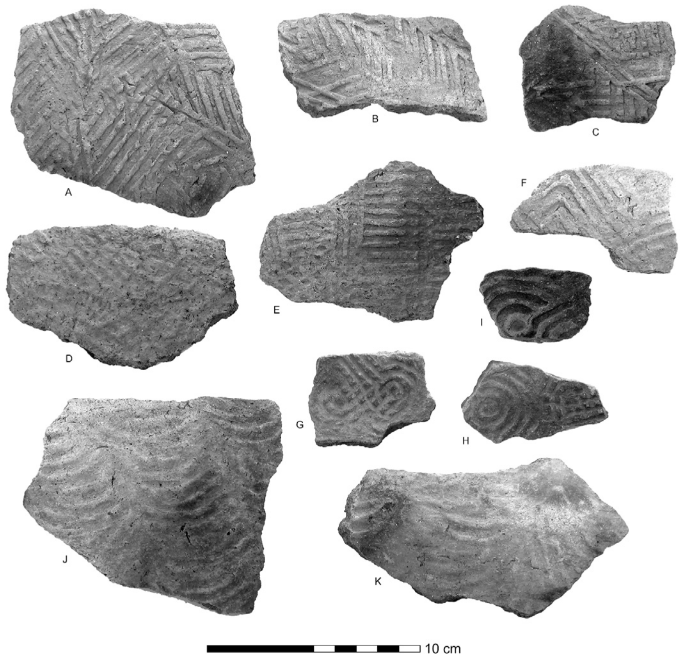

Figure 15. Potsherds from Feature 72.

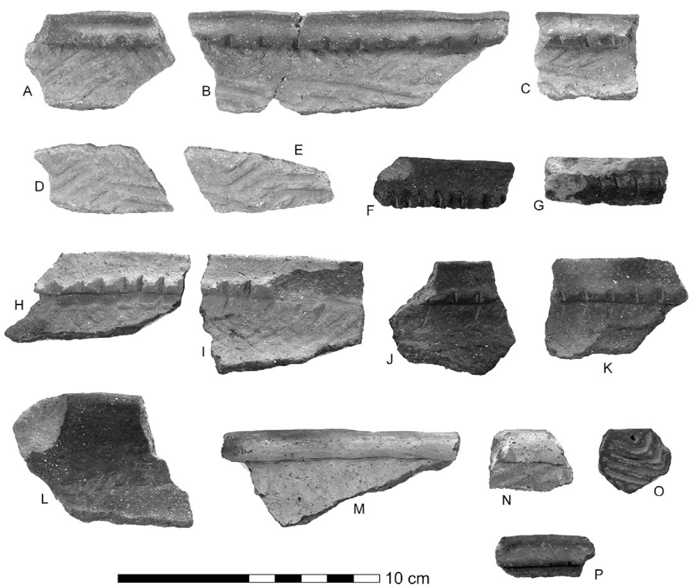

Figure 16. Rimsherds from Feature 72.

midway between the lip and the bottom of the rim strip, are sometimes identified as having rims with an “L-below the rim.”

Thousands of sherds were recovered from the townhouse mound, and the analyses here focus only on those sherds associated with the floors of three of six stages of the townhouse, and not on the large numbers of sherds present in layers of architectural rubble between floors. European trade goods were found in all stages of the townhouse, although very few are directly associated with the floor of the first stage of this structure. Trade goods such as glass beads and kaolin pipes could have moved “up” and “down” through postholes cutting through multiple floors in the townhouse mound. Relatively few sherds are directly associated with the first stage of the townhouse, but sizable numbers are associated with the last (Figure 17) and fourth (Figure 18) of its six stages.

Feature 96 is located close to one of the domestic structures (Figures 19 and 20). European trade goods are absent from this feature, and unlike Feature 72, the predominant surface treatment is *curvilinear* rather than *rectilinear* complicated stamping (Figure 21). Unlike the prevalence in Feature 72 of jar rims with notched fillet strips, the most common jar rim type in Feature 96 has folded and pinched rim strips (Figure 22).

Feature 65 is located southeast of the plaza between two domestic structures (Figure 23). The pottery from Feature 65 (Figure 24) closely resembles the assemblage from Structure 7D (Figure 25).[4] These assemblages include: sherds with dark, compact, sandy paste; everted jar rims with sawtooth notching; everted jar rim sherds without any form of pinching, notching, or fillet strip; sherds with check stamping and elongated complicated stamping (Figure 26); sherds with coarse plain surfaces; and sherds from small red-filmed restricted-rim bowls. All of these characteristics differentiate the Feature 65 assemblage from those in Feature 72, Feature 96, Structure 1, and Structure 6 (Figure 27).[5] Complicated stamped motifs on sherds from Feature 65 and from the Structure 7D assemblage are more lightly impressed than those seen on sherds from the townhouse and from Features 96 and 72, and sherds exhibit elongated complicated stamping or perhaps linear stamp motifs. While there are some general similarities between sherds from Feature 65 and Structure 7D with those from other contexts at the site, the visual differences are both noticeable and noteworthy.

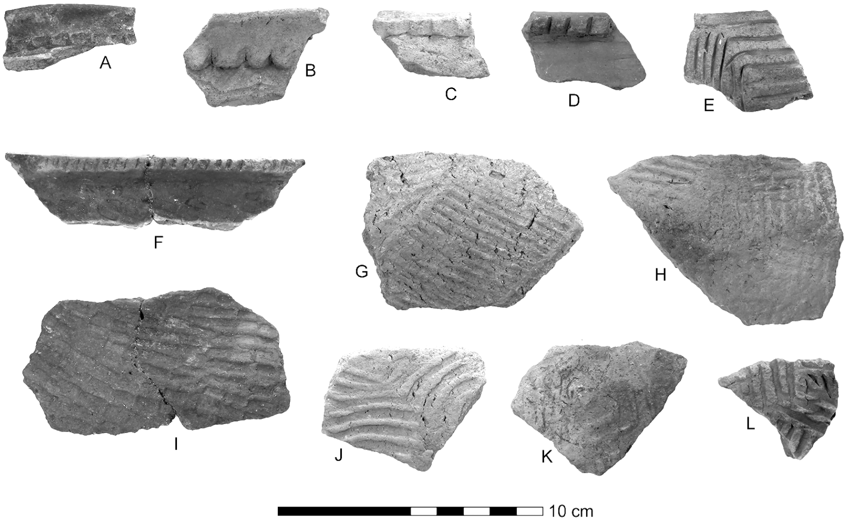

Figure 17. Sherds from Structure 1F.

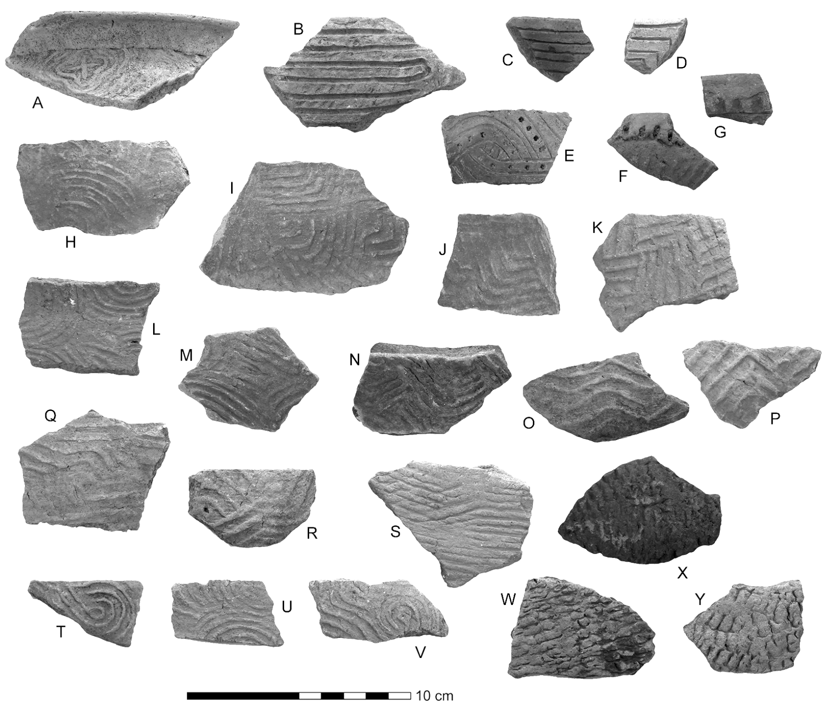

Figure 18. Sherds from Structure 1D.

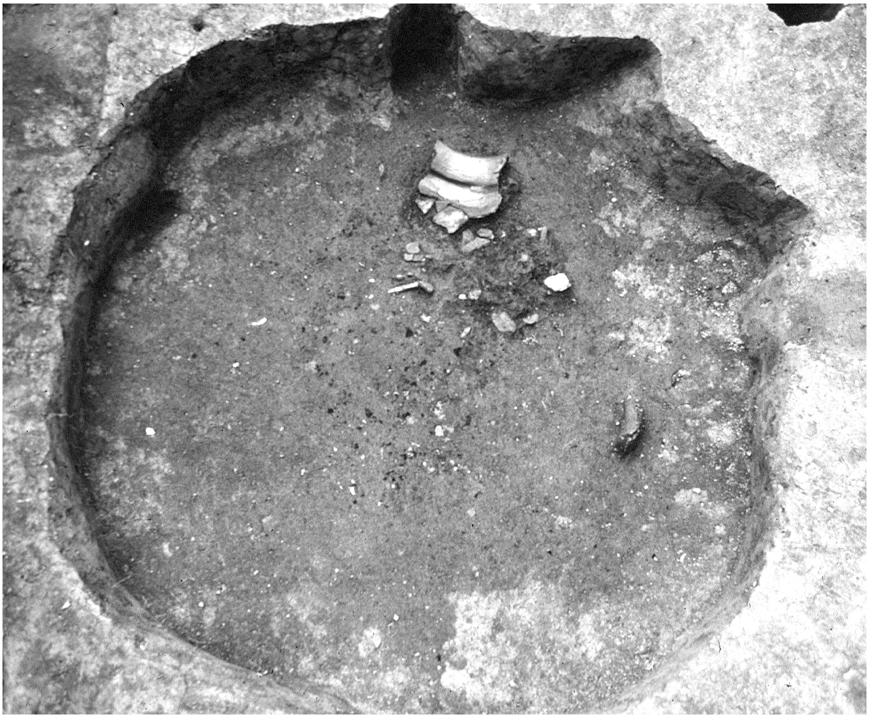

Figure 19. Feature 96 (courtesy of the UNC Research Laboratories of Archaeology).

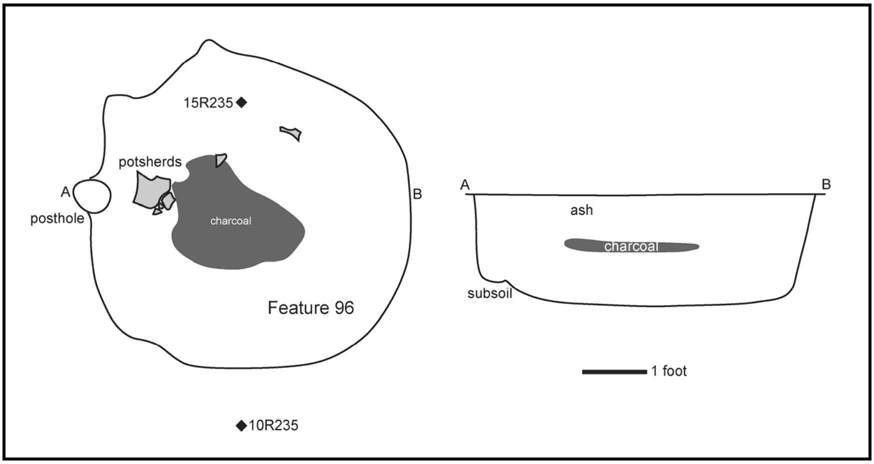

Figure 20. Plan and profile views of Feature 96.

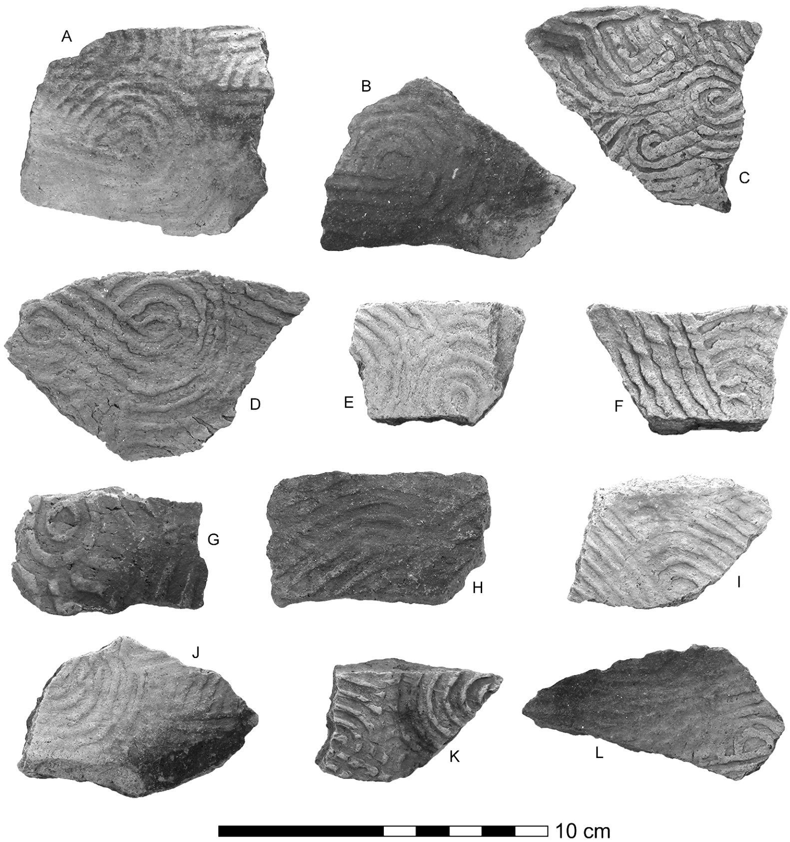

Figure 21. Potsherds from Feature 96.

Temporal Trends

Similarities and differences in the pottery assemblages from these contexts at Coweeta Creek can also be demonstrated quantitatively, in bar charts documenting the relative frequencies of surface treatments (Figure 28) and rim modes (Figure 29) seen in these respective assemblages when they are ordered chronologically. For these analyses, I include observations on body sherds greater than four centimeters long, and rim sherds greater than two centimeters long, simply because the characteristics of sherds smaller than these thresholds are often difficult to discern. In coding my observations on these sherds, I recorded information about sherd size, sherd thickness, temper, interior surface treatment, exterior surface treatment, decoration, rim mode, and vessel

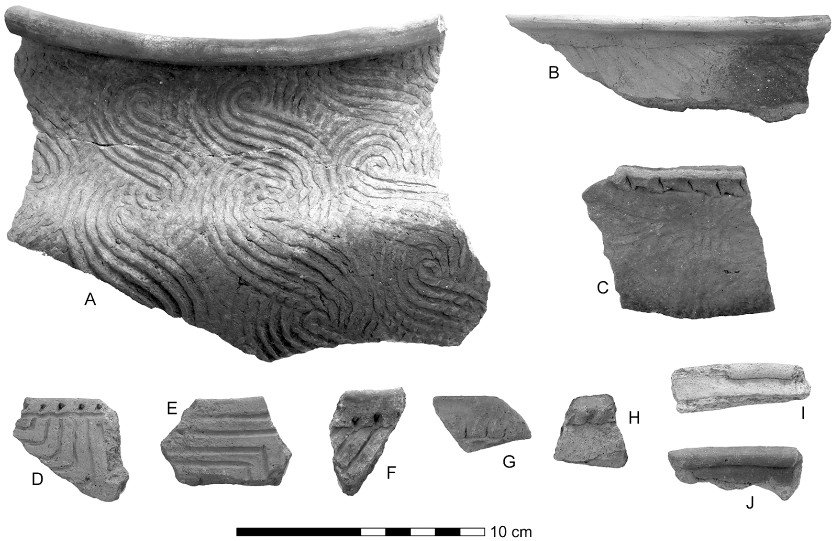

Figure 22. Rimsherds from Feature 96.

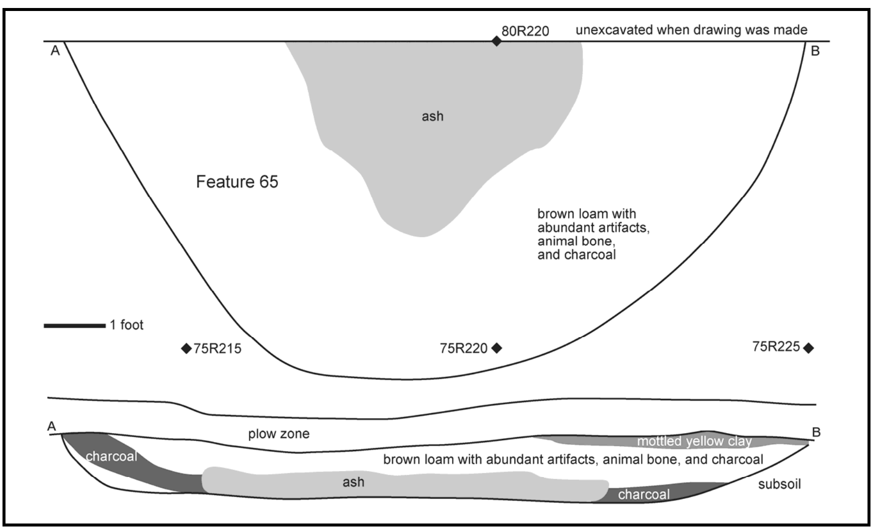

Figure 23. Feature 65.

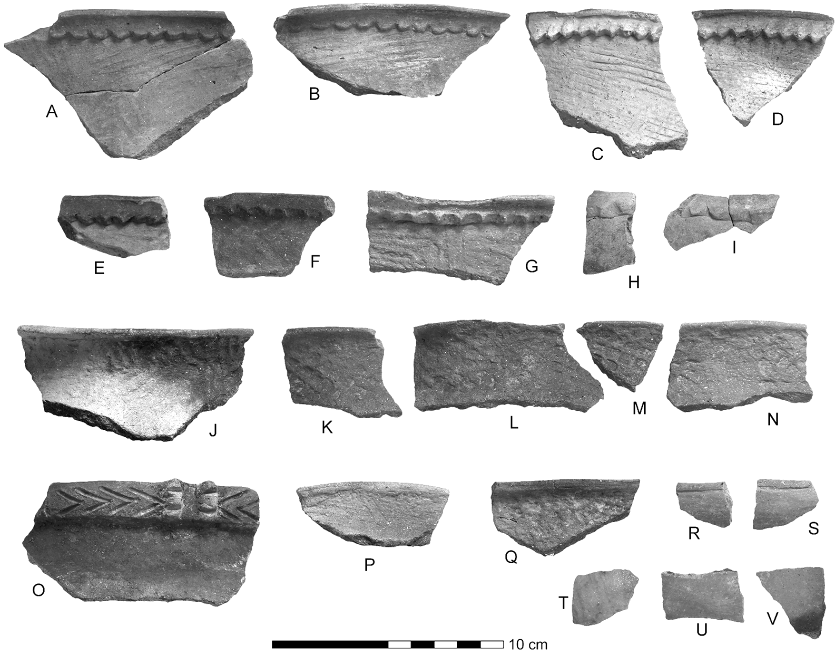

Figure 24. Potsherds from Feature 65.

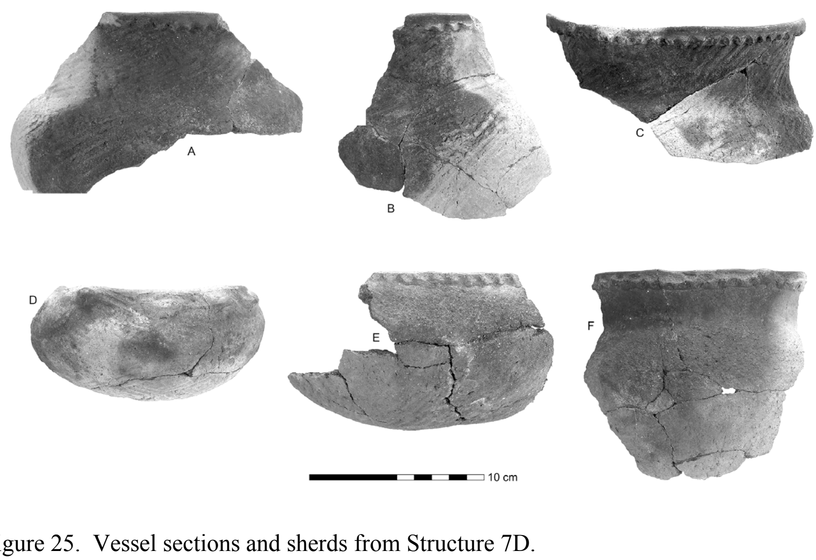

Figure 25. Vessel sections and sherds from Structure 7D.

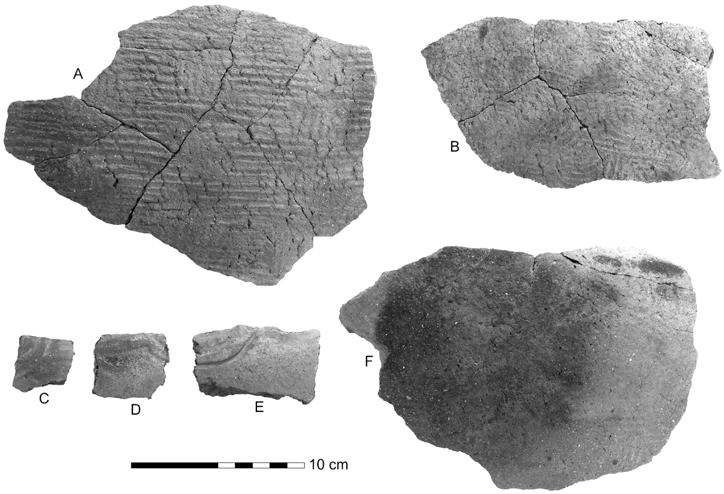

Figure 26. Vessel sections and sherds from Structure 7D.

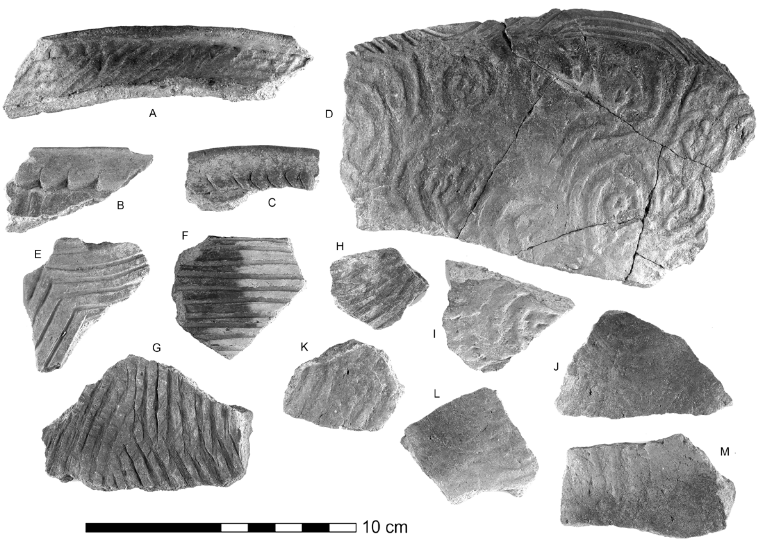

Figure 27. Potsherds from Structure 6B.

type, but the variables displaying meaningful temporal variation in this case are exterior surface treatment (Table 6) and rim modes (Table 7).[6]

Figure 28 illustrates temporal differences in exterior surface treatments. Complicated stamping is present throughout this sequence, although there are some differences in the kinds of complicated stamping seen in different assemblages. Coarse plain outer surfaces are relatively common early in the sequence, but not later. A form of check stamping referred to here as “diamond check stamping” occurs in assemblages from Feature 65 and Structure 7D (Figure 24). A different form of check stamping, “rectangular check stamping”, is seen in the assemblages from Feature 72 and Structure 1F (Figure 17). Incised sherds are present throughout this sequence. Those associated with Feature 65 and Structure 7D are different than those seen in later contexts. For example, incised motifs seen in Features 72 and 96, and in the townhouse mound, are multilinear geometric motifs like those shown in Figure 11. Incised sherds from Feature 65 and Structure 7D, conversely, have only single incised lines, and they do not exhibit the motifs shown in Figure 11.

Different types of complicated stamping are present to varying degrees in these assemblages. As seen in Table 8, the ratio of rectilinear to curvilinear complicated stamped sherds increases dramatically toward the end of the sequence. As is also apparent from Table 8, elongated complicated stamping, which is present on sherds from Feature 65 (Figure 24) and Structure 7D (Figure 25), is common early in the sequence but entirely absent later. Sherds with elongated complicated stamping probably reflect the presence of much larger wooden paddle stamps and perhaps different techniques of stamping than those associated with later forms of complicated stamping. It is possible that some sherds identified as “elongated complicated stamped” are actually “simple” or “linear” stamped, but several large sherds and vessel sections from Feature 65 and Structure 7D are reminders that large sections of those pots would “look” like linear stamping, given the long spacing between the right angles of lands and grooves.

Figure 29 illustrates trends in rim modes seen in sherd assemblages from Coweeta Creek. Plain rims are relatively common early in the sequence but are much less common, or even absent, in later contexts. Sawtooth notching is the most common form of notching along the bottoms of rim strips early in the sequence (Figure 30), and some

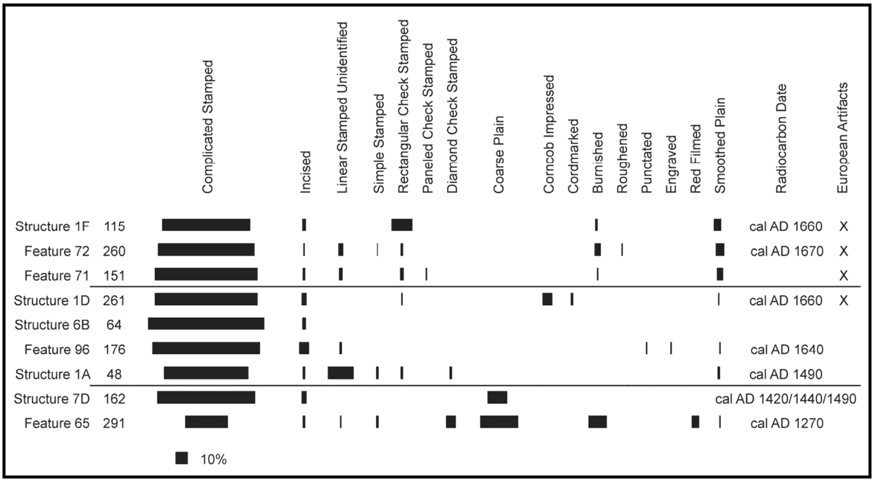

Figure 28. Relative frequencies of surface treatments in selected sherd assemblages from Coweeta Creek.

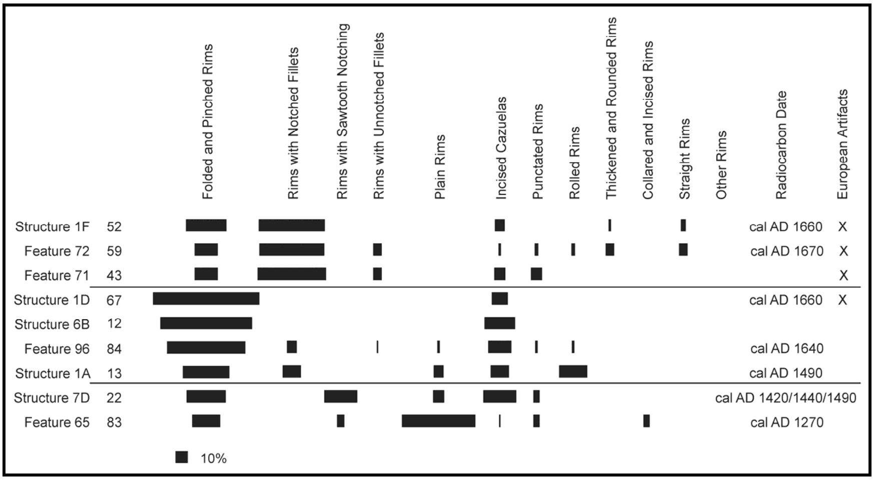

Figure 29. Relative frequencies of rim modes in selected sherd assemblages from Coweeta Creek.

Table 6. Frequencies of Surface Treatments from Selected Assemblages at Coweeta Creek.

	Complicated Stamped	Incised	Linear Stamped Unidentified	Simple Stamped	Rectangular Check Stamped	Paneled Check Stamped	Diamond Check Stamped	Coarse Plain	Corncob Impressed	Cordmarked	Burnished	Roughened	Punctated	Engraved	Red Filmed	Smoothed Plain	Sherd Sample	Total Sherds
Structure 1F	83	4	0	0	19	0	0	0	0	0	2	0	0	0	0	7	115	1340
	72%	3%	0%	0%	17%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	6%		
Feature 72	206	2	10	1	5	0	0	0	0	1	14	2	0	0	0	19	260	2034
	79%	1%	4%	0%	2%	0%	0%	0%	0%	0%	5%	1%	0%	0%	0%	7%		
Feature 71	127	3	5	0	4	2	1	0	0	0	1	0	0	0	0	8	151	840
	84%	2%	3%	0%	3%	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	5%		
Structure 1D	220	10	0	0	2	0	1	0	21	4	0	0	0	0	0	3	261	2896
	84%	4%	0%	0%	1%	0%	0%	0%	8%	2%	0%	0%	0%	0%	0%	1%		
Feature 96	155	14	4	0	0	0	0	0	0	0	0	0	1	1	0	1	176	1703
	88%	8%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%		
Structure 6B	61	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	299
	95%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Structure 1A	33	1	10	1	1	0	1	0	0	0	0	0	0	0	0	1	48	385
	69%	2%	21%	2%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%		
Structure 7D	130	6	0	0	0	0	0	26	0	0	0	0	0	0	0	0	162	291
	80%	4%	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%		
Feature 65	101	6	2	6	0	0	22	89	0	0	41	0	0	0	22	2	291	1315
	35%	2%	1%	2%	0%	0%	8%	31%	0%	0%	14%	0%	0%	0%	8%	1%		

Table 7. Frequencies of Rim Modes from Selected Assemblages at Coweeta Creek.

	Rims with Notched Fillets	Folded and Pinched Rims	Rims with Sawtooth Notching	Rims with Unnotched Fillets	Plain Rims	Incised Cazuelas	Punctated Rims	Rolled Rims	Thickened and Rounded Rims	Collared and Incised Rims	Straight Rims	Subtotal	Indeterminate Rims	Total
Structure 1F	28	17	0	0	0	4	0	0	1	0	2	52	13	65
	54%	33%	0%	0%	0%	8%	0%	0%	2%	0%	4%			
Feature 72	31	11	0	4	0	1	2	2	4	0	4	59	36	95
	53%	19%	0%	7%	0%	2%	3%	3%	7%	0%	7%			
Feature 71	27	6	0	3	0	3	0	1	2	0	0	42	8	50
	64%	14%	0%	7%	0%	7%	0%	2%	5%	0%	0%			
Structure 1D	0	58	0	0	0	9	0	0	0	0	0	67	8	75
	0%	87%	0%	0%	0%	13%	0%	0%	0%	0%	0%			
Feature 96	7	54	0	1	2	16	2	2	0	0	0	84	13	97
	8%	64%	0%	1%	2%	19%	2%	2%	0%	0%	0%			
Structure 6B	0	9	0	0	0	3	0	0	0	0	0	12	0	12
	0%	75%	0%	0%	0%	25%	0%	0%	0%	0%	0%			
Structure 1A	2	5	0	0	1	2	0	3	0	0	0	13	0	13
	15%	38%	0%	0%	8%	15%	0%	23%	0%	0%	0%			
Structure 7D	0	7	6	0	2	6	1	0	0	0	0	22	0	22
	0%	32%	27%	0%	9%	27%	5%	0%	0%	0%	0%			
Feature 65	0	19	5	0	50	1	4	0	0	4	0	83	14	97
	0%	23%	6%	0%	60%	1%	5%	0%	0%	5%	0%			

Table 8. Complicated Stamping at Coweeta Creek.

	Elongated Complicated Stamped	Curvilinear Complicated Stamped	Rectilinear Complicated Stamped	Subtotal	Indeterminate Complicated Stamped	Rectilinear:Curvilinear
Structure 1F	0	68	9	77	8	0.13
	0%	88%	12%			
Feature 72	0	26	53	79	127	2.04
	0%	33%	67%			
Feature 71	0	73	7	80	55	0.10
	0%	91%	9%			
Structure 1D	0	210	7	217	3	0.03
	0%	97%	3%			
Feature 96	0	96	3	99	56	0.03
	0%	97%	3%			
Structure 6B	0	20	1	21	40	0.05
	0%	95%	5%			
Structure 1A	0	12	2	14	21	0.17
	0%	86%	14%			
Structure 7D	39	7	0	46	84	0.00
	85%	15%	0%			
Feature 65	16	3	4	23	83	1.33
	70%	13%	17%			

collared rims with slash incisions (typical of Pisgah pottery in western North Carolina) also occur in early assemblages from Coweeta Creek (Figure 24). Folded and pinched rims are prevalent in the middle of the sequence (Figure 18), and rims with notched fillet strips are prevalent late in the sequence (Figure 17). Thickened and rounded rims, without any notching, are never very common, but they are most frequent in late assemblages.

Not only can we differentiate "rectangular" and "diamond" check stamping in these sherd assemblages (Figure 31), but these forms of check stamping are typically seen on different types of rims (Figure 32), and they are also typically associated with different paste characteristics. "Diamond" check stamping, characterized by thin lines and shallow cells

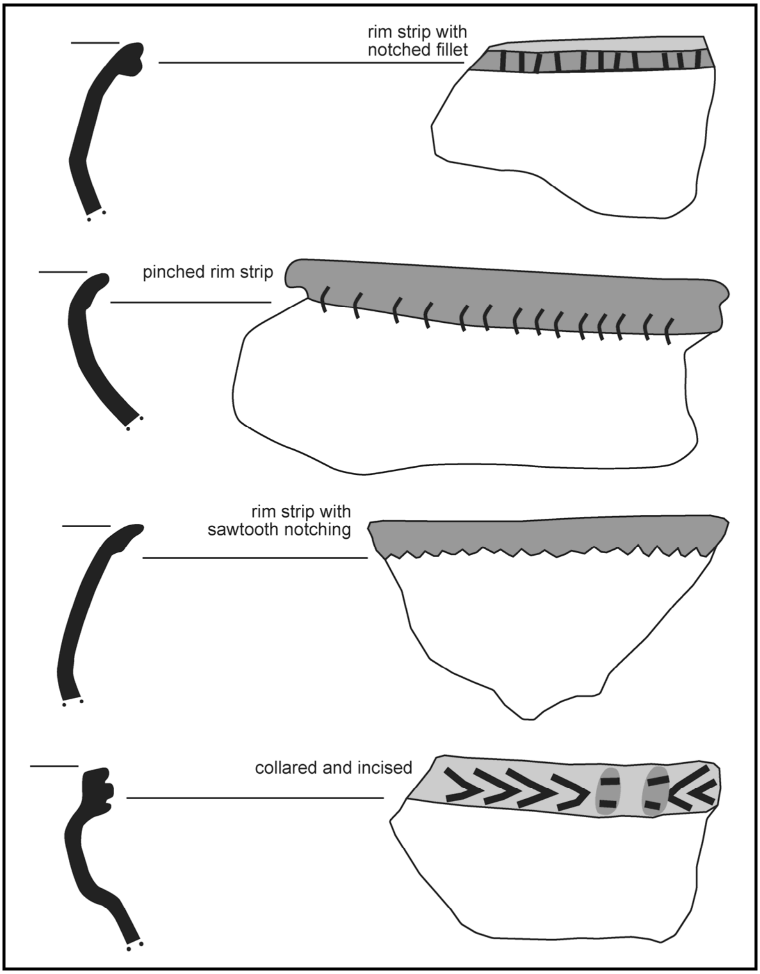

Figure 30. Different kinds of rim strips in assemblages from Coweeta Creek.

between them, is seen on sherds with compact, dark, sandy clay paste and on plain jar rims without any form of notching or other decoration, and this form of check stamping dates early in this sequence. Check stamping is absent from the middle of the Coweeta Creek sequence, and similarly, it is absent from Tugalo phase assemblages dating to the 1500s and early 1600s in northwestern South Carolina and northeastern Georgia (Hally 1986b:111). "Rectangular" check stamping, characterized by bold lines and deep cells between them, is seen on sherds with grit temper and on rim sherds with notched fillet strips. This

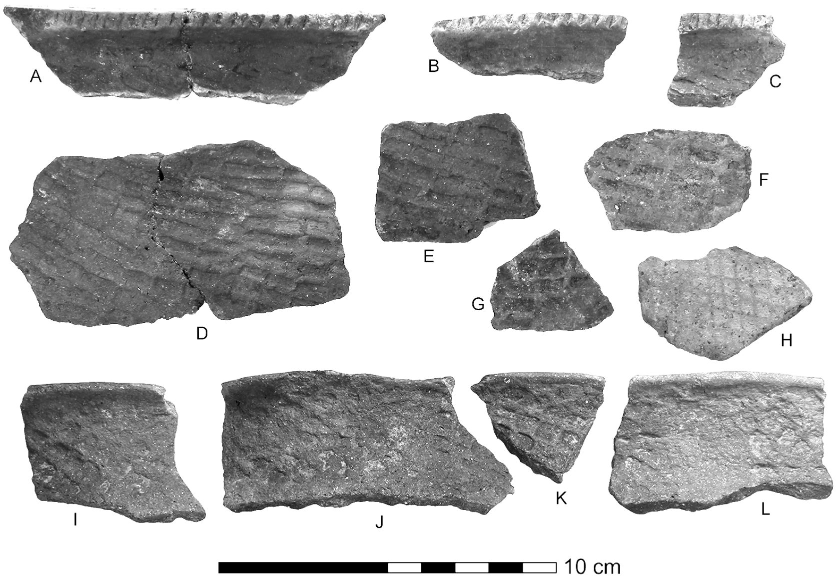

Figure 31. Qualla check stamped sherds from Coweeta Creek: Late Qualla “rectangular” check stamped (A–G); Early Qualla “diamond” check stamped (H–L).

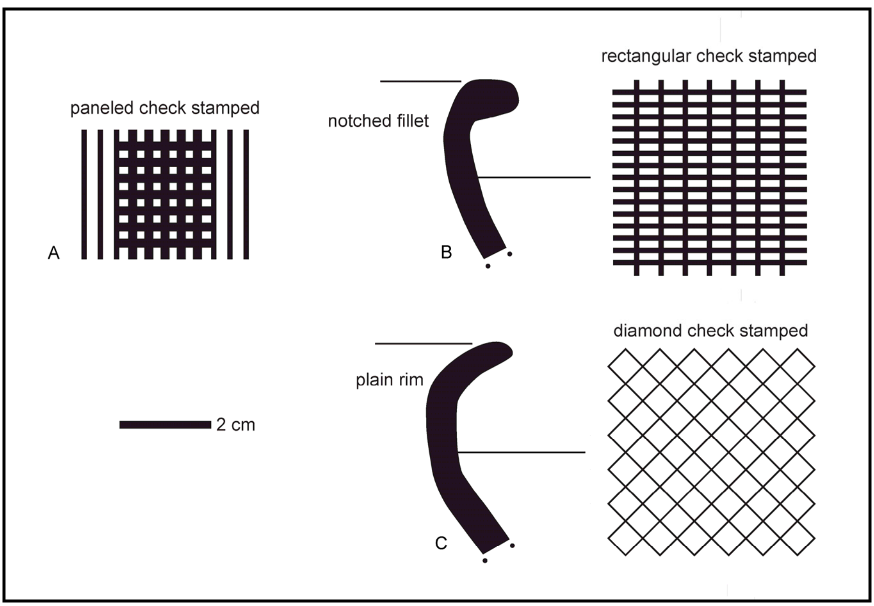

Figure 32. Late Qualla (A–B) and Early Qualla (C) check stamp motifs and rims.

form of check stamping apparently dates late in the sequence at Coweeta Creek. Similar check stamping is present in eighteenth-century Estatoe series assemblages from northwestern South Carolina and northeastern Georgia (Hally 1986b:107).

The ceramic assemblage from the floor of Structure 6B (Figure 27) very closely resembles those from Feature 96 (Figures 21 and 22) and from early to middle stages of the Coweeta Creek townhouse (Figure 18). Curvilinear complicated stamping is the prevalent surface treatment, and there are fragments from at least one carinated bowl with geometric incised motifs above the shoulder, and curvilinear complicated stamping below the shoulder. Jar rims from this structure floor have folded and pinched rim strips. In all these respects, the Structure 6B assemblage fits neatly into the middle of the general sequence outlined here. For stratigraphic reasons, it is clear that Structure 6 postdates Structure 7, and the differences in these respective ceramic assemblages are consistent with that conclusion.

The major characteristics of Early Qualla (Figure 33), Middle Qualla (Figure 34), and Late Qualla (Figure 35) ceramics are summarized as follows:

1. Early Qualla pottery is characterized by: dark and compact clay pastes, tempered with sand and grit; coarse plain exterior surface treatments, and polished or burnished interior surfaces; complicated stamping, including elongated complicated stamping; “diamond” check stamping; plain jar rims and jar rims with sawtooth notching; and small red-filmed, restricted-rim bowls.

2. Middle Qualla pottery is characterized by: grit temper; burnished interior surfaces; complicated stamping as the predominant exterior surface treatment; carinated vessels with incised motifs; and globular jars and restricted-rim bowls with folded and pinched rim strips. In addition to complicated stamping, other exterior surface treatments on Middle Qualla pottery include corncob impressing, fabric impressing, and cordmarking. Curvilinear complicated stamping is more common than rectilinear complicated stamping. Plain rims are rare or absent, and folded and pinched rims are the most common rim forms. Many jar rims have sharply angled inflection points at their shoulders.

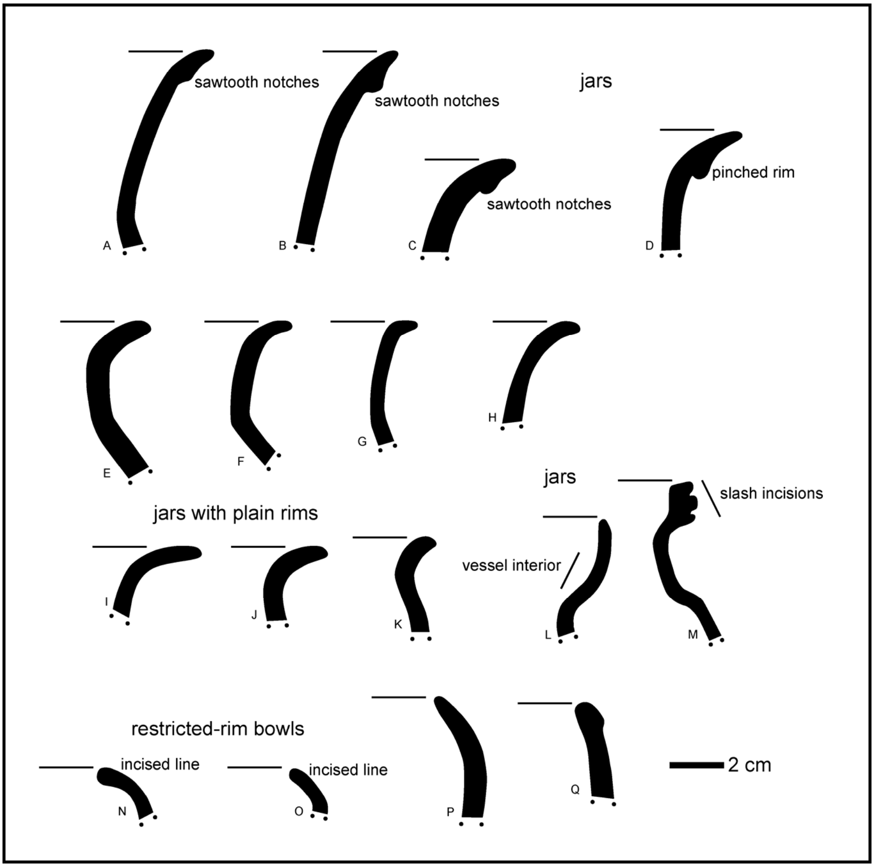

Figure 33. Early Qualla rims from the Coweeta Creek site: jar rim strips with sawtooth notching (A–C); pinched jar rim strip with fingernail notching (D); plain jar rims (E–L), collared jar rim with slash incisions (M); restricted-rim bowls with single incised lines (N–O); restricted-rim bowls (P–Q).

3. Late Qualla pottery is characterized by: grit temper; burnished interior surfaces; complicated stamping; "rectangular" check stamping; incised cazuelas; and globular jars and restricted-rim bowls with either folded and pinched rim strips, or rim strips with notched fillets. Rectilinear complicated stamping is more common than in Middle Qualla pottery, and in some cases it may even be more prevalent than curvilinear complicated stamping. Rims with notched fillet strips include examples with fillets placed at the lip as well as in the middle of rim strips. In addition to rims with notched fillet strips, thickened and rounded rims (which have no notching)

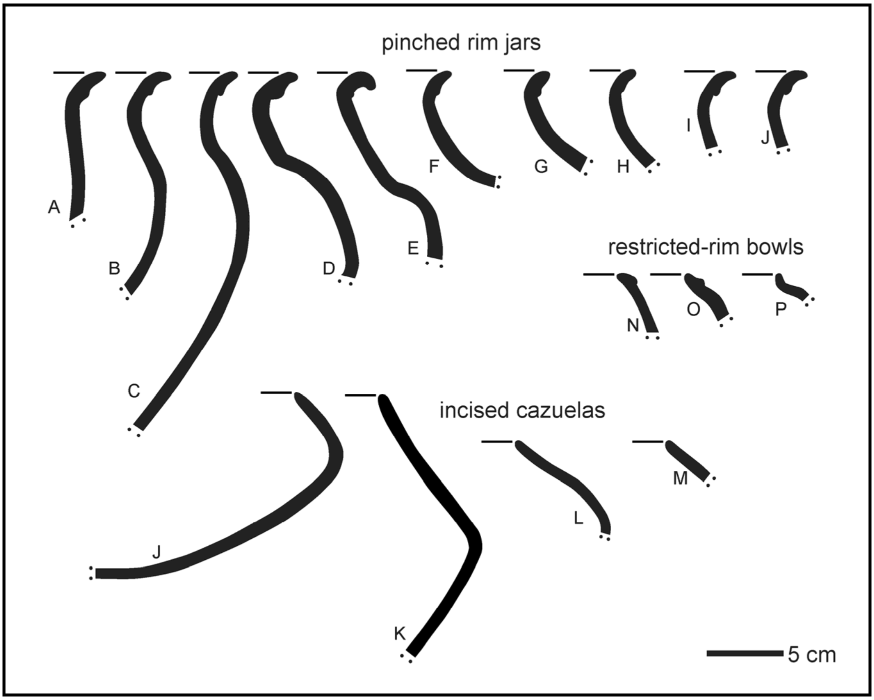

Figure 34. Middle Qualla rims from the Coweeta Creek site (compare with Hally 1986a:274): pinched jar rim strips with fingernail and fingertip notching (A–J); restricted-rim bowls (N–P); carinated vessels with geometric incised motifs (J–M).

may also be diagnostic of this stage in the ceramic sequence. Unlike the sharply defined necks seen in Middle Qualla jars (Figure 34), the curvature from rim to shoulder on Late Qualla vessels is more gradual (Figure 35).

Based on the Coweeta Creek radiocarbon dates, the presence or absence of European trade goods, and similarities with the Tugalo and Estatoe ceramic series (which have known date ranges and which are part of the broader Lamar cultural tradition), my proposed dates for Early, Middle, and Late Qualla ceramics, respectively, are as follows:

1. Early Qualla, A.D. 1300–1500, which, therefore, overlaps the late end of the Pisgah phase in the Appalachian Summit.

2. Middle Qualla, A.D. 1500–1700, roughly contemporaneous with the Tugalo phase along the headwaters of the Savannah River.

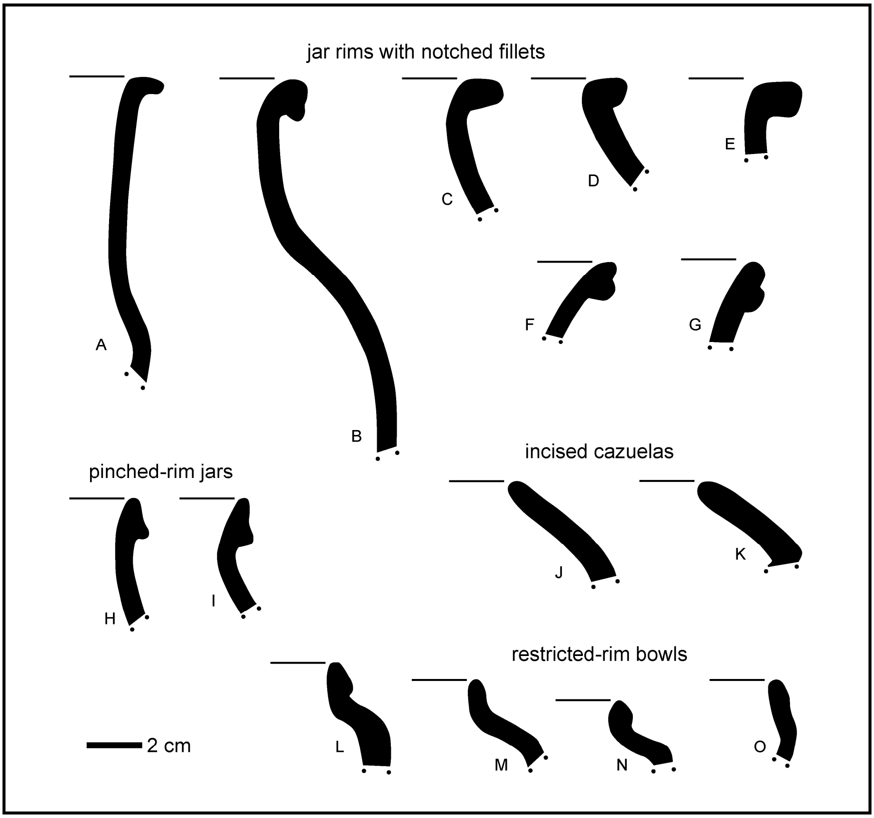

Figure 35. Late Qualla rims from the Coweeta Creek site (compare with Hally 1986b:102): jar rim strips with notched fillets (A–G); pinched jar rim strips with fingernail and fingertip notching (H–I); carinated bowls with geometric incised motifs (J–K); restricted rim bowls (L–O).

3. Late Qualla, A.D. 1700–1838, roughly contemporaneous with the Estatoe phase along the headwaters of the Savannah River.

These distinctions in the characteristics and dates of Early, Middle, and Late Qualla pottery at Coweeta Creek are potentially applicable to southwestern North Carolina more generally. This proposed ceramic sequence will be greatly improved by additional analyses of ceramic data from other sites in the Appalachian Summit, including Alarka (Shumate et al. 2003, 2005), the Brasstown Valley sites in northeastern Georgia (Cable and Reed 2000), the Ravensford sites (Benyshek and Webb 2008), and the Spikebuck mound and village site in the upper Hiwassee

Valley (Eastman 2006, 2007; Morse and Morse 2001; Rogers and Brown 1995). In my view, the approach taken here toward quantifying relative frequencies of specific ceramic attribute states — especially characteristics of rims and surface treatments — is a good step toward the broader goal of outlining a robust chronological framework with which we can propose dates for assemblages of sherds from structures, pit features, or entire sites.

Discussion

Although the Qualla ceramic sequence just proposed is based entirely on sherd assemblages from one site, these proposed distinctions among Early, Middle, and Late Qualla pottery do have implications for the archaeological phase sequence in the Appalachian Summit and for our understanding of the history and development of Cherokee culture in southwestern North Carolina. Conventionally, the Qualla phase has been dated from A.D. 1450 to 1838, which is a long period that encompasses major cultural changes among native peoples throughout the Southeast in the aftermath of European contact (Dickens 1976, 1978, 1979).[7] Here, the Qualla ceramic series is subdivided, and it outlines the major characteristics of Qualla pottery dating to the fifteenth century A.D., if not earlier. Importantly, this Early Qualla assemblage is different than the Pisgah pottery seen at other late prehistoric sites in western North Carolina (Figure 36).[8]

The archaeological literature from southwestern North Carolina has tended to emphasize the significance of the Pisgah phase, and the Pisgah ceramic series, as the main progenitor of and precursor to Qualla pottery and the Qualla phase (Dickens 1970, 1976, 1978; Keel 1976; Purrington 1983; Rodning 2001b). Archaeologists have recognized the influences of ceramic series associated with the Lamar tradition on the development of Qualla pottery, but, still, the phase sequence in southwestern North Carolina characterizes Pisgah as ancestral to Qualla. While some examples of collared rims, diagnostic of Pisgah pottery, can be found at the Coweeta Creek site, the Early Qualla ceramic assemblage at Coweeta Creek is different than the typical Pisgah pottery seen at sites like Warren Wilson and Garden Creek. Dickens (1976:186–192) identified geographic differences in the concentration of sites with Pisgah and Qualla sherds, with sites containing Pisgah pottery spread widely across the southern Appalachian landscape, but concentrated in areas near the Warren Wilson and Garden Creek sites. Dickens (1978:132–136)

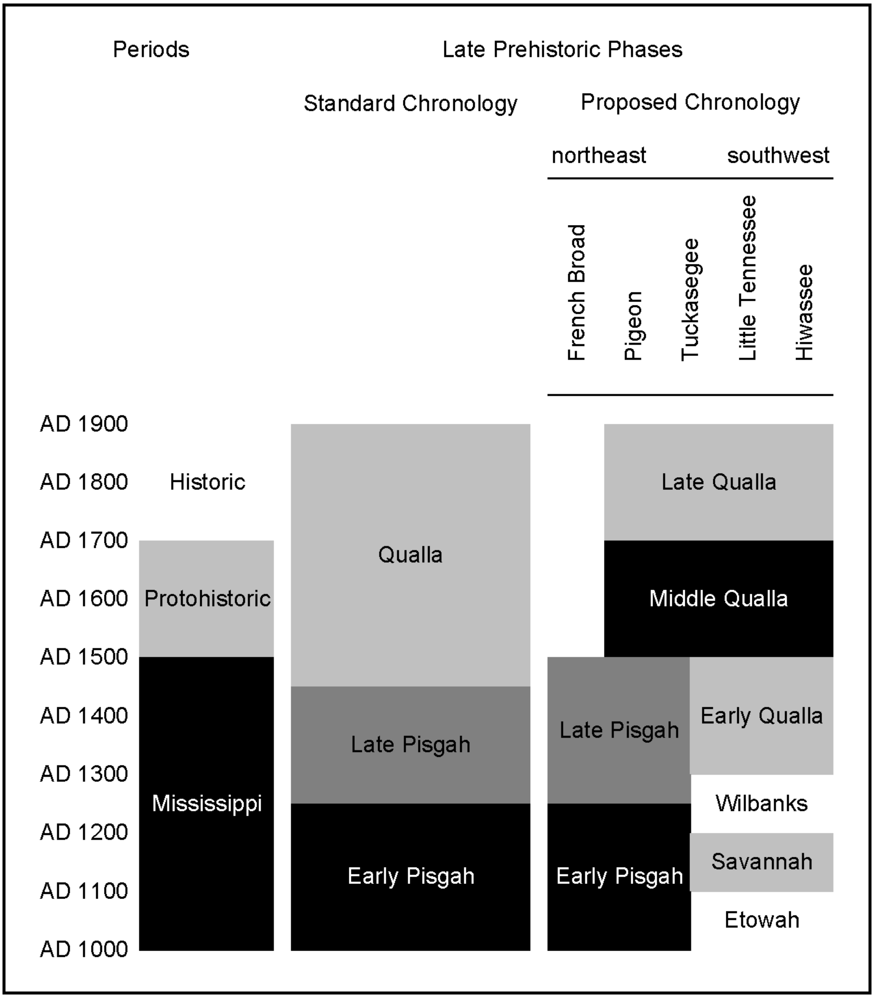

Figure 36. Late prehistoric and postcontact ceramic series in the southern Appalachians.

concluded from this spatial pattern that there must have been significant movement of people from areas where Pisgah sites are concentrated to the historic Cherokee town areas farther southwest, where Qualla sites are concentrated. In this perspective, there are direct and diachronic relationships between the Pisgah and Qualla phases, as late prehistoric and post-contact manifestations, respectively, of Cherokee culture in western North Carolina. From this viewpoint, moreover, the endpoint of the Pisgah phase precedes European contact in North America.

Alternatively, the regional differences in the concentrations of Pisgah and Qualla sites could be evidence of synchronic regional cultural diversity in the Appalachian Summit during the period just before and at European contact. At the Coweeta Creek site, pit features and structures with Early Qualla ceramic assemblages date to the fifteenth century, which places them within the timeframe associated with the late end of the Pisgah phase (Dickens 1976, 1978, 1979; Moore 1981, 2002b; Purrington 1983:142–148; Ward and Davis 1999:160–175). If it is more broadly true that some sites and features with Qualla ceramics are contemporaneous with some sites and features with Pisgah ceramics, then we should consider the possibility that the relationship between the Pisgah and Qualla phases is not as simple as the development of one phase and ceramic series into the other (Riggs et al. 1996, 1997; Ward and Davis 1999:178–181).

In my view, it is likely that there were settlements in southwestern North Carolina during late prehistory that are attributable to both the Pisgah and Early Qualla phases. As it is currently defined, the end date for the Pisgah phase precedes European contact in North America, and there are no known sites or contexts in which Pisgah pottery is associated with European trade goods. By contrast, sites and artifact assemblages attributed to the Qualla phase are clearly associated with European trade goods and other evidence of post-contact dates. What, then, happened to those groups and settlements represented archaeologically by the Pisgah phase? One possibility is that Pisgah folk became absorbed within those societies and settlements from the 1600s and 1700s that are recognizable archaeologically as the Qualla phase and as historic Cherokee towns (Brett Riggs, personal communication 2007).

This alternative perspective — that there is no simple developmental sequence from the Pisgah to Qualla ceramic series — is consistent with the fact that Qualla ceramics at sites like Coweeta Creek, especially those which are regarded here as Middle Qualla and Late Qualla ceramics, are essentially the same as the Tugalo (A.D. 1450–1600) and Estatoe (A.D. 1650–1750) pottery seen at sites along the Savannah headwaters (Hally 1986b, 1994; Hally and Langford 1988; Hally and Rudolph 1986; Schroedl 1994, 2000a, 2000b, 2001; Smith 1992; Wynn 1990). Although not labeled as such, ceramics with characteristics similar to, if not the same as, those of the Tugalo, Estatoe, and Qualla series are also seen at the Nacoochee mound on the headwaters of the Chattahoochee in Georgia (Heye et al. 1918), and at the Peachtree mound in the upper Hiwassee Valley in North Carolina (Setzler and Jennings 1941). The genealogy of the Tugalo, Estatoe, and other regional manifestations of the Lamar ceramic tradition can be traced back in time to phases associated with the Savannah, Wilbanks, and Etowah periods, and this history, in my view, is the (pre)history of Qualla pottery in southwestern North Carolina (Dickens 1976:200–201; Riggs and Rodning 2002:38–39). Much of the Savannah and Etowah river valleys were abandoned during the 1400s and 1500s (Anderson 1994; Anderson et al. 1986; King 2003). It is worth considering the possibility that some people from those areas could have moved to the Appalachian Summit during this period, contributing to the absorption of groups associated with the "Pisgah" phase within the Cherokee communities manifested by sites attributed to the "Qualla" phase. Similar movements of people may have contributed to the emergence of the Burke phase in the upper Catawba Valley in western North Carolina, just east of the Appalachian Summit (Beck and Moore 2002; Moore 2002a). Lamar influences on the development of Qualla pottery in southwestern North Carolina have long been acknowledged, and I simply advocate giving those influences more emphasis in our understanding of the genealogy of Qualla pottery, and, perhaps, of the ancestral Cherokee communities associated with Qualla ceramics (Dickens 1979:24–27; Ward and Davis 1999:179–180; Ward and Rodning 1997; see also Boudreaux 2007, Moore 2002a).

I acknowledge that there are areas (including areas along the Pigeon River) and even particular sites (including Garden Creek) where there is some evidence that Pisgah pottery, and the Pisgah phase more generally, precedes Qualla pottery and the Qualla phase. I also recognize that some Pisgah sites clearly predate Qualla sites, and Pisgah sites certainly predate Middle and Late Qualla sites in western North Carolina. I simply think that some chronological overlap in sites associated with the Pisgah and Qualla phases exists, and that there is no simple nor direct developmental relationship between them.

I anticipate that, upon closer consideration, archaeologists in the Appalachian Summit will find increasing evidence of late prehistoric settlement in southwestern North Carolina that cannot be attributed to the Pisgah phase but that can be considered ancestral to the Qualla phase. Undoubtedly, the groups represented archaeologically by the Pisgah phase did contribute to the eventual development of historic Cherokee material culture and community in southwestern North Carolina.

However, there probably also are late prehistoric sites and assemblages in southwestern North Carolina that represent local manifestations of Lamar, Savannah, Wilbanks, and Etowah phases, and we should look for them, both in the field, and in extant collections and publications.

Conclusion

The main aim of this article has been to demonstrate temporal trends in Qualla ceramics as they are evident in sherd assemblages from the Coweeta Creek site in southwestern North Carolina. The general characteristics of Qualla pottery have been recognized for some time (Dickens 1976, 1978, 1979; Keel 1976), and this is not the first formal description of Qualla pottery as such (B. Egloff 1967). On the other hand, this article is one of the first analytical treatments of variation in Qualla ceramics since the original formal description of Qualla pottery was written (B. Egloff 1967), and it is part of a broader effort to realize the interpretive potential of archaeological collections made during surveys and excavations by the Cherokee Archaeological Project in the 1960s and early 1970s (Keel et al. 2002; Lambert 2002; Riggs and Rodning 2002; Rodning and VanDerwarker 2002; VanDerwarker and Detwiler 2000, 2002; Wilson and Rodning 2002). The chronological framework developed here is applicable (in this or a revised form) to reconstructing the occupational history at individual sites, including Coweeta Creek, and it also may be applicable as a chronological framework at a regional scale. This framework is best applied to ceramic assemblages, as it relies primarily on relative frequencies and ratios of different attribute states.

Notes

[1] For an excellent discussion of paste characteristics and temper in Cherokee pottery, and other aspects of Cherokee ceramics and ceramic analysis, see Marcoux 2008.

[2] Keel, Egloff, and Egloff (2002) note that other candidates for excavations by the Cherokee project were the Cowee mound and village, and sites along Iotla Creek representing the Middle Cherokee town of Joree. They were not granted access to Cowee, and known sites along Iotla Creek were not threatened at the time. These considerations, and abundance and variety of artifacts on the ground surface at Coweeta Creek, led to its selection as a site for an excavation that, at the beginning, was predicted to last for a single season.

[3] For further discussion, see Rodning 2004:101, 105, 179, 197.

[4] In addition to pottery, many other artifacts, including chipped stone tools, a pottery burnishing pebble, and a carved wooden pottery paddle, also are associated with the floor of Structure 7D, and it would be worthwhile to examine more closely the entire assemblage of domestic material culture found on the floor of this house, which is one of

relatively few archaeological examples of a late prehistoric domestic structure in western North Carolina.

[5] The sherds from Feature 65 and Structure 7D at the Coweeta Creek site do not fit neatly into the category of Qualla pottery, as it is currently understood by archaeologists in western North Carolina, nor do they compare closely to ceramics from northeastern Georgia and northwestern South Carolina that would be attributed to the Tugalo and Estatoe series.

[6] For further discussion, see Rodning 2004:235–320.

[7] On the topic of subdividing the Qualla phase, Ward and Davis (1999:181) write that "Given the likelihood that a pre-1450 Qualla or Qualla-like phase will be identified, 'Early Qualla' as originally defined by Dickens is referred to here as the Middle Qualla phase, beginning around A.D. 1450. And because significant contacts between Cherokees and European traders did not begin until the eighteenth century, we prefer to extend the ending date of the Middle Qualla phase to A.D. 1700." I am in agreement, except that I would place the early date for Middle Qualla pottery at 1500, rather than 1450.

[8] On the topic of the relationship between the Pisgah and Qualla phases and its relevance to Cherokee archaeology, Ward and Davis (1999:181) write that "It is also possible that an Early Qualla phase will be recognized in other portions of the Appalachian Summit region. Regardless of what this Early Qualla phase material resembles, the view of a simple Pisgah–Qualla developmental sequence throughout the North Carolina mountains is no longer tenable. In fact, this sequence may be the exception rather than the rule and a historical consequence of which sites were chosen for excavation during the Cherokee project." I am in agreement with this viewpoint, although I also do think we do need to fit the Pisgah phase into the archaeological models we develop about the development of Cherokee culture in western North Carolina.

Acknowledgments. This research has been supported by the UNC Research Laboratories of Archaeology and the Department of Anthropology, the UNC Center for the Study of the American South, the North Carolina Archaeological Society, and the Tulane University Committee on Research. Thanks to Bennie Keel, Brett Riggs, and the Eastern Band of the Cherokee Indians for organizing and hosting the Cherokee pottery workshop at the University of North Carolina in Chapel Hill. Thanks for guidance and encouragement from Brett Riggs, Steve Davis, Vin Steponaitis, Trawick Ward, David Moore, Greg Wilson, Tony Boudreaux, Jon Marcoux, Rob Beck, David Hally, Gerald Schroedl, Paul Webb, Jane Eastman, Bennie Keel, Russell Townsend, Tasha Benyshek, Merritt Sanders, Margie Scarry, John Scarry, and Amber VanDerwarker. Greg Wilson and Steve Davis helped greatly in my efforts to take photographs of the sherds and vessel sections illustrated in this article. Greg, Steve, Brett Riggs, David Hally, and Gerald Schroedl have also been particularly helpful in my efforts to record and to analyze the ceramic data considered here. This article is dedicated to the memory of Mark Mathis and his contributions to archaeology and archaeologists in North Carolina.

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SEARCHING A SAND DUNE: SHOVEL TESTING THE BARBER CREEK SITE

by

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Abstract

Since 2000, East Carolina University has conducted archaeological research in the Tar River Valley designed to address poorly understood aspects of Coastal Plain culture-history. Excavations at the Barber Creek site have identified stratified Woodland and Archaic period remains in a one meter deposit of sandy soils. Here, we provide an overview of the geoarchaeology done to date regarding our understanding of site formation and stratigraphy including reporting a series of radiocarbon dates from the site's Archaic component. In addition, we present the results of site shovel testing which define site boundaries covering about 1 ha and document the presence of broad-scale intrasite spatial patterning between components.

To date, much of the framework that represents the early culture-history of the North Carolina Coastal Plain is borrowed from the Carolina Piedmont (compare Coe 1964:121 with Phelps 1983:17). Of course, since most of the archaeological research in the Coastal Plain has focused on the late prehistoric and contact periods, using the well-established sequence from the Piedmont has been justified. But clearly this framework was proposed as one to be tested rather than accepted as fact (Phelps 1983:15). Unfortunately, few Coastal Plain sites dating prior to the Late Woodland have been identified with sufficient integrity to address issues related to the region's chronology and typology. Recent excavations at the Barber Creek site, however, suggest that it has the potential to address substantive issues of the region's culture-history that have remained problematic due to poor archaeological context (Daniel 2002).

The Barber Creek site was recorded over 20 years ago by East Carolina University (Phelps 1977) as part of a cultural resource survey near Greenville, North Carolina (Figure 1). Limited testing at that time indicated the presence of a 1 m deep deposit of stratified lithic and ceramic remains in a sand ridge along the Tar River. Significantly,

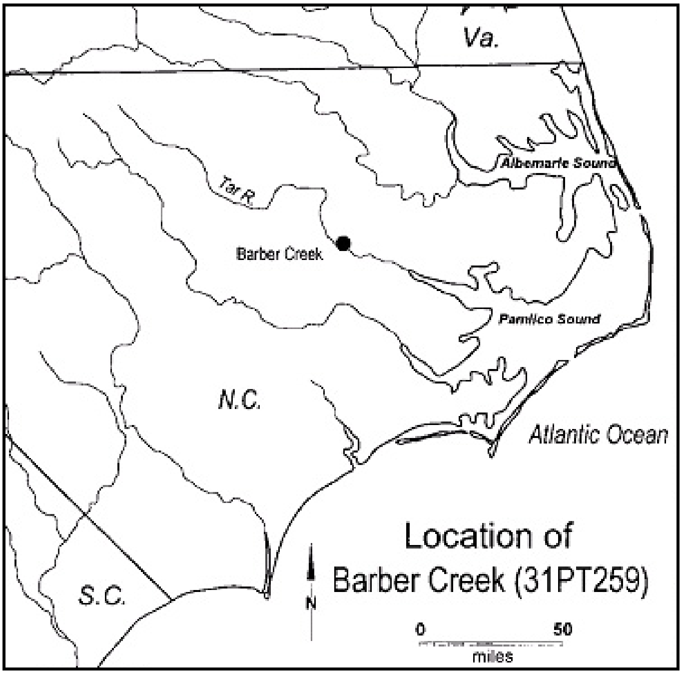

Figure 1. Barber Creek site location.

preserved organic materials including charcoal, burned nutshell, and calcined bone fragments were also present in the excavations. The potential significance of these stratified remains was mentioned in a synthesis of Coastal Plain archaeology over 20 years ago (Phelps 1983:19–20). Nevertheless, no further work was done at the site until East Carolina University returned to Barber Creek in 2000. Since then, additional field schools have been conducted at the site every summer except 2001 in order to address aspects of the region's early prehistory including early and middle Holocene chronology, typology, and geoarchaeology (Daniel 2002).

Thus, the purpose of this paper is to: (1) report the results of the shovel testing conducted during the first season; and (2) provide an overview of the geoarchaeology done to date and our understanding of site formation and stratigraphy. In brief, our results indicate that relatively well stratified Woodland and Archaic period remains are situated in a relict sand dune at Barber Creek covering 1 ha and that intrasite spatial differences exist between components.

Geoarchaeology

The site is situated on a sand ridge that parallels Barber Creek for over 100 m near its confluence with the Tar River. Topographically, this northwest-southeast trending landform rises 2 m above the Tar floodplain north of Barber Creek. The site is heavily wooded and, with the exception of a canal that cuts through the site's eastern edge, has experienced little if any modern disturbance. An understanding of the archaeology at Barber Creek is highly dependent upon an understanding of the formation processes of the sand ridge. Here, we summarize the geoarchaeological work done to date and describe site stratigraphy. This stratigraphic discussion is based on the initial results of interpreted trench profiles from test unit excavations which have yet to be fully reported (Seramur et al. 2003).

Stratigraphy

All of the archaeological remains recovered from Barber Creek to date have been located in the top one meter of sand (Figure 2). Three pedogenic soil horizons are recorded along the sand ridge, including A-, E-, and B-horizons (e.g., Schoeneberger et al. 1988). The A-horizon extends to a depth of about 30 cmbs (centimeters below surface) and consists of a very dark grayish brown sand capped with undecayed humus. Woodland period artifacts are present throughout the A-horizon, but are particularly concentrated between 25 cm and 30 cmbs. A dark yellowish-brown (medium) sandy eluvial E-horizon is present from 30 cm to between 80 cm and 90 cmbs. Woodland and Archaic period artifacts occur in stratigraphic order within the upper and lower portions of this horizon. While a few sherds are sporadically found to a depth of about 50 cmbs, virtually no sherds are recovered below a depth of 50 cm.

Both Middle Archaic and Early Archaic components are present in the lower portion of the E-horizon. In particular, an Early Archaic zone appears to begin about 60 cm below surface and extends to about 100 cmbs; however, cultural material is sparse below about 70 to 80 cm below surface. Consequently, the Early Archaic zone straddles the lower portion of the E-horizon and the underlying B-horizon, which begins at about 80 cmbs. The poorly developed B-horizon (or cambic horizon) consists of yellowish-brown medium sand with more than a dozen 1 to 2

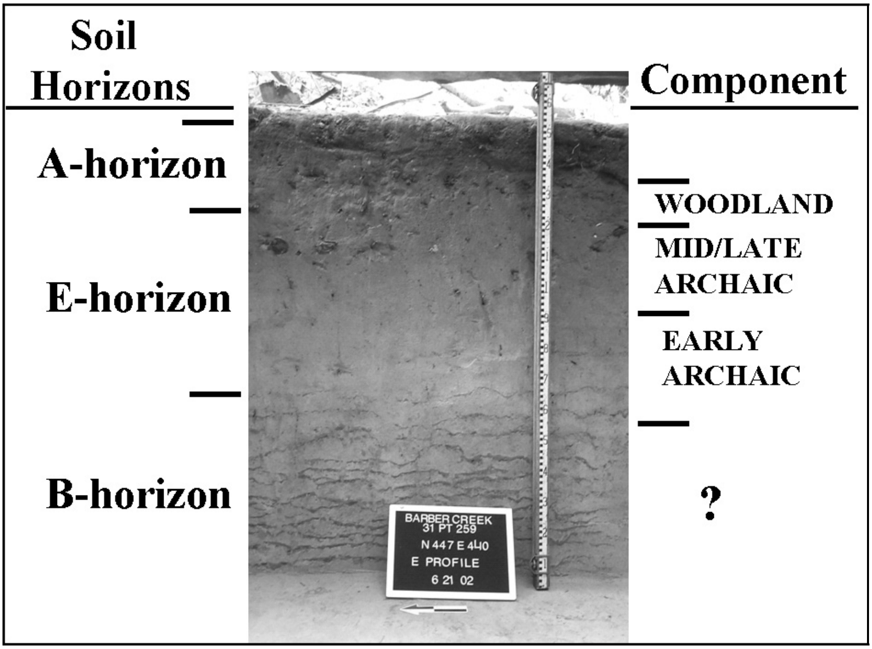

Figure 2. Barber Creek site profile.

cm thick argillic lamellae that extend to up to 1.5 meters below surface in some units. Lamellae, however, are not present in every unit.

To date, an emphasis has been placed on dating the Archaic component, and a series of seven largely concordant dates were obtained from individual levels between 40 cm and 110 cmbs (Table 1). The dates range from 8440–10,500 RCYBP, except for an appreciably younger (and probably anomalous) date from level 5. The full implications of these dates will be discussed in a later paper. Taking these dates at face value, however, they are associated with various phases of the Early Archaic as represented by bifurcate, corner-notched, and side-notched point traditions elsewhere in the Southeast (Chapman 1977). These dates would be consistent with corner-notched and bifurcate points recovered at Barber Creek. Approximately one dozen medium-to-small stemmed points have been recovered from levels 4 and 5 that document a Middle to Late Archaic component at Barber Creek. Very small stemmed points also appear associated with the Woodland component. Chronometric dates for these components and typological

Table 1. Radiocarbon Dates from Barber Creek (31PT259).

Beta Number	Context	Material	Radiocarbon Age
166236	Level 5	wood charcoal	1470 +/- 40 BP
188955	Level 6	wood charcoal	8950 +/- 40 BP
166239	Level 7	hickory nut shell	8440 +/- 50 BP
150188	Level 8	wood charcoal & hickory nutshell	8940 +/- 70 BP
166237	Level 8	wood charcoal	9280 +/- 60 BP
166238	Level 10	wood charcoal	9860 +/- 60 BP
188956	Level 11	wood charcoal	10,500 +/- 50 BP

Note: Level depths are 10 cm intervals (e.g., level 5 equals 40-50 cmbs). Sample 150188 is a radiometric date; all others are AMS dates.

classifications for these later Archaic and Woodland points remain to be determined.

Sedimentology

This sand ridge was deposited on the northern edge of the floodplain (T_0 terrace) adjacent to an elevated alluvial T_1 terrace. Sand is transported through Coastal Plain stream valleys by aeolian (wind) and alluvial (water) processes. This study attempts to interpret the depositional processes that formed the sand ridge at Barber Creek and buried the cultural horizons. The geomorphology of the sand ridge and sedimentology of on-site and off-site sediment samples are used to interpret depositional processes at Barber Creek.

Fifteen off-site sediment samples were collected from three locations: the floodplain of Barber Creek just south of the site, the elevated alluvial T-1 terrace north of the site, and from the stream bed of Barber Creek near its confluence with the Tar River. Twenty-six on-site sediment samples were collected from three units excavated along the crest of the ridge during the first field season. These samples were analyzed for particle size distribution in the Geology Department at Appalachian State University. Sedimentological analyses included determining percent sand and fines (silt and clay) and particle size

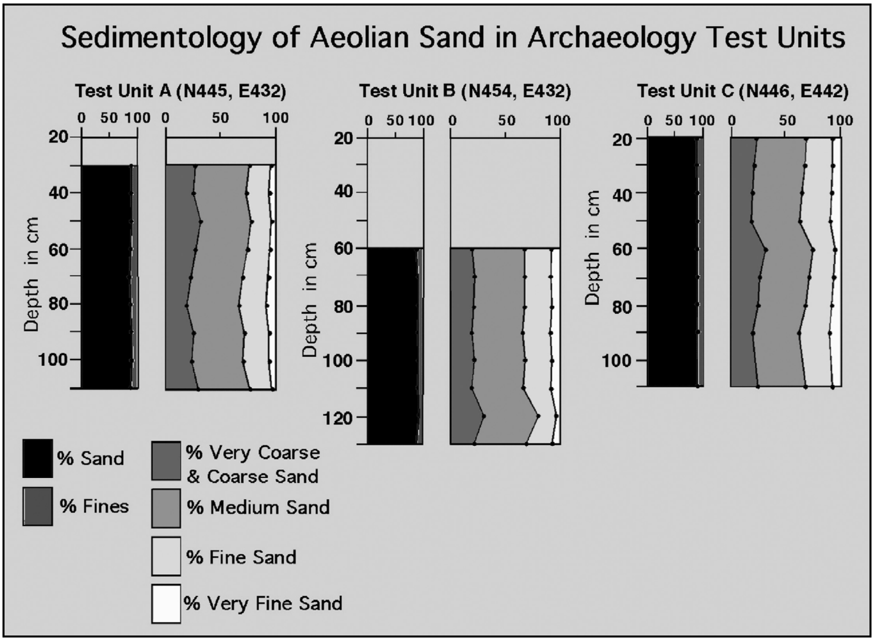

Figure 3. Sedimentological analyses from three units at Barber Creek.

distribution of the sand fraction. Sand grains from the ridge and from Barber Creek itself were imaged on a Quanta FEI 200 Scanning Electron Microscope (SEM) in the high vacuum mode at 20kV. Grains were mounted on aluminum stubs and coated with gold. Each grain was identified as quartz using Energy Dispersive X-Ray (EDX) before a photomicrograph was collected. Only quartz grains were evaluated to eliminate the possibility that sand grain mineralogy would produce different surface textures. Sedimentology and surface textures of off-site and on-site samples are compared to interpret depositional processes.

Sediment samples from the three archaeological units are well-sorted medium sand with minor percentages of fines (Figure 3). The fine fraction did not exceed 13% in any of the samples. There is little variability in these sediments, indicating formation by a consistent depositional process.

The off-site samples from the floodplain and the alluvial terrace have a very different sedimentology. The floodplain sediment is primarily coarse sand and the terrace sediment is primarily a fine to very

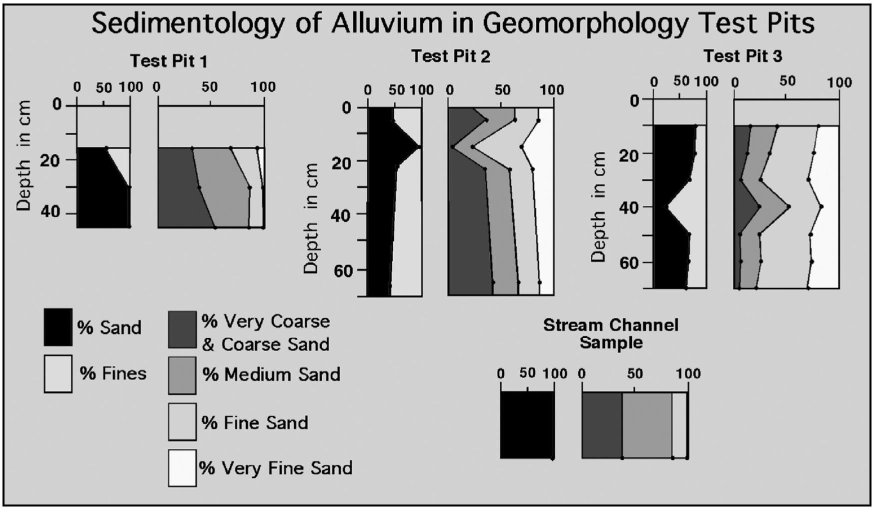

Figure 4. Sedimentological analyses from stream bed and floodplain near Barber Creek.

fine sand in contrast to the medium sand on the ridge. Percent fines varies from 2% to 76% (Figure 4). These deposits are quite variable, indicating changes in the depositional processes over time.

Statistical measures (i.e., mean grain size, standard deviation, and skewness) of the grain size distribution were calculated for each sample. Mean grain size and standard deviation of the ridge (site) sediment forms a distinct population where standard deviation increases with increased mean grain size (Figure 5). Floodplain and terrace samples are dispersed across the graph, showing variability within these deposits. The ridge sediment is positively skewed on a plot of mean grain size and skewness, and the floodplain and terrace samples are negatively skewed (Figure 6).

The alluvial sand from Barber Creek and the ridge sediment also display different surface textures when sand grains are viewed under the SEM. Alluvial sand grains are well rounded with a surface texture dominated by v-shaped and crescent-shaped depressions (Figure 7). In contrast, grains from the ridge tend to have a very angular shape with a surface texture dominated by conchoidal fractures (Figure 8). Ridge morphology is consistent with aeolian deposition. Prevailing wind direction in this part of the Coastal Plain is southwest to northeast, and the ridge has a gentle stoss (upwind) slope and a steep lee (downwind) slope. The east-northeast slope of the ridge is steepest. The orientation

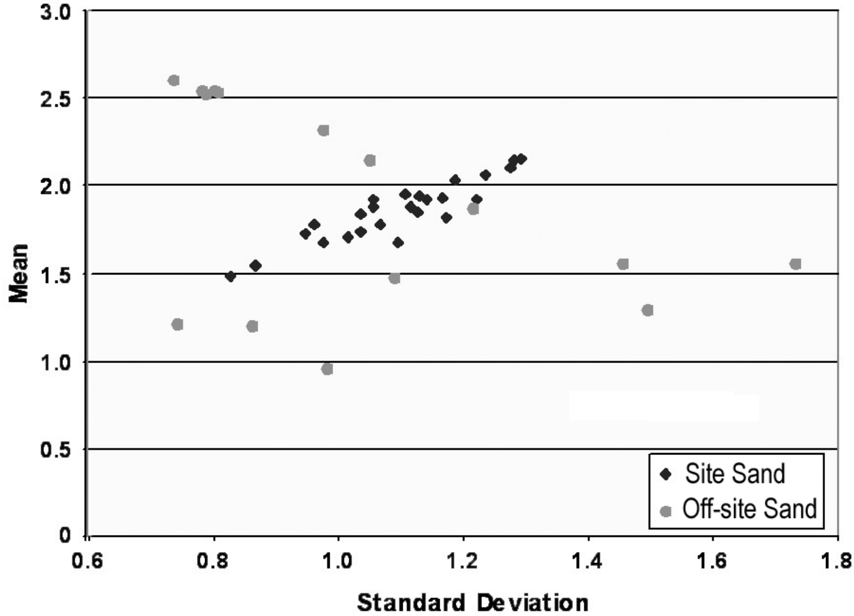

Figure 5. Scatterplot of mean grain size and standard deviation for site and off-site sediments.

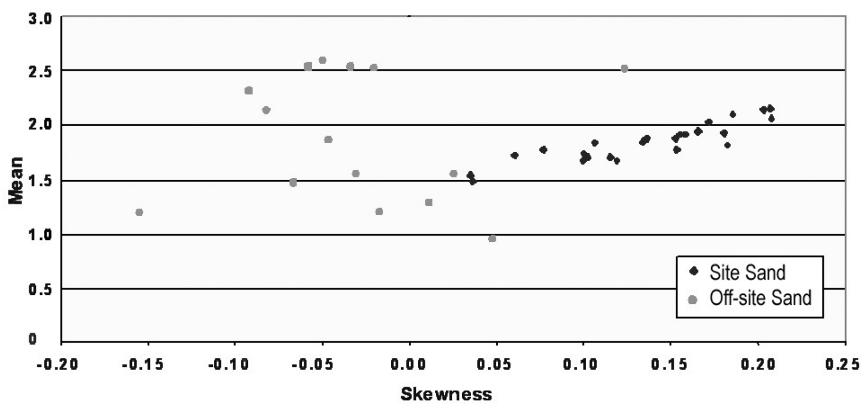

Figure 6. Scatterplot of mean grain size for site and off-site sediments.

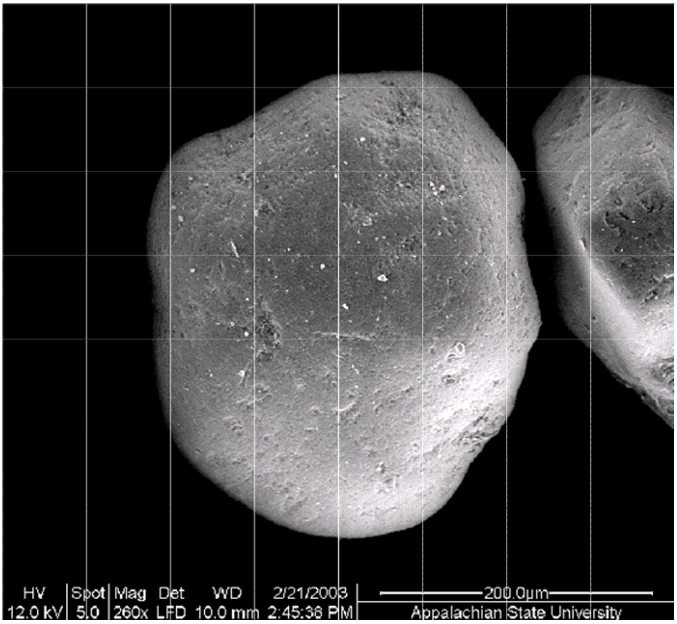

Figure 7. Scanning Electron Microscope photograph of alluvial sand grain.

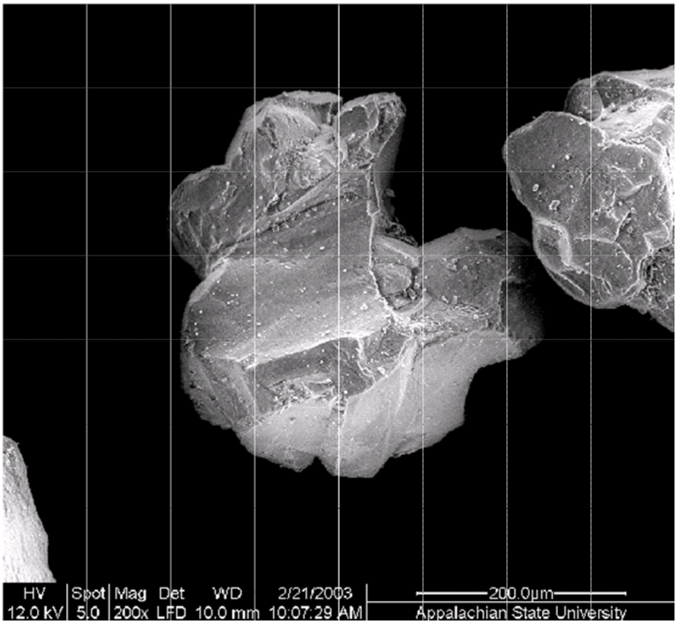

Figure 7. Scanning Electron Microscope photograph of ridge (site) sand grain.

of the dune oblique to the prevailing wind direction is probably due to local topography of the east-west Tar River valley and wind direction along the edge of the alluvial terrace.

Site Formation

Wind is a very effective sorting agent. Silt and clay-sized particles are separated from sand during aeolian transport, forming a characteristic well-sorted sediment. Aeolian deposits also tend to be positively skewed because the ability of wind to transport coarse sediment is limited. Sands are deposited as dunes or sand sheets, and the fines are deposited downwind as loess. The sand ridge at Barber Creek is interpreted as an aeolian deposit. The effectiveness of wind as a sorting agent is seen in the sedimentology logs and in the distinct population of ridge sand on the statistical graphs. On each of the graphs the dune sediment forms a distinct population different from the alluvium sediments on the adjacent floodplain and terrace (Figures 5 and 6). A variation in the wind speed over time accounts for the distribution of these grains on the statistical plots.

This ridge is periodically inundated during high magnitude flood events such as the recent (1999) hurricane Floyd. A drape of silt (and possibly clay) is deposited on the ridge during these events. This fine sediment is incorporated into the ridge deposits by illuviation and contributes to the approximately 10% fines measured by the particle size analyses (Figure 3).

The variability in sedimentology of the floodplain and terrace samples is interpreted as interbedded fluvial traction and suspension (overbank) deposits. Traction deposits are formed as currents sweep sand along the surface of a landform in contact (traction) with the bed. Suspension deposits form when silt and clay settle out of slack water. Both of these deposits can form during a single flood event. The traction sands are deposited during the initial and final stages of a flood event when flood waters inundate and drain off of the floodplain or terrace. Suspension deposits form when flood water has inundated a landform and the silt and clay settle out of the low velocity floodwaters. The coarse sand of the floodplain samples indicates that strong currents flow across this surface. The fine sand on the terrace indicates a lower velocity flow on the elevated surface.

The SEM images show a distinct difference in surface textures between the aeolian and fluvial sand grains. Fluvial sand grains are well rounded with impact depressions formed as the grain is rolled along the stream bed. Aeolian grains collide with a much greater force because air has a lower viscosity than water. Conchoidal fractures can form when the wind-blown sand impacts other grains as pieces of the grain are calved from the grain surface. Many of the grains from the sand ridge show conchoidal fractures truncating a rounded surface texture. This indicates an initial transport by fluvial processes and subsequent aeolian transport up onto the ridge.

In sum, this ridge is interpreted as a relict aeolian sand dune. The source of the aeolian sand was the loose alluvial sediment on the floodplains of the Tar River and Barber Creek. Southwestern prevailing winds transported sand through saltation from the floodplain up to the edge of the alluvial terrace. As the wind crossed the edge of the terrace, wind velocity and/or direction changed, depositing the sand and forming the dune. In this regard, Barber Creek represents an example of the widespread presence of dunes along Coastal Plain rivers in Georgia and the Carolinas that formed between 15,000 and ~3,000 radiocarbon years ago (Markewich and Markewich 1994). Cultural material and radiocarbon dates from the upper meter of the Barber Creek dune are consistent with that age interval.

Shovel Testing

Mapping and extensive shovel testing of the sand ridge was completed during the first season's work (Figure 9). The goal of this work was to determine site boundaries, assess site integrity, and to examine the site for potential intrasite spatial patterning in artifact distributions. Shovel testing was conducted in two phases. Initially, 12 shovel tests were judgmentally excavated along the ridge during the spring of 2000. The results of that work suggested that archaeological materials were widely scattered across the landform. During the following summer, 94 shovel tests were more systematically placed at approximately 10 m intervals across the sand ridge, virtually covering the entire landform. Shovel tests were 60 cm in diameter with fill being dry-screened through a nested series of one-quarter-inch and one-eighth-inch hardware mesh. All shovel tests were excavated to a depth of one meter. While the spring shovel tests were excavated in 50-cm thick levels, the summer testing was done in 25-cm thick levels (Daniel 2002).

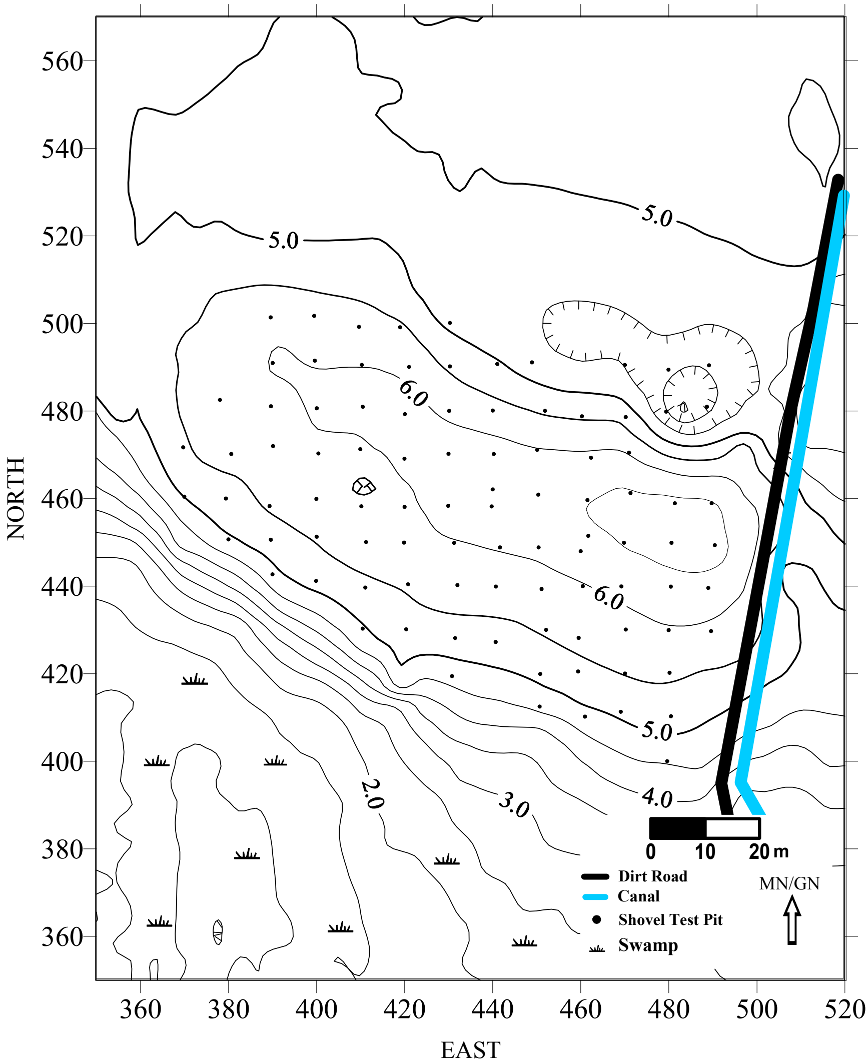

Figure 9. Location of shovel tests at Barber Creek.

As discussed below, cultural material was recovered from most shovel tests. Although shovel tests were excavated in rather thick levels, a stratigraphic pattern emerged across the ridge: ceramic artifacts were primarily present in the upper two levels of each shovel test, while stone artifacts with little to no pottery were present below that depth.

Artifacts

Artifacts recovered in the shovel tests can be broadly divided into two categories: lithics (*n*=379) and ceramics (*n*=584). The former category includes a single soapstone sherd. And while it technically represents a stone artifact, it is not included in the lithic analysis below. The latter category includes four historic period sherds which are given no further consideration here. A few other historic or modern artifacts, including rusted metal fragments and wire, were also discovered in the shovel tests, and these are also not considered further. Finally, two other items were recovered in the shovel tests which do not fall in either of the above categories: fossilized bone and petrified wood. They are rather small and their status as artifacts is unclear, given no obvious signs of having been used. Nevertheless, it is possible that prehistoric people brought them to the site. In any case, they are not discussed further.

Artifact analysis focused on identifying the number and age of the components as revealed by their typological classification and context of recovery. The lithic assemblage has received a more detailed analysis than the ceramic assemblage (Potts 2004).

Lithics

Given that flaking debris constituted the vast majority of the stone remains, the analysis focused on monitoring several flake attributes that could be used to infer stone reduction activities at Barber Creek. Initially, all flakes were sorted by raw material type, size grade, and weight (Tables 2–3). Subsequently, several other attributes were monitored on each artifact including flake condition, presence/absence of cortex, platform condition and facet count, and dorsal scar count. Details of this analysis are reported elsewhere (Potts 2004).
The goal of the analysis was to reconstruct the composition of the toolkit brought into the site (e.g., tool maintenance and repair) and the tool/core types produced during the occupations (e.g., tool/core manufacture) (e.g., Binford 1979; Kelly 1988; Nelson 1991). An attempt was also made to examine potential differences in stone working activities over time, but this analysis yielded no significant results and will not be discussed further. Given the relatively small sample sizes and contexts of data recovery, it is unclear whether this conclusion is spurious or real (Potts 2004:41–44).

Table 2. Raw Material Frequencies of Lithic Debitage at Barber Creek.

Raw Material	*n*	%
Quartz/Quartzite	238	64.9
Metavolcanic	112	30.5
Chert	9	2.5
Unidentified	8	2.1
Total	367	100.0

Table 3. Size Grade Frequencies of Lithic Debitage at Barber Creek.

Size Grade	*n*	%
Size Grade 1 (25 mm)	6	1.6
Size Grade 2 (12.5 mm)	41	11.1
Size Grade 3 (6.3 mm)	133	36.2
Size Grade 4 (2.8 mm)	187	50.9
Total	367	100.0

Flaking debris, including 367 flakes, constitutes the vast majority of stone artifacts in the assemblage. Four broad classes of stone raw material comprise the assemblage: quartz/quartzite, metavolcanic stone, chert, and a residual category. Quartz/quartzite (*n*=238, 64.9%) is the predominant stone type, followed by a metavolcanic stone (30.5%, *n*=112) (Table 2). Quartz and quartzite are local raw materials, widely available in the Coastal Plain, particularly in cobble form along rivers (Clark et al. 1912:280). The presence of cobble cortex on quartz flaking debris at Barber Creek suggests at least some of this stone was acquired in cobble form from the nearby creek or river. Metavolcanic stone is a general term used for the various metamorphosed igneous stone types observed in the assemblage. Primary sources of this stone are presumed to be in the Piedmont, although secondary sources of this stone can occur in river cobble form in the Coastal Plain (Daniel and Butler 1996; Steponaitis et al. 2006). As with quartz in the assemblage, the presence of cobble cortex on some metavolcanic flaking debris at Barber Creek indicates that some metavolcanic stone was acquired from the creek or river adjacent to the site. Chert (2.5%, *n*=9) and a residual category (2.1%, *n*=8) of unidentified materials were present in only minor amounts. Chert is used here to categorize two highly siliceous materials in the assemblage. The first is a gray, jasper-like material that is known to occur in pebble form along the Neuse River (Phelps 1983:22). The

Table 4. Raw material frequencies per size grade at Barber Creek.

	Size Grade 1		Size Grade 2		Size Grade 3		Size Grade 4		Total	
Raw Material	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Quartz/Quartzite	5	2.1	25	10.5	86	36.1	122	51.3	238	100.0
Metavolcanic	1	0.9	15	13.4	38	33.9	58	51.8	112	100.0
Chert	-	-	-	-	4	44.4	5	55.6	9	100.0
Unidentified	-	-	1	12.5	5	62.5	2	25.0	8	100.0

second is a tan-colored chert whose source is unknown. Unidentified raw materials constitute the residual category with the exception of the single soapstone artifact.

Flakes. Flakes in the assemblage are routinely small (Table 3). Mean flake weight is 1.5 g with 87.1% (*n*=320) of the flakes falling into the two smallest size grades. Nevertheless, the presence of at least 10% of the flakes occurring in the two largest size grades suggests that, at least to some degree, all stages of stone reduction took place at Barber Creek (Potts 2004: 25–51). Further distinctions in stage and type of stone working can be inferred when the flake assemblage is examined by size grade, raw material, and the presence/absence of cortex.

Initial stages of stone reduction are suggested for quartz and metavolcanic stone, along with some late stage biface manufacture (Ahler 1989; Morrow 1997). For example, almost half of the quartz flakes in the assemblage are represented in the first three size grades (Table 4). That fact, combined with the presence of cobble cortex on the majority of quartz flakes in size grades 1 and 2 (low sample size notwithstanding), suggests some initial core reduction took place at Barber Creek (Table 5). While one might expect a greater number of flakes to be represented in size grade 1 for initial core reduction, the relative absence of large flakes might be explained by the moderately small package size represented by cobbles used for raw material at the site. In any case, at least some cortex is present in all flake size categories, and the frequency of cortex significantly decreases in the lower two size grades versus the larger two size grades. This pattern too is consistent with on-site continuous cobble reduction. A similar conclusion can be drawn from the metavolcanic flake distribution pattern (Table 5).

Table 5. Presence and Absence of Cortex by Raw Material and Size Grade from Barber Creek.

		Size Grade 1		Size Grade 2		Size Grade 3		Size Grade 4	
Raw Material	Cortex	*n*	%	*n*	%	*n*	%	*n*	%
Quartz/Quartzite	Absent	2	40.0	6	24.0	54	62.8	109	89.3
	Present	3	60.0	19	76.0	32	37.2	13	10.7
	Total	5	100.0	25	100.0	86	100.0	122	100.0
Metavolcanic	Absent	-	-	8	53.3	27	71.0	53	91.4
	Present	-	-	7	46.7	11	29.0	5	8.6
	Total	-	-	15	100.0	38	100.0	58	100.0
Chert	Absent	-	-	-	-	3	75.0	5	100.0
	Present	-	-	-	-	1	25.0	-	-
	Total	-	-	-	-	4	100.0	5	100.0
Unidentified	Absent	-	-	-	-	3	50.0	1	50.0
	Present	-	-	1	100.0	2	50.0	1	50.0
	Total	-	-	1	100.0	5	100.0	2	100.0

At least some of this cobble reduction is attributed to biface manufacture, as indicated by the presence of multifaceted platforms and multiple flake scars on the dorsal surfaces of both quartz and metavolcanic stone flakes. Interestingly, a few metavolcanic flakes may represent uniface reduction flakes (Shafer 1970), as indicated by single-faceted striking platforms and low dorsal surface scar counts (Potts 2004:37–40).

Chert flakes, on the other hand, appear to be exclusively associated with biface maintenance. Although few in number, the fact that all chert flakes occur in the two smallest size grades and the presence of other attributes (e.g., multifaceted platforms) on these artifacts are suggestive of late stage biface reduction (Potts 2004:37–40).

In short, there is evidence of core, biface, and probably uniface reduction in the lithic assemblage at Barber Creek. Apparent differences in raw material use are also evident. Core and biface reduction were the most common stone working activities at Barber Creek. Core reduction is evident in only the quartz and metavolcanic stone raw materials, while biface reduction is evident among all stone types. Chert was used only for biface reduction at Barber Creek.

Other Lithic Artifacts. Hammerstone fragments (*n*=5), biface fragments (*n*=3), cobbles (*n*=2), and a single utilized flake comprise the remaining assemblage (Potts 2004:44–51). These items were weighed, measured, and morphologically described. Raw material type was also noted. Most of these items represent tool fragments and include bifaces, hammerstones, and a utilized flake. Two quartz biface fragments and one metavolcanic biface fragment appear to be associated with the Archaic component at the site. None of the specimens are particularly diagnostic and appear to be manufacture failures. The metavolcanic specimen is somewhat unusual in that it appears to exhibit a radial fracture. If true, this may represent an attempt to extend the use-life of raw material in areas of limited stone sources (Bruce 2000).

Several hammerstone fragments are present in the assemblage. Four quartz specimens were associated with the Archaic component. Two specimens represent cobble fragments with pitting along the edges. Two other artifacts are tabular in shape. Pitting is present along the artifact edges as well as on the flat surfaces of the stone, indicating that these stones were used as anvils as well as hammerstones. An additional quartz hammerstone fragment was recovered from the Woodland component. A single utilized metavolcanic flake, characterized by use-retouch along one edge, was also identified in the assemblage.

Finally, two small quartz cobbles exhibiting no clear evidence of use are present in the assemblage. They are included in the discussion here because it is hard to imagine how they were deposited on site without having been transported by humans.

In sum, given that chipped-stone debitage comprised the majority of the lithic remains from the site, data analyses focused on drawing conclusions about the nature of stone-working activities conducted at the site. Of course, these conclusions should only be regarded as tentative and are proposed as hypotheses for future testing. First, core, biface, and to a lesser extent uniface reduction probably took place at Barber Creek. In particular, much of the stone working probably included quartz cobble reduction in the form of biface manufacture. The presence of several quartz biface fragments in the assemblage supports this interpretation. Most likely much of this material was obtained from the nearby river. To a lesser extent, metavolcanic stone was also reduced at the site apparently from cobbles as well, although some metavolcanic flakes in the assemblage may represent the product of tool maintenance (i.e., items brought into the site). This is almost certainly the case with chert flakes in the assemblage. Given that chert is a non-local stone and artifacts of

Table 6. Prehistoric Ceramics Types from Barber Creek.

Series	Surface Treatment	*n*	%
Deep Creek	Cord-marked	79	11.33
	Fabric-marked	30	4.30
	Net-impressed	19	2.73
	Simple-stamped	16	2.30
	Plain	2	0.29
	Indeterminate	133	19.08
Hanover	Fabric-impressed	59	8.46
	Cord-marked	18	2.58
	Plain	3	0.43
	Indeterminate	46	6.60
Mount Pleasant	Cord-marked	17	2.44
	Fabric-impressed	5	0.72
	Net-impressed	2	0.29
	Indeterminate	7	1.00
Indeterminate		261	37.45
Total		697	100.00

this stone occur as small biface thinning flakes, their occurrence at Barber Creek likely represents on-site maintenance rather than initial manufacture of chert bifaces.

Ceramics

The ceramic analysis focused on classifying ceramic sherds by series. A total of 697 prehistoric ceramic sherds were recovered in the shovel tests (Table 6). Of these, 436 (62.5%) potsherds were classifiable as to series. The identifiable ceramics were classified according to the established ware groups for the region: Deep Creek, Mount Pleasant, and Hanover (Herbert and Mathis 1996; Phelps 1983; South 1976). Deep Creek ceramics are associated with the Early Woodland period in the North Coastal Plain (Phelps 1975, 1983:29). The Deep Creek series includes 279 sherds or about 64% of the identifiable assemblage. This total includes ceramics tempered with coarse sand particles and cord marked (*n*=79), fabric-impressed (*n*=30), net-impressed (*n*=19), simple-stamped (*n*=16), and plain surfaces (*n*=2). Surface treatments on the remaining 133 sand-tempered sherds could not be confidently identified. The frequencies of identifiable surface treatments in the assemblage are consistent with either a Deep Creek I or Deep Creek II phase placement (Martin 2004; Phelps 1983:29). Over half (ca. 54%) of the Deep Creek assemblage is cord-marked, followed by lesser frequencies of fabric-impressed (ca. 21%) and net-impressed (ca. 13%) sherds. Simple-stamped (ca. 11%) and plain (ca. 1%) surfaces constitute relatively minor amounts of the assemblage.

Lesser frequencies of at least one and possibly two Middle Woodland pottery series are present in the assemblage. The uncertainty of this occurrence at Barber Creek is due to the possible presence of a second sand-tempered ware tentatively identified as Mount Pleasant. Like Deep Creek pottery, Mount Pleasant pottery is sand tempered, but the latter is distinguished from the former by the presence of sand and grit or pebble tempering although some specimens lack pebbles (Phelps 1983:32–33, 1984:41–46). The Mount Pleasant series also exhibit surface treatments similar to Deep Creek. Indeed, Deep Creek is considered the direct antecedent of the Mount Pleasant ceramic tradition (Herbert and Mathis 1996:146; Phelps 1983:33). Only 31 sherds were classified as Mount Pleasant in the Barber Creek assemblage, and they were sand tempered with only occasional larger grit inclusions. Those specimens exhibited cord-marked (*n*=17), fabric-impressed (*n*=5), and net-impressed (*n*=2) surface treatments. Surface treatments on seven Mount Pleasant sherds could not be identified.

Hanover sherds (*n*=126) represent the second most prevalent ceramics in the assemblage (Herbert and Mathis 1996:161–162; South 1976). Although usually considered a southern Coastal Plain pottery type, Hanover wares are not uncommon in the northern Coastal Plain (Herbert and Mathis 1996:163). Hanover ceramics date to the Middle Woodland period and are most common on sites along the coast; however, they have been found at numerous inland sites and often co-occur with Mount Pleasant ceramics (Phelps 1983:32). Hanover ceramics are typically clay- or grog-tempered and frequently exhibit fabric-impressed surface treatments. Hanover sherds in the assemblage have a rather compact paste with lumpy interior surfaces; clay temper particles occasionally protrude through sherd walls. The Hanover ceramics recovered from Barber Creek generally fit into the "typical" Hanover type with clay tempering and fabric-impressed surface treatments (*n*=59). Lesser frequencies of cord-marked (*n*=18) and plain (*n*=3) surface treatments are also present in the assemblage. Surface treatments on 46 Hanover sherds could not be classified.

In sum, the ceramic assemblage appears to document a significant Early Woodland component at Barber Creek. As such, it is one of the few such components yet identified in the Coastal Plain and will likely yield data necessary to refine our understanding of Woodland ceramic typologies (Herbert 2002; Martin 2004; Phelps 1983). In particular, data likely exist to test a proposed three-phase Deep Creek pottery sequence characterized by trends in the frequencies of various surface treatments (Phelps 1983:29–32). Other typological issues that might be addressed include studying trends in surface treatment frequencies in the Hanover series.

Spatial Patterns

Artifact data from the 94 shovel tests dug during the summer of 2000 were used to address the question of site boundaries and to identify potential intrasite differences in site structure. The computer program SURFER (2002) was used to generate Figures 10, 11, and 12. Shovel test data were smoothed using a kriging method and essentially depict artifact densities across the site. Kriging is a geostatistical gridding method that produces visually appealing maps from irregularly spaced data (Cressie 1991). Kriging attempts to illustrate data trends such that high points might be connected rather than isolated by bull's-eye type contours. For present purposes, the maps produced here essentially depict artifact densities across the site.

With respect to site boundaries, the distribution of total artifact counts by shovel tests suggests that site limits are largely isomorphic with the ridge, covering about 1 ha (Figure 10). Seventy-nine shovel tests contained artifacts. Total artifact counts range from 0 to 49 per shovel test with a median of 7 and mode of 0. Artifacts are distributed over the entire sand ridge with the greatest densities scattered along its crest and southern border. Shovel tests lacking artifacts and bordering the adjacent field suggests the northern limits of the site have been identified. The southern edge of the site is probably marked by the creek floodplain although no shovel tests were placed in the floodplain to confirm this notion. East and west boundaries of the site are less certain since shovel testing in those directions was limited by property

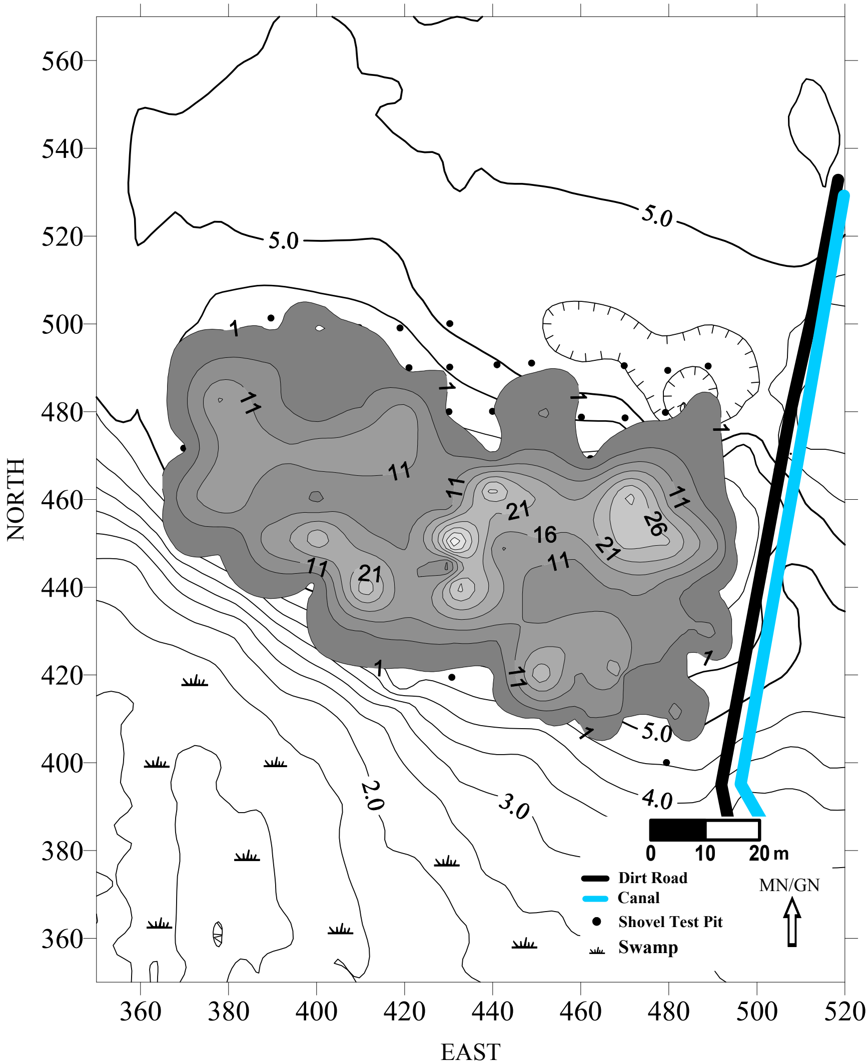

Figure 10. Spatial distribution of total artifact counts from shovel tests at Barber Creek. (Artifact interval = 10, except first interval =1).

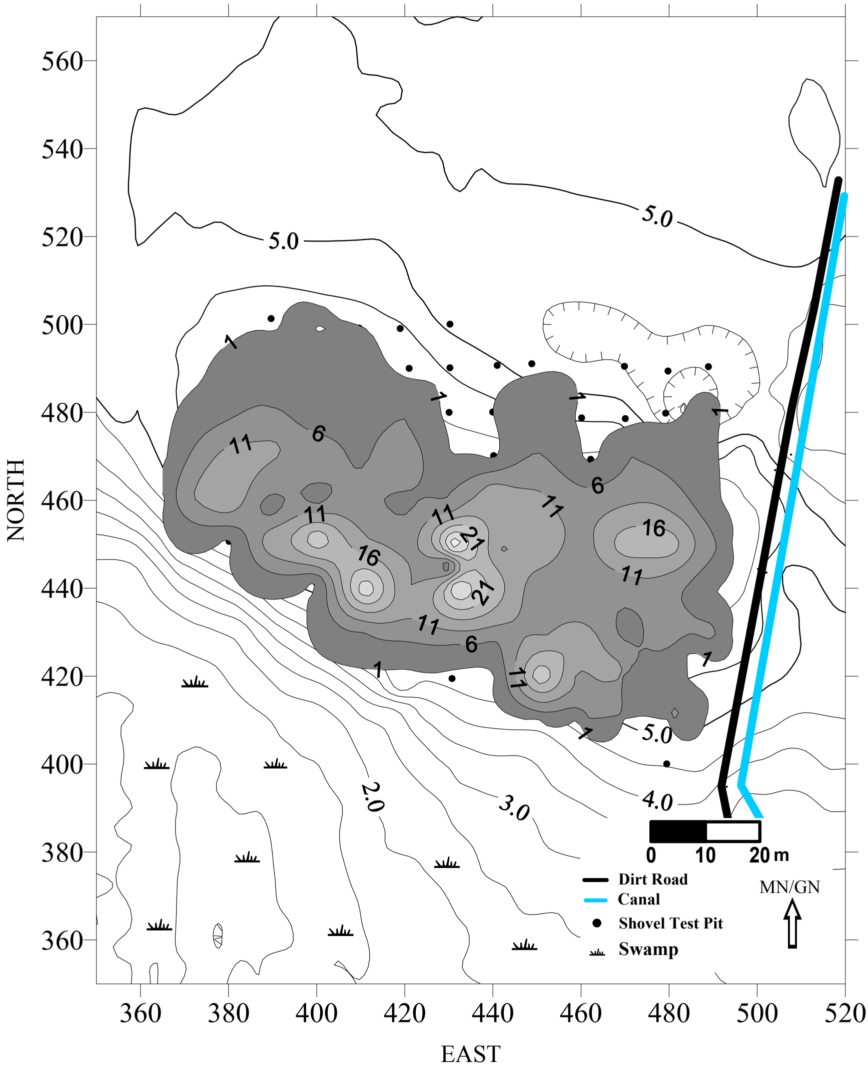

Figure 11. Spatial distribution of total artifact counts from Woodland component at Barber Creek (Artifact interval = 5, except first interval = 1).

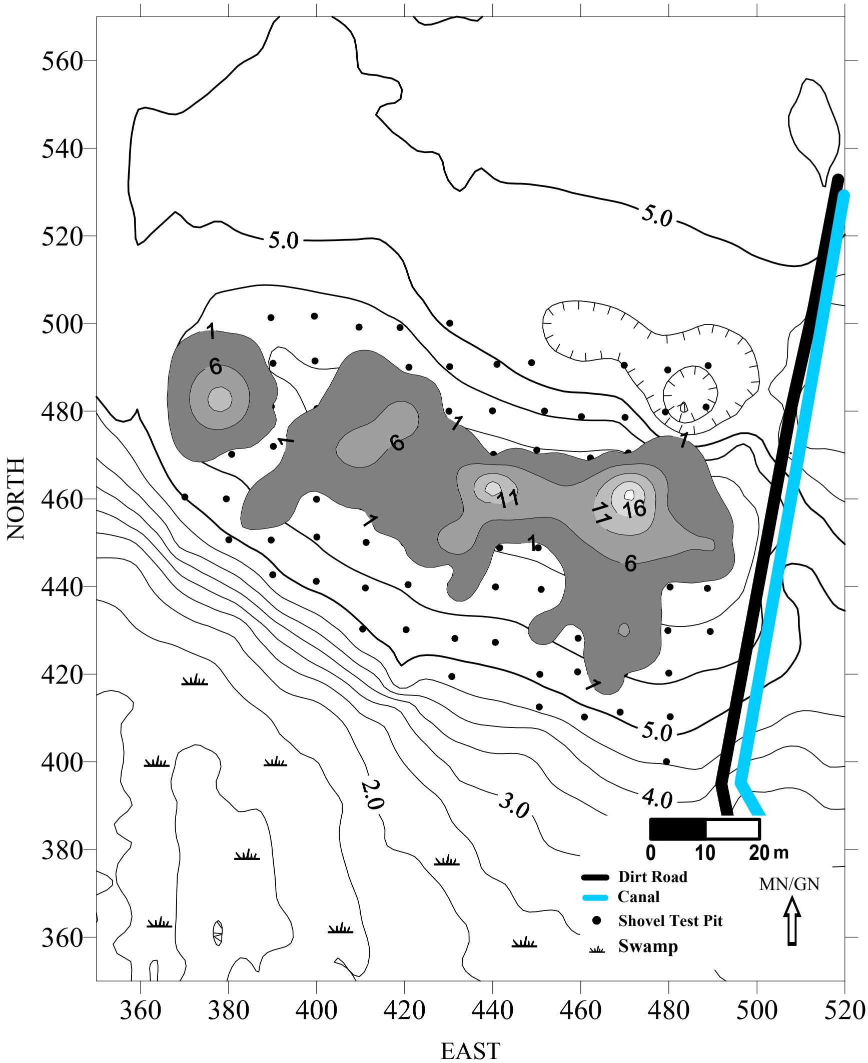

Figure 12. Spatial distribution of total artifact counts from Archaic component at Barber Creek (Artifact interval = 5, except first interval = 1).

boundaries. Nevertheless, it appears that the vast majority of the site was tested given that artifact frequencies decline in both directions where the limits of the ridge are quickly reached.

Potential intrasite differences in the spatial patterning of the Archaic versus Woodland components were also explored. Generally, intrasite spatial patterning is best seen by combining shovel test artifact totals from the first two levels (representing the Woodland component) and comparing those artifact distributions with the distribution of artifact totals from the bottom two levels (representing the Archaic component) (see also Potts 2004:53–67). Figure 10 depicts the spatial distribution of total artifact counts (ceramics and lithics) from levels 1 and 2 for all shovel tests. Ceramic artifacts (*n*=87) from levels 3 and 4 are also included in this distribution. While including ceramics from the lower two levels in this distribution does bias level comparisons, this bias is mitigated by the fact that ceramics are temporally diagnostic of the Woodland component which this figure is interpreted to represent.

Seventy-eight shovel tests contained artifacts from the Woodland component (Figure 11). Artifact counts range from 0 to 37 with median and mode values of 6 and 0, respectively. Spatially, the artifact distributions mirror that of Figure 10, suggesting the Woodland component is relatively dense compared to the Archaic component (see below). Thus, the Woodland component covers much of the ridge but relatively higher artifact densities are present along the southern half of the site paralleling the swamp. Whatever activities these artifact distributions represent, it would appear they were concentrated along the portion of the site bordering the creek floodplain.

This pattern contrasts with that of the spatial distribution of lithic artifacts from the shovel tests' lower two levels (Figure 12). Overall, counts range from 0 to 24 with median and mode values of 0. Far fewer shovel tests (*n*=38) yielded artifacts from the Archaic component. Moreover, those shovel tests mostly occur along the length of the ridge crest. This spatial distribution suggests that the Archaic use of the site was more spatially restricted and focused on a different potion of the ridge than the Woodland occupation.

Taken together, then, the shovel test data indicate the presence of broad-scale patterning between the Archaic and Woodland occupations at Barber Creek. Archaic use of the site was spatially less extensive than the Woodland occupation, being confined primarily to the ridge crest. And while the Woodland component spatially overlaps the Archaic occupation, the Woodland occupation was concentrated along the southern edge of the ridge.

Conclusion

In their recent review of North Carolina archaeology, Ward and Davis (1999:226–228) make an important point about the paradox that is Coastal Plain archaeology. This region has received more archaeological attention than any other area of North Carolina, yet is perhaps the least understood archaeological region in the state. As the authors also point out, there are two reasons for this paradox. First, development rather than design has largely driven the archaeology that has taken place. While archaeologists justifiably have been preoccupied with keeping ahead of the huge development that the coast has experienced, cultural resource management surveys and excavations alone are unlikely to provide the data necessary to help refine Coastal Plain sequences to that comparable with the Mountains and Piedmont. In short, we collect ever-greater amounts of data under the dictates of modern land use at the expense of interpretive frameworks that have not kept pace with the volume of dirt moved by salvage excavations. Second, Ward and Davis (1999:226) also note the archaeological record itself presents its own challenges on the coast with the absence of stratified sites, poor organic preservation, and poor archaeological context in general—particularly in regard to Archaic period sites.

In the absence of such data, a reliance on the Piedmont cultural-historical sequence has provided some help in this respect. But at some point the archaeological record of the Coastal Plain must be regarded on its own terms (Phelps 1983:13). Indeed, if the experience of researches in the South Carolina Coastal Plain is any indication, the North Carolina Piedmont typology may have only limited applicability in eastern North Carolina. In this regard, we would suggest that if current work along the Tar River is any indication, then the search for stratified early to middle Holocene sites with sufficient depth and/or integrity to address substantive issues of the region's archaeology is more likely to be successful further inland rather than along the coast *per se* (Moore et al. 2007). Continued work at Barber Creek and other relict dune locations should contribute significantly to our understanding of Coastal Plain chronology, typology, and geoarchaeology.

Acknowledgments. Several organizations and individuals have aided our research at Barber Creek. Foremost among them is the Greenville Utilities commission and its employees who have been gracious and supportive hosts of our field work. In particular, Thomas Hardison (Chief Operator, Waste Water Treatment Plant) facilitates our annual summer excavations. The Geology Department, East Carolina University, generously provided support for some of the radiocarbon dates reported here. Likewise, financial support has been provided through two (2001–2002, 2003–2204) North Carolina State Historic Preservation Fund grants from the United States Department of the Interior and administered by the North Carolina Division of Archives and History. Several dozen high school, undergraduate, and graduate students are thanked for their participation in the Barber Creek field schools. Finally, we thank Steve Davis for his editorial help in preparing this manuscript.

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REFINING THE DEEP CREEK DEFINITION: AN EXAMINATION OF DEEP CREEK CERAMICS FROM THE PARKER AND BARBER CREEK SITES

by

Tracy Martin

Abstract

The Deep Creek ceramics type, first proposed by David Phelps, represents an Early Woodland ceramic series for the North Carolina Northern Coastal Plain. Phelps based this series on sand-tempered sherds recovered from surface finds at the Parker site, their occurrence with steatite-tempered and fiber-tempered wares, and Woodland types outside the Coastal Plain. Phelps then suggested a hypothetical three-phase sequence for understanding temporal change within Deep Creek assemblages based on changes in surface treatment frequencies. However, his proposed type description and ceramic sequence have never been formally tested.

This analysis tests Phelps' propositions in attempting to refine the definition of Deep Creek ceramics. Sand-tempered sherds excavated by Phelps at the Barber Creek site were examined with regard to temper characteristics and surface treatment. In my analysis, five surface treatments were found to represent Deep Creek types, which is consistent with the model. Surface treatment frequencies were then quantified, and the proposed model of temporal changes in surface treatment was tested. The model proved to be consistent with few exceptions. Data analysis and interpretation led to a refinement of expected ranges and frequency of Deep Creek types, expected temper size, temper abundance, and the size of inclusions present in the paste.

Over 30 years have passed since Deep Creek ceramics were first described as a sand-tempered ware associated with cord-marked, net-impressed, and fabric-impressed surface treatments. The lack of reliably dated and contextually sound finds makes Deep Creek the least understood North Carolina Coastal plain ware (Green 1986:67, 80). The purpose of this latest research was to help refine the definition of Deep Creek ceramics. Until the proposal of Deep Creek ceramics, no Early Woodland ceramic type was identified in the Northern Coastal Plain. Sand-tempered sherds excavated by David Phelps (1975 and 1977) at the Parker site (31Ed29) and the Barber Creek site (31Pt259) were examined with regard to temper characteristics and surface treatment. The following questions were addressed: (1) What are the varieties and frequencies of Deep Creek surface treatments?; (2) What is the range and frequency of sand tempering in Deep Creek ceramics?; and (3) Does a three-stage ceramic sequence, as proposed by Phelps (1983), exist based on changes in surface treatment frequencies?

Five surface treatments were found to represent Deep Creek types, which was consistent with the model proposed by Phelps. After surface treatment frequencies were quantified, the proposed model of temporal changes in surface treatment was tested. The model proved to be consistent with few exceptions. Data analysis and interpretation led to a refinement of expected ranges and frequency of Deep Creek types, expected temper size, temper abundance, and the size of inclusions present in the paste.

Background

Deep Creek ceramics were first identified at the Parker site (31Ed29), located southwest of Speed in Edgecombe County, North Carolina (Phelps 1975). The site lies on the eastern margin of the Deep Creek floodplain near the western edge of the Coastal Plain and is located on the highest elevations of two adjacent loamy sand ridges separated by a north-south depression. Other sherds recovered from the Parker site include Stallings Plain fiber-tempered and Marcey Creek Plain steatite-tempered wares. Occupation here spanned the Archaic and Early Woodland periods. Significant to the site was the presence of Early Woodland sand-tempered ceramics which Phelps dubbed Deep Creek (1981b:9). These sherds exhibit sand inclusions varying in size from fine-grained to coarse-grained with surface treatments of cord-marked, simple-stamped, net-impressed, fabric-impressed, and plain (Phelps 1975:77, 1983:29). Although excavations at the Parker site failed to reveal stratified layers, Phelps believed the Deep Creek series dated to the beginning of the Woodland period based on their similarity to Early Woodland ceramics outside the region and their association with the steatite-tempered and fiber-tempered sherds.

In 1977 (Phelps 1977, 1983), excavation was undertaken at the Barber Creek site (31Pt259) near Greenville in Pitt County, North Carolina. This site sits above the floodplain north of Barber Creek on a 1.5 meter high relict sand dune paralleling Barber Creek (Daniel 2002:7). Deep Creek sherds were recovered from two test units at the Barber

Creek site. Charred bone fragments and hickory nuts were distributed throughout the ceramic-bearing levels. The lower levels of the test units yielded the only lithic specimens consisting mostly of flakes, two projectile point fragments, and an end scraper (Phelps 1977:14). The end scraper, made of chert, is believed to have originated from the Allendale chert quarries along the Savannah River in the South Carolina Coastal Plain (Daniel 2002:7). These artifacts indicate the existence of an Archaic component stratigraphically separated beneath the Woodland complex (Phelps 1977:14).

Phelps' analysis of Deep Creek sherds revealed cord-marked, net-impressed, fabric-impressed, and a rare plain variety of surface treatments. Temper consists of coarse sand or grit. Vessel shapes are generally conoidal; however, a rare, flat-based vessel form also is represented (Herbert 2002:293; Phelps 1983:29). Phelps proposed that Deep Creek probably originated in the Middle Atlantic, possibly as far away as New Jersey, and could be correlated with Clifford Evans' Stony Creek series in southeastern Virginia based in similar surface treatment and temper size (Evans 1955:69–74, 117,142; Phelps 1983:29–30).

Both the Parker and Barber Creek sites played a critical role in Phelps proposing the Deep Creek ceramic type. These sites are also rare examples in which Deep Creek components are relatively well isolated. This is especially true for Barber Creek with its stratified occupation levels. The Barber Creek site was recognized as significant for several reasons. It was the only known intact stratified site in this locality, and it held potential for providing radiocarbon dates for Woodland period phase separation. Phelps also believed it was possible the site contained features and structural evidence that could refine the internal settlement pattern of small riverine habitation sites. Preserved food remains from the site might yield a better understanding of cultural adaptation in the Tar River floodplain (Phelps 1977:15).

Phelps divided the Deep Creek phase into a hypothetical three-stage sequence based on changes in frequency of surface treatments and the presumed order in which surface treatments should occur (Phelps 1983:29). Deep Creek I, thought to last from 1000 BC to 800 BC, represented the ceramics' initial introduction from the north (Phelps 1983:29–30). Cord marking was the prevalent surface treatment during Deep Creek I. Fabric- and net-impressed surface treatments began to gain popularity, while simple-stamped traditions introduced from the south were related to Deptford ceramics (Phelps 1983:30–31). Deep Creek II, beginning about 800 BC, reflected an increase in the frequency of fabric- and net-impressed surface treatments and a decrease in cord-marked wares. Deptford Simple-Stamped, sometimes associated with Deep Creek, increased in frequency as well. Deep Creek III, the third stage, was given no beginning date. During this phase, simple-stamped decoration declined and ceased by the beginning of the Middle Woodland. However, Deep Creek Cord-Marked, Net-Impressed, and Fabric-Impressed types continued into the Middle Woodland in equal frequency (Phelps 1983:31).

Similar Early Woodland Wares

It would appear that Deep Creek is a geographic variant of a regional sand-tempering tradition common during the Early Woodland. Sand-tempered sherds with surface treatments similar to Deep Creek commonly occur throughout Virginia, Maryland, New Jersey, Pennsylvania, and the Carolinas. These similar types include Badin, Vincent, Accokeek, and Stony Creek.

Surface treatments among Badin, Vincent, Accokeek, and Stony Creek wares are very similar to those identified in Deep Creek. Badin ceramics are an Early Woodland sand-tempered ware from the southern North Carolina piedmont (Coe 1964). The two primary types are Badin Cord-Marked and Badin Fabric-Impressed. Temper consists of very fine sand with an occasional pebble (Coe 1964:27–28). Badin wares appear related to Deep Creek in that both have similar finishing techniques using cord-wrapped or fabric-wrapped paddles (Ward and Davis 1999:83). Badin wares were also similar in appearance to the northeastern North Carolina Vincent Series that dates to about the same time (Coe 1964:27).

The Vincent Series, from the northern North Carolina piedmont, is similar to Badin in that it is tempered with very fine sand and an occasional small pebble. Vincent has similar surface treatments of cord-marked and fabric-impressed created with a paddle (Coe 1964:84, 101). Vincent is found from the Albemarle Sound to Clarksville, Virginia. Northeast of the Gaston site (in northeastern North Carolina), similar sherds were described as the Stony Creek Series (Coe 1964:101; Evans 1955:69–74).

Accokeek ceramics, prominent in Maryland and in Virginia north of James River, consist of a cord-marked exterior surface (Egloff and Potter 1982:97–99; Stephenson et al. 1963:96–100). Accokeek exhibits a temper that is coarse to medium-fine sand with angular, crushed quartz sometimes included in the paste (Egloff and Potter 1982:97–99).

The southeastern Virginia Stony Creek Series is tempered with fine to medium sand with particles up to two mm in size. Surface treatments are similar to the previous types mentioned and include cord-marked, fabric-impressed, net-impressed, simple-stamped, and plain (Evans 1955:69–74). Evans did not differentiate between early and late cord-marked or fabric-marked pottery and combined them with net-impressed and simple-stamped forms based on their temper into the Stony Creek type (Coe 1964:101; Evans 1955:69–74). However, Evans did propose a tentative cultural sequence for Stony Creek in southeastern Virginia. During the transition from the Archaic period to the Early Woodland period, Stony Creek Cord-Marked was the most abundant type. During the Middle Woodland period, cord-marking decreased and Stoney Creek fabric-impressing increased. Late Woodland Stony Creek was dominated by fabric-impressed and simple-stamped types (Evans 1955:144).

In short, assuming that the Deep Creek ceramic complex as proposed by Phelps (1983) is correct, it was my expectation that both the Parker site and Barber Creek site assemblages should be characterized by mostly coarse-grained sand tempered sherds with an absence of larger clastic inclusions. Moreover, the assemblages should exhibit cord-marked, net-impressed, fabric-impressed, and plain surface treatments. A frequency percentage chart will show surface treatment frequencies in the Barber Creek assemblage, and the results are tested against the sequence proposed by Phelps (1983).

Methodology

Surface treatment and temper were the first variables recorded and entered into a Microsoft Access database. After analysis, data were transferred into the Statistics Package for the Social Sciences (SPSS) and used to quantify and manipulate variables in the database. Temper and surface treatment were chosen as the most important variables in refining the Deep Creek type definition based on ceramic standards used in southeastern archaeology (Ford and Griffin 1938:10–21). These variables included temper type, temper size, temper abundance, inclusions, and surface treatment.

Sherds were first classified by surface treatment. Surface treatments encountered were cord-marked, net-impressed, fabric-impressed, simple-stamped, and plain. A large number of sherds were so eroded that identification was impossible. These sherds were classified as indeterminate.

Temper was recorded for each sherd in both assemblages. Sherds were coded as either sand-tempered, clay-tempered, or fiber-tempered. Because this analysis focused on Deep Creek sherds, only sand-tempered sherds were analyzed further. As often noted, one problem in measuring temper is determining whether the material was added by the potter or existed in the paste naturally (Rice 1987:408). For the purposes of this study, I assume that any material other than the natural clay paste probably represents a tempering agent (Herbert et al. 2002:94).

Temper size was measured using the Wentworth (1922) particle size classification system: very fine sand (.07 mm to 0.1 mm), fine sand (0.1 mm to 0.25 mm), medium sand (0.25 mm to 0.5 mm), coarse sand (0.5 mm to 1.0 mm), and very coarse sand (1.0 mm to 2.0 mm). For this analysis, a 25x hand lens was used. Visual and tactile comparisons were made between the sherds and a Wentworth scale card containing samples of grain sizes. Sherds were then coded according to temper size in the database. In practice, this sometimes proved to be a somewhat subjective determination as distinctions between temper sizes were not always straightforward. Nevertheless, I did notice a consistency in the grain size in both assemblages.

The percentage of temper was measured in the cross-section of every sherd to get a general idea of the percentage of temper in the paste. Abundance was estimated using a visual percentage estimation chart based on the temper size. Temper abundance categories were 5%, 10%, 20%, and 30%, and temper size categories were 0.5 to 1.0 mm, 0.5 to 2.0 mm, and 0.5 to 3.0 mm (Orton et al. 1993:Figure A4). Sherds were visually compared to the chart using a hand lens and the unaided eye, and the closest approximation was chosen, providing a relative estimate of the amount of temper in a sherd for descriptive purposes.

Another variable recorded during this analysis was whether the sherd temper contained any inclusions. Inclusions were visually measured using the Wentworth (1922) particle size classification system. Inclusions typical to the Parker and Barber Creek assemblages were small quartz pebbles and coarse to very coarse sand.

A word should be said about distinguishing inclusions from temper *per se*. For instance, sherds that have a consistent temper size, but also have larger sand grains or pebbles in smaller amounts, are said to have inclusions. Those sherds with temper consisting only of a uniform sand grain size, and no larger material, are said to contain no inclusions. With respect to the first instance, identification of "inclusions" in these assemblages raises the issue of distinguishing Mount Pleasant from Deep Creek sherds, since Mount Pleasant "is a ware tempered with sand and other clastic inclusions" (Phelps 1983.32). Therefore, it is possible that some sherds classified as Deep Creek that exhibit inclusions could in fact be Mount Pleasant sherds. While acknowledging this difficulty, it cannot be resolved here. So, for the purpose of this analysis, all sand-tempered sherds, regardless of inclusions, are classified as Deep Creek.

The final analysis was the creation of a frequency percentage chart of Deep Creek sherds based on test unit level. This tested Phelps' proposed model of Deep Creek phases by graphing the Deep Creek types through their introduction and decline.

Surface Treatments

The results of this analysis showed that the types of surface treatments identified in the Barber Creek and Parker site assemblages were consistent with those proposed by Phelps (1983:31). Cord-marked was the predominant type, followed by net-impressed and fabric-impressed types (Table 1, Figures 1–5). Plain and simple-stamped sherds were present but in much smaller numbers (Table 1, Figures 5 and 6). Until now, however, frequencies of those surface treatments had not been quantified, nor had the rates at which those frequencies change from Deep Creek I to Deep Creek II been documented.

Although ceramics from both the Parker and Barber Creek sites represented the same types of surface treatments, they differed in frequency between the two sites. Net-impressed sherds constitute the second largest type in the Barber Creek assemblage (25.7%), but they

Table 1. Surface treatments of Parker and Barber Creek ceramic assemblages.

Parker Site			Barber Creek Site		
Type	n	%	Type	n	%
Cord-Marked	313	50.2	Cord-Marked	48	33.3
Inteterminate	108	41.4	Net-Impressed	37	25.7
Plain	9	3.4	Inteterminate	30	20.8
Net-Impressed	7	2.7	Fabric –Impressed	20	13.8
Simple-Stamped	4	1.5	Plain	5	3.5
Fabric –Impressed	2	.8	Simple-Stamped	4	2.8
Total	261		Total	144	

Figure 1. Deep Creek Cord-Marked sherds from the Parker site.

make up a very small amount (less than 3%) in the Parker assemblage. Likewise, fabric-impressed ceramics are higher in frequency at Barber Creek (13.8%) than at Parker (less than 1%) (Table 1). The significance, if any, of this pattern is unclear; however, it is possible that frequency differences in surface treatment represent temporal differences between sites. This interpretation would be consistent with Phelps' (Phelps 1983:29) proposed Deep Creek phases. For example, the Parker assemblage could be interpreted as a Deep Creek I component due to the predominance of cord-marked sherds (50.2%) and the lower frequencies

Figure 2. Deep Creek Cord-Marked sherds from the Barber Creek site.

Figure 3. Deep Creek Net-Impressed sherds from the Barber Creek site.

Figure 4. Deep Creek Fabric-Impressed sherds from the Barber Creek site.

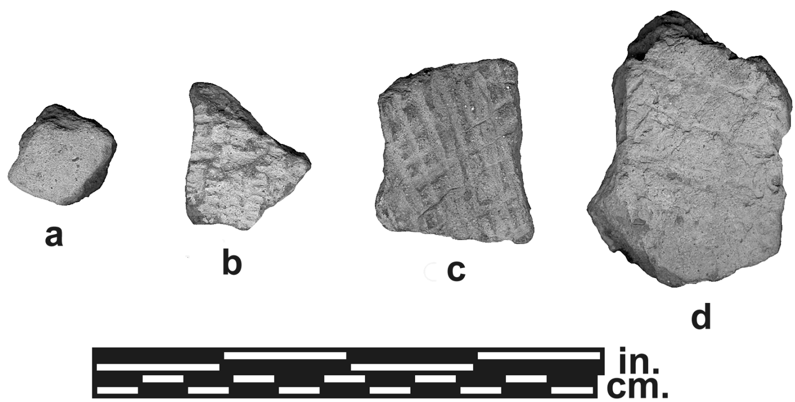

Figure 5. Deep Creek Plain, Net-Impressed, Simple-Stamped and Fabric-Impressed sherds from the Parker site.

Figure 6. Deep Creek Simple-Stamped sherds from the Barber Creek site.

of net-impressed (2.7%), simple-stamped (1.5%), and fabric-impressed (<1%) sherds. Likewise, the prevalence of cord-marked sherds in the Barber Creek assemblage represents Deep Creek I (33.3%). However, the higher percentage of net-impressed (25.7%) and fabric-impressed (13.8%) types in the Barber Creek assemblage, when compared to Parker, suggests the Barber Creek assemblage may also represent Deep Creek II. In fact, a frequency percentage chart of the Barber Creek assemblage suggests that both Deep Creek I and II phases are present at Barber Creek.

Temper

Another refinement can be suggested regarding temper size and temper abundance. Rather than being exclusively coarse-grained, this analysis identified a range of sizes. The most common sand temper size among the Deep Creek series is medium-grained. Fine-grained temper was identified as the second most abundant temper type and should also be expected (Table 2).

Phelps did not discuss sand temper abundance in Deep Creek paste in his original description (Phelps 1975, 1977, 1981a, 1981b, 1983). However, in this analysis, abundance was measured as important to better define the paste and temper relationship of the ware. Thus, the

Table 2. Comparison of Parker and Barber Creek Ceramic Temper Sizes.

	Parker Site		Barber Creek Site	
Temper Size	n	%	n	%
Very Coarse	2	0.8	0	0.0
Coarse	21	8.1	15	10.4
Medium	142	54.4	103	71.5
Fine	92	35.2	26	18.1
Very Fine	4	1.5	0	0.0
Total	261		144	

Table 3. Comparison of Parker and Barber Creek Ceramic Temper Abundance.

	Parker Site		Barber Creek Site	
Temper Abundance	n	%	n	%
5%	38	14.6	4	2.8
10%	94	36.0	58	40.3
20%	74	28.4	78	54.1
30%	55	21.0	4	2.8
Total	261		144	

expected temper abundance of Deep Creek types is between 10% and 20% of the paste (Table 3). The significance, if any, of this pattern is unclear, but it may be a technological function. For example, potters of the same stylistic tradition over a region may have been dependent on different natural resources for temper (Shepard 1976:165).

Another refinement in regard to temper is the presence of mixed sand grain sizes in the paste (Table 4). Although the original description of the Parker site material listed occasional sherds with large clastic inclusions, it was never proposed as part of the original Deep Creek definition (Phelps 1975:77, 1983: 29). While at first glance the range of variation in temper sizes and the presence of temper inclusions in both assemblages may appear inconsistent with the Deep Creek type definition, this difference may be more apparent than real. That is,

Table 4. Comparison of Parker and Barber Creek Temper Inclusions.

	Parker Site		Barber Creek Site	
Temper Inclusions	n	%	n	%
None	181	69.3	102	70.8
Coarse	32	12.3	20	13.9
Very Coarse	40	15.3	21	14.6
Pebble	8	3.1	1	0.7
Total	261		144	

Phelps' identification of coarse-grain temper size was probably a statement regarding the general gritty feel of Deep Creek sherds rather than a conclusion drawn from a visual analysis of grain size on each sherd. Likewise, the apparent presence of inclusions in sherds likely results from observational differences in how inclusions were defined between analysts. For instance, in my analysis, the presence of some coarse sand in a sherd otherwise predominantly exhibiting a medium size sand tempering would be recorded as having inclusions. Apparently, this would not have been the case for Phelps, who likely would not have regarded size differences in temper as significant. For example, in looking at inclusions for Mount Pleasant, Phelps only considered inclusions greater than 2 mm (Phelps 1981a:42). Only in the few sherds with pebble-size inclusions observed in the Parker (*n*=8) and Barber Creek (*n*=1) assemblages would we both have observed the presence of inclusions. To that extent, these few sherds may represent a late manifestation of Deep Creek or Mount Pleasant specimens, since Mount Pleasant is described as being sand-tempered with large clastic inclusions of pebbles or grit (Phelps 1983:32). Whether these larger additions to the temper are natural or cultural is still unknown and is beyond the scope of this research. Nonetheless, this analysis refines the Deep Creek series by identifying the variability in temper size and abundance in Deep Creek assemblages.

Expected Surface Treatment Ranges

Analysis of the Barber Creek assemblage by level revealed two points. First, Early Woodland material is isolated in levels 2 through 5 based on sherd frequencies. The highest sherd densities are present in levels 3 and 4. In fact, a frequency percentage chart of the Barber Creek

Table 5. Surface Treatment by Level at the Barber Creek Site.

Depth	Cord		Net		Indet.		Fabric		Plain		Stamped		Total
(cm)	n	%	n	%	n	%	n	%	n	%	n	%	n
10	-	-	-	-	-	-	2	100.0	-	-	-	-	2
20	7	36.8	3	15.8	7	36.8	1	5.3	-	-	1	5.3	19
30	10	20.4	20	40.8	12	24.5	2	4.1	2	4.1	3	6.1	49
40	22	44.0	7	14.0	6	12.0	12	24.0	3	6.0	-	-	50
50	7	46.7	6	40.0	-	-	2	13.3	-	-	-	-	15
60	-	-	-	-	2	100.0	-	-	-	-	-	-	2
70	1	25.0	1	25.0	2	50.0	-	-	-	-	-	-	4

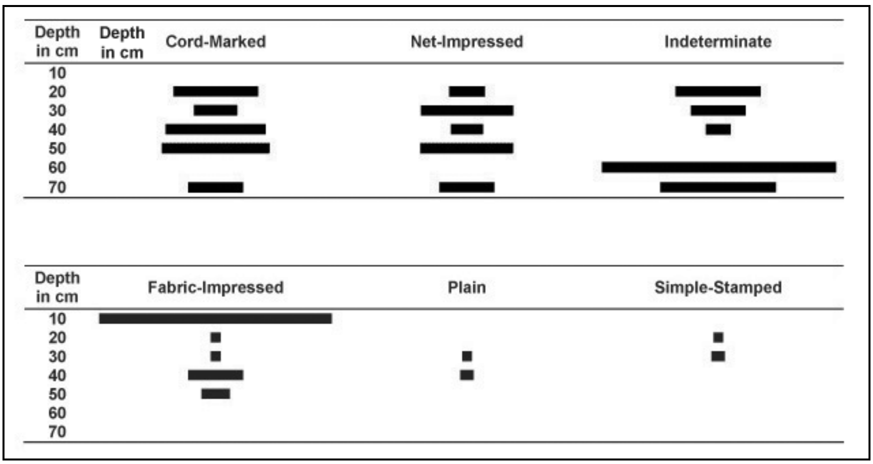

Figure 7. Frequency percentage chart of Barber Creek surface treatments by level.

assemblage suggests that both Deep Creek I and II phases are represented based on frequency change when surface treatments were examined by level. The six sherds in levels 6 and 7 are considered spurious (Table 5 and Figure 7).

According to Phelps' model, cord-marking was the primary surface treatment during Deep Creek I, while net-impressing and fabric-impressing treatments were present but in smaller numbers (Phelps 1983:31). Based on the percentage of cord-marked sherds in levels 4 (*n*=22, 44%) and 5 (*n*=7, 46.7%), it is likely that both levels represent

Deep Creek I. Furthermore, evidence of Deep Creek I is also indicated by the small amounts of fabric-impressed (*n*=14, 21%) and net-impressed (*n*=13, 20%) sherds from the combination of both levels (Table 5 and Figure 1). However, the higher percentage of net-impressed types in level 3 (40.8%) in the Barber Creek assemblage may also represent Deep Creek II.

In sum, levels 2 through 5 from the two Barber Creek test units can be interpreted as representing Deep Creek phases I and II based on the surface treatment frequency percentage chart. This analysis provides a partial test of Phelps' proposed Deep Creek phases and, along with the temper analysis, allows us to refine the current definition of Deep Creek.

Based on the frequency percentage table results, Phelps' proposed three-phase sequence can be partially evaluated. As predicted, cord-marking represents the predominant type in the lower two levels at Barber Creek and presumably belongs to Deep Creek I. Moreover, this analysis suggests that cord-marking should constitute about half (ca. 45% to 50%) of the Deep Creek I assemblage. Also, as predicted, cord-marking is followed by smaller quantities of net-impressed and fabric-impressed sherds. The results suggest that they occur in roughly equal frequencies (ca. 15% to 20%). Plain sherds occur in minor amounts (ca. 5% to 10%). Simple-stamping, predicted by Phelps (1983) to have been introduced during Deep Creek I, is absent in the lower levels at Barber Creek (Table 6). The significance of this absence is unclear. It could simply be due to sampling bias. On the other hand, as the chart suggests, simple-stamping may not appear until Deep Creek II.

Turning to Deep Creek II, the relative frequencies of surface treatments occurred as predicted with two exceptions. As indicated by the two upper levels of the Woodland component at Barber Creek, cord-marking decreases in frequency from Deep Creek I to about 25% to 30% while net-impressing increases in frequency to about 35% to 40%. Fabric-impressing decreases in frequency from Deep Creek I to about 5% to 10%. The frequency of plain sherds appears to remain unchanged at 5% to 10%. Two exceptions to the predicted outcome include the frequencies of simple-stamping and fabric-impressing. Contrary to Phelps' model, simple-stamping makes its first appearance in Deep Creek II. The results here suggest that it should occur in frequencies of about 5% to 10%. Also contrary to expectations, fabric-impressing

Table 6. Proposed Surface Treatment Frequencies for Deep Creek I and Deep Creek II.

Phase	Cord %	Net %	Fabric %	Plain %	Stamped %	Total %
Deep Creek II	25–30	35–40	5–10	5–10	5–10	100
Deep Creek I	45–50	15–20	15–20	5–10	–	100

decreases rather than increases in frequency. The frequency percentage chart suggests the frequency decreases to about 5% to 10% (Table 6).

There is no clear evidence of Deep Creek III in either the Parker or Barber Creek samples. To that extent, both are interpreted to represent early to middle Deep Creek phase occupations. Thus, the data here would have no implications for proposed frequency ranges of Deep Creek III types.

Where Does Deep Creek Fit?

My analysis reveals that Deep Creek is consistent with regard to surface treatments and temper with other Early Woodland wares. Thus, it is easy to see Deep Creek as a part of a similar mid-Atlantic or upper south ceramic horizon that existed during the Early Woodland and shared common ceramic influences concerning surface treatments and temper attributes. The tempers of the Stony Creek and Accokeek wares bear more resemblance to the expected temper of Deep Creek: fine to medium coarse sand temper with occasional coarse and very-coarse inclusions. Among these wares, however, the Stony Creek series of southeastern Virginia most closely exhibits the same range of surface treatments as the Deep Creek series, with surface treatments including cord-marked, fabric-impressed, net-impressed, simple-stamped, and plain (Evans 1955:69–74). Nevertheless, despite the similarities of other Early Woodland wares to Deep Creek, there is not enough evidence to suggest subsuming Deep Creek into another pottery type. Further refinement of Deep Creek's definition is required.

This analysis supports the significance of Deep Creek as an Early Woodland type on the North Carolina Coastal Plain. Knowing the range of surface treatments and temper attributes is not enough to say the current definition of Deep Creek is the same as another ceramic series. Other attributes that need to be considered for future refinement of the Deep Creek definition include: hardness and paste color, frequencies and distributions of decorations, and attributes of vessel form such as size, rim configuration, and body shape.

Additional data are also needed to confirm Deep Creek phases from stratified or single component sites. This can be done by re-examining Deep Creek sherds already collected in samples from sites such as Chowanoke (Green 1986) and the more recent work from the Barber Creek site. The Chowanoke site contains over 2,600 Deep Creek sherds and over 8,400 Mount Pleasant sherds. Analysis of such an assemblage could be useful in resolving the issue of inclusions between these two types (Green 1986:77, 81). Excavations at Barber Creek have been taking place again since 2000 (Daniel 2002). Over 200 square meters have been excavated, yielding several hundred sherds in stratified deposits available for testing (Daniel, personal communication 2008). Further tests could add more to our understanding of the Deep Creek III phase due to its absence in this analysis. Finally, more research at Barber Creek increases the likelihood of getting reliable radiocarbon dates for continued testing and refinement of the proposed type phases.

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REANALYSIS OF ICHTHYOFAUNAL SPECIMENS FROM PREHISTORIC ARCHAEOLOGICAL SITES ON THE ROANOKE RIVER IN NORTH CAROLINA AND VIRGINIA

by

Thomas R. Whyte

Abstract

Fish remains recovered from late prehistoric archaeological sites along the Roanoke River in Virginia and North Carolina were studied by Amber VanDerwarker and reported in Volume 50 of this publication (VanDerwarker 2001). Certain of her identifications, including Spotted Sucker (*Minytrema* sp.), Channel Catfish (*Ictalurus punctatus*), Snail Bullhead (*Ameiurus brunneus*), and Rock Bass (*Ambloplites rupestris*) are of concern to the zooarchaeological and ichthyological communities; these species are not considered to be native to the Roanoke. Furthermore, a lack of herring (family Clupeidae) remains in the data reported by VanDerwarker (2001) is suspicious. Given these concerns, fish remains from two of the more productive sites, Gaston and Vir 150, were re-examined. No specimens assignable to Spotted Sucker (*Minytrema* sp.), Channel Catfish (*Ictalurus punctatus*), Snail Bullhead (*Ameiurus brunneus*), or Rock Bass (*Ambloplites rupestris*) were found in either assemblage, and several vertebrae of herrings (family Clupeidae) were found in each. VanDerwarker's findings, interpretations, and recommendations concerning the Pre-Columbian fauna in the Roanoke Basin must be reconsidered.

Zooarchaeological analyses of pre-contact and early historic period faunal remains in the Americas have, of late, proven to benefit zoogeographical reconstructions and wildlife management (Lyman and Cannon 2004). The native distributions of freshwater fishes prior to historical introductions from other drainages and the construction of reservoirs is of particular interest and has been the subject of extensive research funded by the U.S. Fish and Wildlife Service and other agencies. This information not only benefits anthropology, but influences government policy related to proposed impoundment projects and re-licensing of existing dams (e.g., VanDerwarker 2001). Amber VanDerwarker, a former graduate student in anthropology at the University of North Carolina-Chapel Hill, was contracted by the U.S. Fish and Wildlife Service in 2001 to identify, analyze, and report on

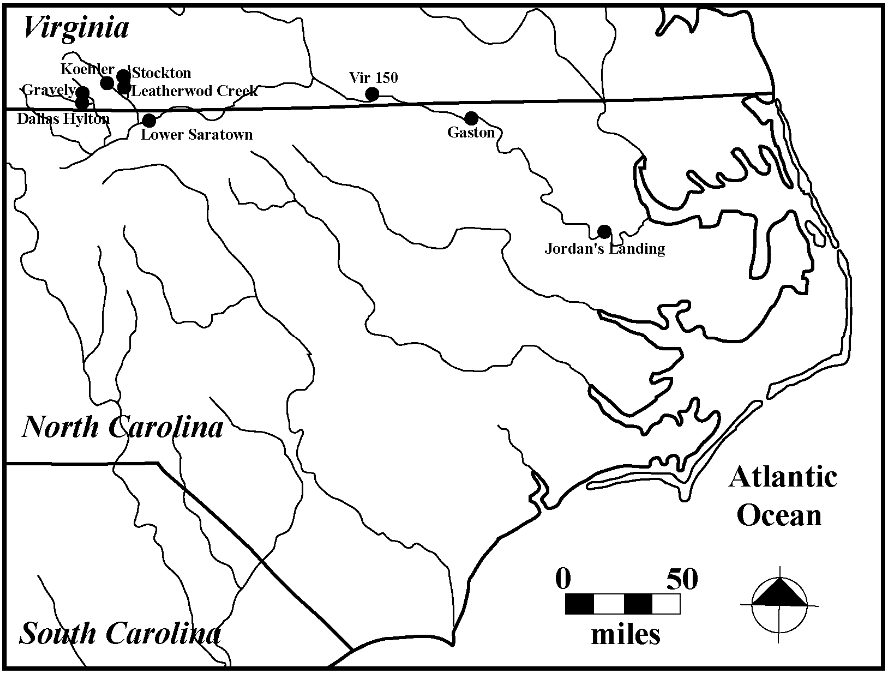

Figure 1. Locations of archaeological sites providing ichthyofaunal assemblages studied by VanDerwarker (from VanDerwarker 2001).

archaeofaunal remains from archaeological sites along the Roanoke River in North Carolina and Virginia (VanDerwarker 2001) (Figure 1). The results of VanDerwarker's analysis, summarized in Volume 50 of this publication (VanDerwarker 2001), have raised some concerns among ichthyologists (Robert E. Jenkins, Department of Biology, Roanoke College, and Wayne C. Starnes, North Carolina Museum of Natural Sciences, personal communication 2007), and at least one zooarchaeologist (myself).

The first concern is the identification of remains of species not considered native to the Roanoke system. These include *Minytrema* sp. (Spotted Sucker), *Ictalurus punctatus* (Channel Catfish), *Ameiurus brunneus* (Snail Bullhead), and *Ambloplites rupestris* (Rock Bass). The first three are native to the Atlantic Slope only as far north as the Cape Fear River (Jenkins and Burkhead 1994). The Rock Bass was introduced to the Atlantic Slope river systems in historic times (Cashner and Jenkins 1982; Whyte 1994).

Another concern regarding the fishes reported by VanDerwarker is the absence of herrings (family Clupeidae), especially American Shad (*Alosa sapidissima*), from her identifications. The data provided by Mary Ann Holm for Lower Saratown (31Rk1) on the Dan River in Rockingham County, North Carolina, and included in VanDerwarker (2001:42), indicate 28 specimens assigned to *A. sapidissima*. The data provided by John Byrd for the Jordan's Landing site (VanDerwarker 2001:36–40) include 302 specimens assigned to the herring family (Clupeidae), of which A. sapidissima is a member.

Why are remains of Clupeidae lacking only from the geographically intermediate assemblages analyzed by VanDerwarker (Figure 1)? One possibility is that VanDerwarker appears to have ignored most postcranial elements in her analyses. Indeed, in her endnotes (VanDerwarker 2001:44), she reveals "the author does not plan to pursue identification of these specimens as their identification is unlikely to affect the findings of this study." However, numerous researchers have noted that certain groups of fishes are most readily identified by certain postcranial elements either because they are distinctive or, due to natural and cultural processes, preserve better (e.g., Butler 1994, 1996; Byrd 1997; Whyte 1989, 2002; Whyte et al. 2004). Indeed, the sturdier and distinctive vertebrae are likely some of the only skeletal elements of Clupeidae to remain preserved on some prehistoric sites (Whyte 1989, 2002). John Byrd (1997:54), whose data are included in VanDerwarker's reports, observes "it is clear that clupeids will often be represented only by vertebrae." Unfortunately, VanDerwarker's reports do not indicate which skeletal elements were used to identify particular fish groups.

Given these probable misidentifications, the faunal data provided by VanDerwarker (2001) and the zoogeographical and cultural interpretations based upon these data are not tenable. Fish (*Minytrema* sp., *I. punctatus*, *A. brunneus*, and *A. rupestris*) were identified that are certainly exotic to the Roanoke system. Remains of other groups such as herrings (family Clupeidae) are remarkably lacking from sites where they should have been found. Notwithstanding, the motivation for VanDerwarker's research was to "determine the pre-Columbian distribution of fish and other animals in the Roanoke River basin" and "intended for use by the U.S. Fish and Wildlife Service" (VanDerwarker 2001:3). Undoubtedly, a primary concern of the U.S. Fish and Wildlife Service is evidence of pre-impoundment anadromous fishes such as the American Shad.

For the benefit of wildlife management and archaeology, I have acquired and re-examined most of the fish remains from two of the more productive sites, Gaston and Vir 150, reported in VanDerwarker (2001). The results that follow reveal some discrepancies.

Reanalysis

The Research Laboratories of Archaeology at The University of North Carolina at Chapel Hill generously provided fish remains and raw data files from two of the sites analyzed by VanDerwarker for my reanalysis. The specimens were reanalyzed with reference to the comparative vertebrate osteological collection of the Department of Anthropology, Appalachian State University. This collection is sufficiently comprehensive for the Atlantic Slope below Chesapeake Bay, although it contains no examples of the Roanoke Bass (*Ambloplites cavifrons*); its congener, *A. rupestris*, was used as a proxy in the identification of *A. cavifrons* specimens.

Identification Biases

Zooarchaeologists vary in their osteological and taxonomic familiarity. This fact demands that in our writings we clearly identify our biases and discuss the potential effects of those biases on our results and interpretations. When we fail to do this, our readers have to trust our science but, in truth, cannot be certain of the legitimacy of our derived inferences about past humans and their environments. VanDerwarker (2001) informs us only that some specimens in the Roanoke assemblages are likely identifiable, but not by her. The perciform and siluriform specimens identified by VanDerwarker (2001) were packaged separately from “unidentified” and “unidentifiable” specimens. The former are represented almost exclusively by a limited and seemingly random assortment of cranial elements that varies in number and kind between orders (Table 1). Note, for example, that 21 elements were used to identify Perciformes (basses and perches) while only seven were used to identify Siluriformes (catfishes). Furthermore, very distinctive and relatively dense elements of the siluriform skeleton (e.g., dentary, coracoid, supraethmoid, modified second vertebra) appear to have been ignored. The effects of these biases on the resulting data and interpretations are hard to predict but, on the surface, indicate at the least that perciform fishes had a better chance of being identified than siluriforms. It was also discovered that of the vertebrae recovered from

Table 1. Skeletal Elements Used by VanDerwarker (2001) to Identify Perciform versus Siluriform Fishes.

Elements	Siluriformes	Perciformes
Auricular	3	14
Branchiostegal	0	6
Ceratohyal	1	13
Cleithrum	4	18
Dentary	0	26
Epihyal	1	3
Fin spine	0	3
Hyomandibular	4	4
Interopercle	0	1
Lachrymal	0	1
Maxilla	0	7
Opercle	0	4
Parasphenoid	0	1
Pectoral spine	3	0
Precleithrum	0	1
Premaxilla	0	11
Preopercle	0	1
Quadrate	1	15
Subopercle	0	1
Supracleithrum	0	3
Supraoccipital	0	1
Urohyal	0	2

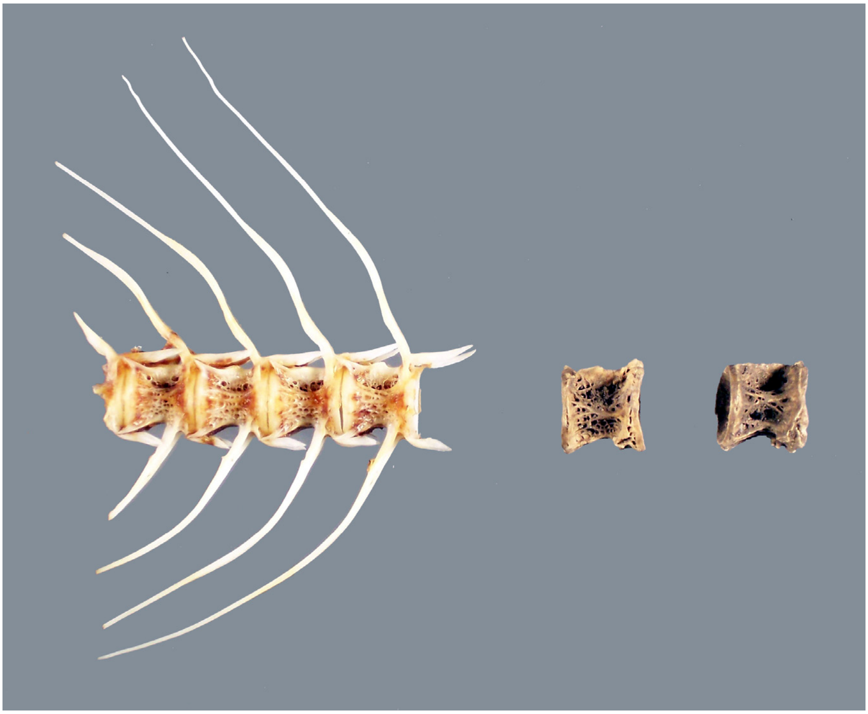

Figure 2. Modern American Shad (*Alosa sapidissima*) trunk vertegrae (left) and archaeological *Alosa* sp. Vertebrae from Vir 150 (right). Note the distinctive webby structure of the centrum.

the sites, only those of the unmistakable gar (*Lepisosteus* spp.) were identified. Yet both assemblages were found to include herring (genus *Alosa*) vertebrae (Figure 2): 24 from Gaston and four from Vir 150. As discussed above, herring are likely to be represented in archaeofaunal assemblages only by their sturdier vertebrae.

Misidentifications

The Gaston site assemblage includes 494 specimens that VanDerwarker assigned to class Osteichthyes. A reanalysis of these specimens revealed that 13 are not remains of fish (Table 2), 16 were assigned to the wrong family, 15 were assigned to the wrong genus, 39 were misidentified as to the skeletal element represented, and 11 were mis-sided (left vs. right). Similarly, for the 375 specimens from Vir 150, 12 are not remains of fish (Table 2), 13 were assigned to the wrong

Table 2. Certain Misidentified Archaeofaunal Specimens from the Gaston (31HX7) and Vir 150 (44MC645) Sites.

VanDerwarker's (2001) Identification		Actual Identification	
Species	Element	Species	Element
Gaston (31Hx7)			
Unidentified fish	Bone	*Rana catesbeiana*	Ilium
Unidentified fish	Bone	*Chelydra serpentina*	Ilium
Unidentified fish	Bone	*C. serpentina*	Scapula
Unidentified fish	Bone	Large bird	Rib
Vir 150 (44Mc645)			
Micropterus salmoides	Ceratohyal	*C. serpentina*	Coracoid
Unidentified fish	Dentary	*C. serpentina*	Mandible
Ictalurus sp.	Epihyal/ceratohyal	*C. serpentina*	Rib
Unidentified fish	Postcleithrum	*C. serpentina*	Scapula
Unidentified fish	Pectoral spine	*C. serpentina*	Scapula
Unidentified fish	Interhyal/postcleithrum	*C. serpentine*	Scapula
Unidentified fish	Dentary	*Meleagris gallopavo*	Ilium
Unidentified fish	Maxilla/premaxilla	*Procyon lotor*	Fibula
Unidentified fish	Branchiostegal ray	*Odocoileus virginianus*	Hyoid
Unidentified fish	Bone	Indeterminate mammal	Bone

family, 33 were assigned to the wrong genus, 59 were misidentified as to the skeletal element represented, and 12 were mis-sided. Furthermore, VanDerwarker assigned specific identifications such as "*Micropterus salmoides*" to fin spines that I could only identify to the family (Centrarchidae) or order (Perciformes) of fishes.

The 25 specimens misidentified as fish remains are mostly fragments of Snapping Turtle (*Chelydra serpentina*) bones that have textures similar to those of some fishes (Table 2). Numerous snapping turtle remains are listed in VanDerwarker's (2001) published tables, indicating her ability to identify certain turtle bones, presumably with reference to a comparative collection.

Additions and Subtractions

In addition to confirming most and discrediting many of VanDerwarker's identifications of fish remains, this reanalysis contributes additional species to the Gaston and Vir 150 tallies. All three of the "Cyprinidae dentaries" identified by VanDerwarker are pharyngeal bones of Bull Chubs (*Nocomis raneyi*). Among the "unidentified" remains from Gaston, one left dentary of Silver Redhorse (*Moxostoma anisurum*) [now Notchlip Redhorse *M. collapsum*] was discovered. Four specimens (two pectoral spines, a cleithrum, and a dentary) identified as "*Ictalurus punctatus*" are clearly White Catfish (*Ameiurus catus*). Most noteworthy, 24 herring (*Alosa* sp.) vertebrae were identified among the "unidentified fish" vertebrae from four proveniences on the site. A left quadrate of *Sander vitreus*, probably the same individual Walleye represented by the left and right dentaries (Figure 3) identified by VanDerwarker from the same provenience on the Gaston site, was discovered among remains labeled "*Micropterus salmoides*."

New additions for the Vir 150 site include Bull Chub (*Nocomis raneyi*), three bullhead species (*Ameiurus catus*, *A. natalis*, and *A. nebulosus*), and one sunfish (*Lepomis* sp.). Among the "unidentified fish" vertebrae, four herring (*Alosa* sp.) vertebrae from four different proveniences were recognized.

Reanalysis of fish remains from Gaston yielded no identifications of Bowfin (*A. calva*), Channel Catfish (*I. punctatus*), or Snail Bullhead (*A. brunneus*). All specimens originally labeled *I. punctatus* were reassigned to the genus *Ameiurus*. The one dorsal spine from the Gaston site, which VanDerwarker had assigned to *A. brunneus*, is not distinguishable from the dorsal spines of other members of the genus. Reanalysis of fish remains from Vir 150, likewise, yielded no identifications of Channel Catfish (*I. punctatus*).

Summary and Conclusions

As VanDerwarker aptly notes, "Modern environmental management requires an understanding of both past and present distributions of plant and animal communities, and zooarchaeology is pivotal to achieving this understanding." I would add that "pivotal" zooarchaeology, allowing reconstruction of past animal communities, is only possible when basic

Figure 3. Modern Walleye (*Sander vitreus*) dentaries (top) and archaeological Walleye dentaries (bottom) from the Gaston Site. Note the distinctive canine teeth.

identifications are accurate and conservative. A reanalysis of archaeofaunal remains from the prehistoric Gaston (31Hx7) and Vir 150 (44Mc645) sites along the Piedmont section of the Roanoke River confirms VanDerwarker's important identifications of Walleye (*Sander vitreus*) at Gaston and anadromous fishes such as Striped Bass (*Morone saxatilis*) and sturgeon (*Acipenser* sp.) at both sites, and confirms Whyte's (in Clark et al. 2005) assignment of native status to *Micropterus salmoides*. The addition of herring (*Alosa* sp.) to the species list for each site is particularly relevant to fisheries and drainage management and evaluations of deposit seasonality and residential location. Reanalysis also reveals erroneous identifications of Bowfin (*Amia calva*) and Snail Bullhead (*Ameiurus brunneus*) at Gaston, and Channel Catfish (*Ictalurus punctatus*) at both sites. Moreover, the relative representation of Roanoke Bass (*Ambloplites cavifrons*) to Largemouth Bass (*Micropterus salmoides*) is greater than indicated by VanDerwarker's data, even though she recognizes that "largemouth bass, though perhaps over-identified in archaeological sites along Roanoke River, was present in this river in prehistory" (VanDerwarker 2001:36). Although the *Minytrema* sp. and *Ambloplites rupestris* specimens reported by VanDerwarker for other prehistoric sites along the Roanoke were not located for re-examination, these identifications must be rejected on the basis of existing zoogeographical evidence.

In short, VanDerwarker's findings, interpretations, and recommendations concerning the Pre-Columbian fauna in the Roanoke Basin must be reconsidered. When substantial numbers of specimens are misidentified as to skeletal part, species, genus, family, and even class, derived indices such as "minimum numbers of individuals" (MNI), %MNI, and biomass estimates and assemblage comparisons are necessarily erroneous. The debate of Reed (1963) and Daly (1969) over whether zoologists or archaeologists have the exclusive expertise to analyze animal remains from archaeological sites still echoes. At present, biological sciences and wildlife management agencies must be wary of published zooarchaeological data.

Notes

Acknowledgments. I am indebted to Brett Riggs and Steve Davis of the Research Laboratories of Archaeology at The University of North Carolina at Chapel Hill for providing me with specimens and data files. I am also indebted to Bob Jenkins, Department of Biology, Roanoke College, and Wayne Starnes, North Carolina Museum of Natural Sciences, for their advice on fishes and editorial comments.

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MOUNT OLIVE, NORTH CAROLINA CACHE: POINTS, KNIVES, OR BIFACES?

by
Wm. Jack Hranicky

Abstract

This paper discusses three rhyolite artifacts found together near Mount Olive, North Carolina. The illustrated specimens are frequently called Morrow Mountain projectile points. This paper argues a different perspective against the point type, which is that they were knives. These specimens are presented as three large butchering tools from the Archaic Period.

For most people in American archaeology, the following bifaces would automatically be classified as large Morrow Mountain I points as in Coe (1964). Their classification would be based on their small roundish stems, rhyolite material, and large triangular blades. The problem with many of these specimens is that the perceived stem is actually a bit or cutting workend of the tool. These large implements are common in North Carolina. Four large slate/shale specimens were discussed in Hranicky (2007) and suggest numerous examples of this class of bifaces tools. Bifaces can be divided into a production (manufacturing) industry and called preforms. Or, the implement can be classified into a functional industry, such as cutting tools. From this industry, cutting tools can be divided into classes, from which the knife is a class. Of course, other classifications and functions may be argued, such as scrapers or choppers. These classes have disparate viewpoints which would not be resolved in a single paper. The following bifaces support a hypothesis that the Morrow Mountain point was never a projectile point but, instead, was a basic large knife. However, these specimens would never by themselves prove the case.

Three specimens (#1, #2, and #3) were found together near Mount Olive in North Carolina. While they are collectively called a cache, they should be identified as an individual’s toolkit. All show usage. Furthermore, rather than a simple cache placement, they could be a grave placement. Rather than a simple abandonment, the tools may have been buried with the deceased owner; over the years, all organic materials decomposed. Regardless of their last days in the Indian world, they

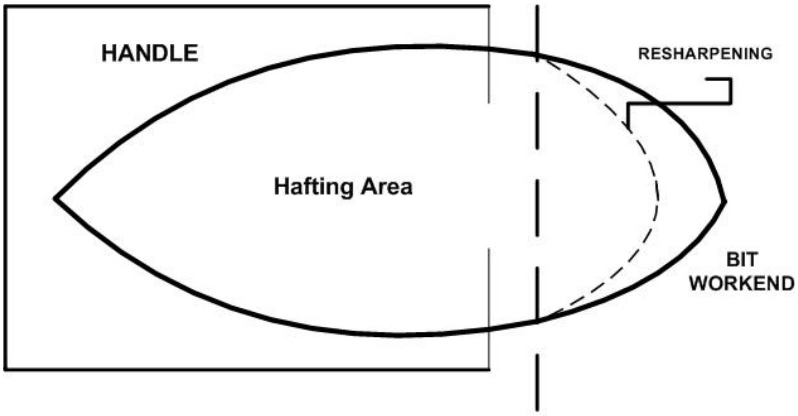

Figure 1. Possible hafting for specimens #1, #2, and #3.

come together to offer three different tools which performed suggested knife and scraper functions. Based on patination, the stone was quarried rather than acquired from pick-up cobbles from riverbeds, forests, or fields.

The specimens are made from rhyolite, which obviously suggests the Early-to-Middle Archaic in North Carolina. They were made by percussion flaking. The knapper was a skilled toolmaker as the tools are flat with a straight profile and are relatively thin. The L/W*T (i.e., length divided by width times thickness) ratios are: 25.108, 23.000, and 25.016 to 1, respectively. There are few hinge scars and several long flake scars which indicate their quality. All margins show retouch which is suggested as a shaping process during manufacture. As a probable argument, the tools were hafted. Figure 1 shows a possible chassis assembly. One hafting suggestion is the wood/bone handle. Or, these tools could have been sinew-wrapped, which was then glued to create the handle. Or third, the tool was hand-held with perhaps a piece of hide held along one margin. Any of these methods produce an excellent, serviceable knife. With general hafting replacements or retrofitting, the large prehistoric knife had a longevity of approximately five years (Hranicky 2006). Re-sharpening the bits causes reduction in the tool's length; thus, there is no way to appreciate the tool's initial length.

As a comparative example, Figure 2 shows a quartzite specimen that has a pronounced bit which is argued as the workend, not its stem. Other

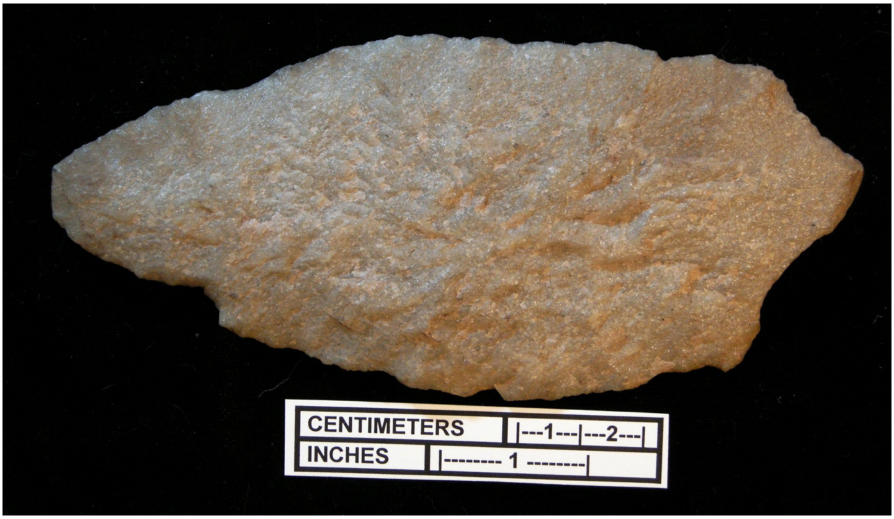

Figure 2. Surface-recovered quartzite specimen from southern Virginia.

than material, this knife has the same morphology as those in the cache. The quality of its workmanship is obvious. This point was selected because many of its attributes would generally classify it as a Middle Archaic Morrow Mountain point type. However, the date range for this knife could be the entire Archaic Period. It has two possible hafting notches on left end.

Specimen #1 in Figure 3 shows a wide specimen with a heavy-duty bit structure. The tool's size suggests it was a large game butchering tool; however, woodworking could also be its function. The bit has three cutting areas. The center part is beveled and appears to have been a scraper. The top and bottom parts have fine retouching which would not be needed if this area were the stem. Its size produces a large amount of applied energy. The ventral face is relatively flat. It was probably made off a large flat flake rather than the typical biface reduction method as defined in Callahan (1979). Figure 4 shows a flake scar drawing with principal bit forms. From the vertical line in the drawing, there is a definite taper to the bit edge. This creates a frank angle of less than 10 degrees, depending on where along the bit the measurement is made.

As a special note, all specimens' width and weight prevented them from being flyable; thus, a projectile point function is impossible. The

Figure 3. Specimen #1, a rhyolite knife. Length = 136 mm, width = 65 mm, and thickness = 12 mm.

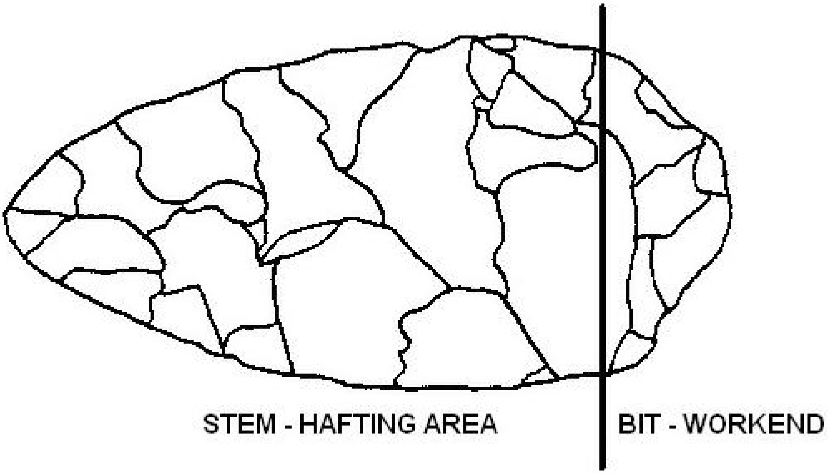

Figure 4. Drawing of Specimen #1 showing flake scars.

Figure 5. Specimen #2, a rhyolite knife. Length = 138 mm, width = 78 mm, and thickness = 13 mm.

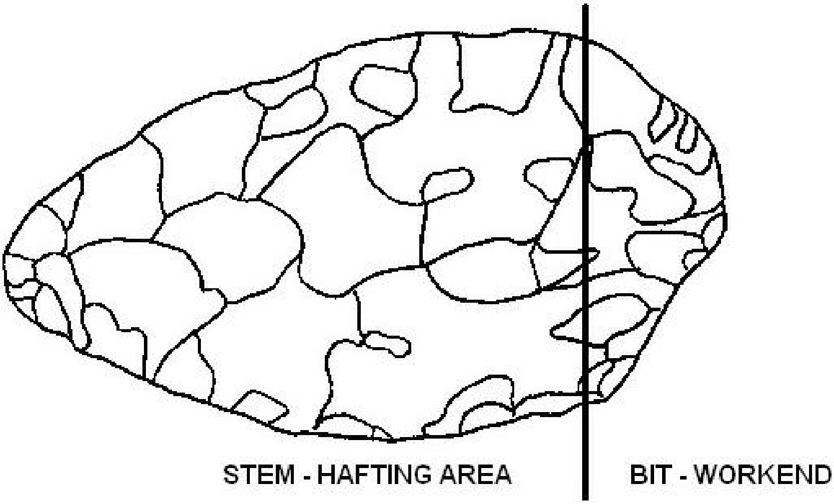

Figure 6. Drawing of Specimen #2 showing flake scars.

same argument applies to most Morrow Mountain "points" found in the Middle Atlantic area.

Specimen #2 in Figure 5 is similar to the above knife/scraper. As suggested, with similar tools on butchering sites, these tools could be communal and shared during work task. The bit is off center, if compared to the above specimen. It has three blade parts with the center part also being built up such as a beveled edge. As with Specimen #1, the top and bottom parts have fine retouching. Also, the bit has a taper on the ventral face which occurs completely across the tool's bit area. This tool shows one ground (or smoothed) area on the upper lateral margin. This area may have been smoothed for wrapping sinew to secure a wooden handle. The ventral face is relatively flat. It was probably made off a large flat flake rather than typical biface reduction method. Figure 6 shows a flake scar drawing with principal bit forms.

Specimen #3 (Figure 7) still has a medial ridge showing, which also suggests it was made off a large flat flake. There are well-developed long diagonal flake scars present on this specimen. The bit is beveled, which suggests a scraper function. Figure 8 shows a flake scar drawing with principal bit form.

These specimens suggest that marginal areas were ground, which would facilitate hafting. However, comparative data are needed to define this tool structure. Numerous Morrow Mountain points show ground areas at the end of blade or stem, depending on the viewer's perspectives (see Figure 9).

Resharpening until the knife blade is expended is rarely classified in lithic research, especially for the Morrow Mountain type. Coe (1964) shows a range of small Morrow Mountain I points which are expended tools. The Indians were at the quarry site to replenish their toolkits. Consequently, they discarded their old tools and replaced them with freshly-made tools which, of course, were carried into new habitation areas. Figure 10 shows expended examples.

The Mount Olive artifacts suggest a large-tool design for early Americans. Since their size suggests heavy duty functions, butchering large game such as elk or antelope is argued. All three tools have workends that show usage and restructuring. Since these tools are often classified as Morrow Mountain points, this paper suggests a closer

Figure 7. Specimen #3, a rhyolite knife. Length = 109 mm, width = 61 mm, and thickness = 14 mm.

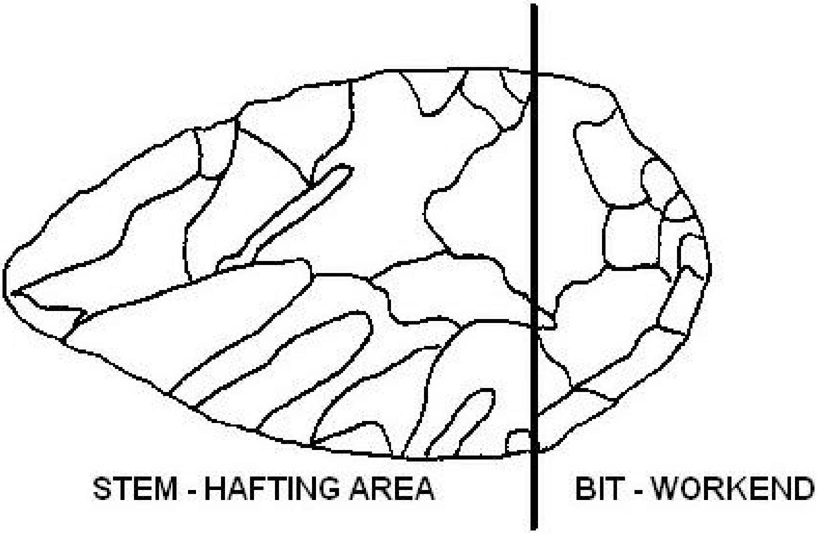

Figure 8. Drawing of Specimen #3 showing flake scars.

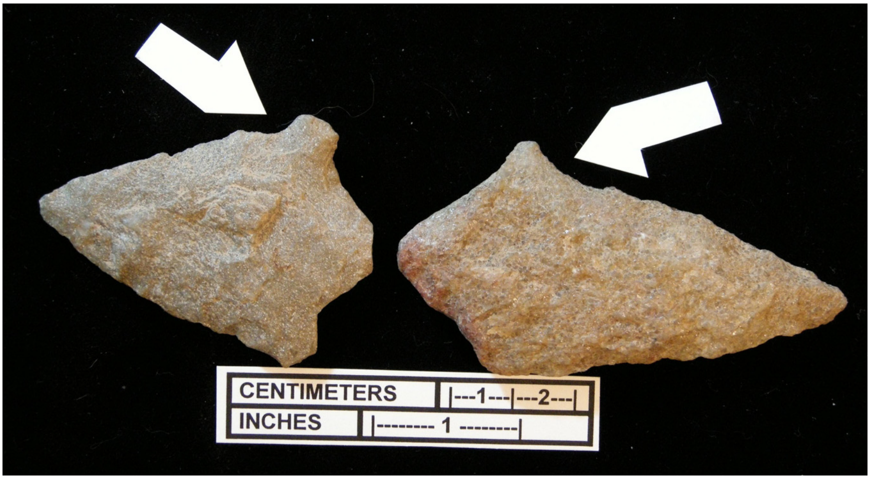

Figure 9. Morrow Mountain points with ground areas (indicated by arrows).

Figure 10. Two expended North Carolina Morrow Mountain points? (Note: blades or stems?)

examination for this type assessment. It should be reappraised in archaeology because the tool's appearance in only the Middle Archaic period is suspect, at least, for this paper. This knife only appears to be a Morrow Mountain.

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BOOK REVIEW

Jamestown: The Buried Truth, William M. Kelso. University of Virginia Press, Charlottesville, 2007. xiii + 238 pp., illus., endnotes, index. $29.95 (cloth).

Reviewed by Thomas E. Beaman, Jr.

In American consciousness, there are few if any historical locations as hallowed as that of Jamestown Island in Tidewater Virginia. It was there that in May 1607 a group of 108 British men and boys established what became the first permanent English settlement in North America. This past year (2007) was the 400th anniversary of this event, and was observed with a year-long celebration marked by a number of spectacular events, including a rare visit to Jamestown Island by the current reigning British monarch, Queen Elizabeth II.

Yet no singular event in this celebration has been more relevant to the foundation that evolved into modern America than the archaeological discovery of the cornerstone itself—the original James Fort. For more than 100 years, historians and archaeologists have been interested and active in the exploration of Jamestown Island; however, the actual location of the original fort had proved so elusive that almost all accepted that any remnants had been lost, consumed by erosion into the James River. Written by William Kelso, Director of Archaeology for the Association for the Preservation of Virginia Antiquities (APVA), and published on the eve of the 400th anniversary, *Jamestown: The Buried Truth* chronicles the first 11 years in the odyssey of rediscovery and excavation, and subsequent reconsideration, of one of the only definitive colonial period archaeological sites in North America contemporary to the life of William Shakespeare and the reign of King James I.

This highly readable volume is comprised of an introduction and five chapters that represent the different aspects of the APVA Jamestown Project: “Reimagining,” “Rediscovering,” Recovering,” “Reanimating,” and “Royal.” Appropriately, the volume begins in the past; an introduction and first chapter provide a sound historical context for the remainder of the volume. The introduction briefly recounts Kelso’s fascination with Jamestown, from his first voyage to the island over four decades ago to his volunteer involvement in 1994 that led to the rediscovery of the fort site. The first chapter, “Reimagining,” is a hidden jewel of the volume, as it recounts a documentary history of the first years of the Jamestown, its settlers, and their native neighbors. While most archaeologists recognize Kelso as a pioneer of landscape archaeology and an exceptional excavator, few remember his academic credentials as an historian. He earned his Ph.D. in history at Emory University under noted Colonial American historian John Juricek. Here Kelso flexes his documentary research experience with the accounts of John Smith, Gabriel Archer, George Percy, Ralph Hamor, William Strachey, and the anonymous "Ancient Planters of Virginia," as well as navigation charts and maps by Johannes Vingboons and Don Pedro de Zúñiga, by crafting an historical portrait of the Virginia settlement. To compensate for the "traditional focuses on Smith and other leaders" (pg. 33), there is an exploration into the British origins of the people of the first settlement, as well as a genealogical analysis of the Algonkian chief Powhatan's kin group. These accounts are viewed as critical to understand and interpret the features later discovered to be part of the original James Fort.

At a total of 80 pages (nearly a third of the entire volume), Chapter Two focuses on "Rediscovering Jamestown." In a continued discussion of the historical accounts, Kelso begins this chapter on the inequalities of description on the construction and events related to James Fort until its disappearance in 1624, a brief history of the island following the move of Virginia's colonial capital from Jamestown to Williamsburg in 1699, and a concise chronology of past archaeological searches for James Fort. These three factors combined suggested specifically where to search, and in Spring 1994, a piece of the south palisade line was "rediscovered." Briefly jumping out of the events as they happened chronologically, Kelso details the exercise of "connecting the dots" of the palisade lines and bulwarks, and the eventual recognition that over 90% of the original James Fort still remained on land. The enthusiasm of this discovery is certainly warranted and evident, but unfortunately this section gets a little heavy with a more lengthy description of the soils and stratigraphy than is necessary in a popular monograph, perhaps more appropriate for a technical report. With the actual outline of the fort, Kelso further evaluates the accuracy of the historical accounts.

The remaining half of Chapter Two focuses on the five types of buildings uncovered within James Fort: the barracks, quarters, a factory, row houses, and even temporary "lean-to" structures. In addition to thorough description of the "mud and stud" style construction of the buildings, Kelso deftly weaves in artifact descriptions found in each building. The faunal remains from the barracks allow a reevaluation of the "starving time" during the winter of 1609-1610, just as artifacts recovered from within the factory suggest its multiple use as a prison, a place of early industrial experimentation (for metallurgy and glassmaking), and as a storehouse. The widespread recovery of points and potsherds suggests more than simple contact and exchange with the local native populations. Kelso notes the row houses were built with stone foundations, certainly suggesting construction for permanence over the other "mud and stud" buildings. The chapter concludes with the discovery of a well that would have been outside the west palisade wall of the original James Fort, but contained many early artifacts, including a complete suit of armor. Interestingly, modern water tests showed the water from the well to be clean enough to meet current water quality standards, and certainly would have been safe for the colonists' consumption.

Kelso notes the exploration of the former Jamestown residents "need not be restricted to written facts and artifacts" (pg. 125), as Chapter Three ("Recovering Jamestownians") explores the forensic examination of the over 75 individual skeletons recovered during the excavations. The primary focus is on four specific European skeletons: JR102C, a young male who apparently died from a gunshot wound in the leg (suspected to be Jerome Alicock based on historical accounts); JR156C, an anonymous female skeleton from the 1607-1610 period; a male in his early 30s buried with a decorative iron captain's staff (thought to be Bartholomew Gosnold), and a teenage male buried in the summer of 1607 (suspected to be James Brumfield or Richard Mutton, again from historical accounts). These burials and their potential identities are discussed, which include the use of a forensic sculptor to recreate human faces from the skulls. Particularly interesting is Kelso's detailed explanation of the search for confirmation of Gosnold's identity through mitochondrial DNA analysis. Though the results were inconclusive, the excavators still believe this skeleton to be Gosnold, and it is referred to as such throughout the remaining chapters. The detailed stories of these four skeletons is fascinating, yet it is a shame there is so little general discussion on the 72 other individuals exhumed from outside the fort believed to have been linked to the "starving time." While Kelso is more concerned with their spatial analysis outside the fort, the forensic data from all of the skeletons could have certainly provided a truly interesting community portrait of the health and history of these early "Jamestownians."

Chapter Four, "Reanimating Jamestown," well demonstrates a utility of historical archaeology with a "middle range" comparison of the excavated data to the historical record of James Fort to challenge the traditional, historical notion of Jamestown as "a more complex story than the simpler tale of poor preparation and incompetence" (pg. 169). In his quest to "trace a process that began the transformation of Englishmen into Americans" (pg. 169), Kelso contemplates and compares a decade of excavated data to that of the intentions and preconceptions of the Jamestown colonists in the form of the Virginia Company shareholders' instructions to the settlers. Not denying that both the settlers and the Virginia Company each made mistakes, Kelso argues the settlers mostly complied with the instructions given the somewhat unexpected and sometimes harsh realities of the seventeenth-century Virginia landscape. He explores the failure of not following certain directives as possibly the result of negligence, the reality of the environmental conditions (e.g., climate, geography, and geology), or due to a few settlers who sought to individually profit instead of work for the greater common good. This chapter well illustrates the use of archaeology as historical supplementation at its finest—to document and understand the structures and settlers of the original James Fort.

The final chapter centers on the development and material remains of Jamestown from 1624-1698, past the first tenuous years of James Fort when the settlement served as the capital of the Virginia colony. Termed "Royal Jamestown," the chapter centers on the Statehouse complex, which from 1665-1698 was "the largest secular public building in seventeenth century America… the complex totaled 23,000 square feet under one roof" (pg. 212). Kelso again provides the documentary history of the structure's development and Samuel Yonge's previous investigations tracing the brick footprint. With the total excavation of the Statehouse complex, a sequential history of the construction and use of the different areas within the building is revealed. It is curious that Kelso chose to retain the "Royal Jamestown" focus of this chapter solely on the APVA portion of the Jamestown property that contained the Statehouse complex and, with the exception of a brief mention of other sites where the colonial government may have met, not to consider the Statehouse complex more in the artifactual and architectural contexts of the extensive seventeenth-century domestic ruins on the National Park Service property that were part of the same community.

Written in narrative style with very little technical jargon, *Jamestown: The Buried Truth* is a very accessible work for archaeologists as well as historians, students, and the general public. Kelso's narrative text does an admirable job in relating the excitement brought by archaeological discovery and the journey to interpretation of the features and material remains. The volume is attractive with a cleverly designed dust jacket and cover; the dust jacket imagines the original settlement, with a portion of it cut out to show artifacts and the remains of a skeleton on the cover itself. The images are well chosen and appropriate, but are apparently designed for aesthetics over interpretive value. Several of the artifacts are so unique (like the gentleman's silver "ear picker" on pg. 213) that photographic scales would have been beneficial. Overall, this volume is reminiscent of, and favorably comparable to, Ivor Noël Hume's *Martin's Hundred* (University of Virginia Press, 1991) and James Deetz's *Flowerdew Hundred* (University of Virginia Press, 1993), and will likely end up on many bookshelves next to these topically similar volumes on the archaeology of early English colonial settlement in Virginia.

However, most of the historical and archaeological information and interpretations presented in *Jamestown: The Buried Truth* may likely be familiar to many researchers and patrons who have visited the site since 1994. Kelso and his team have been exceptionally prolific in the dissemination of their findings through a series of public publications (the "Jamestown Rediscovery" series, volumes I through VII) and downloadable technical reports (http://www.apva.org/pubs/index.html). These publications culminated in the 2004 APVA publication of *Jamestown Rediscovery, 1994-2004* (by Kelso and Beverly Straube), which contains virtually the same information as this volume with many more color illustrations at only two-thirds the price. For those who are not familiar with the other publications, or would like to have all of the previously reported "rediscoveries" and interpretations in one source, this work is a good, single-volume summary.

For North Carolinians, and especially for archaeologists interested in the early settlement of North Carolina, the information presented in *Jamestown: The Buried Truth* has tremendous applicability in the search for the abortive attempts to settle Roanoke Island a scant 30 years prior to Jamestown. Since Talcott Williams' initial antiquarian excavations in 1895, archaeologists have searched for features and material evidence for the three visits made by Elizabethan explorers and now-missing colonists between 1584 and 1587. Most of this work was guided by a now-realized unrealistic expectation of what the fortified settlements on Roanoke would be like, such as the colonial revival interpretation of the fort more as a log-to-log western stockade than as a spaced palisade made from split pine trees. This lack of expected evidence has led to some questionable interpretations of the few artifacts recovered at Fort Raleigh National Historic Site, such it not being a settlement area but the locale of a science center (but that is a discussion for another time). A colonial revival mindset is still present when many consider the appearance of the original Fort Raleigh, from set pieces still used in Paul Green's *The Lost Colony* outdoor drama to how it was presented in the recent *Mysteries of the Lost Colony* exhibit (2007) at the North Carolina Museum of History. For those interested or involved with the search for the Roanoke settlements, the information detailed in Kelso's *Jamestown: The Buried Truth* provides the best comparative, contemporary cultural evidence of how the sixteenth-century palisaded Fort Raleigh and the buildings it contained were likely constructed and how they likely appeared 30 years prior to the permanent establishment of modern America on the sands of Jamestown Island.

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