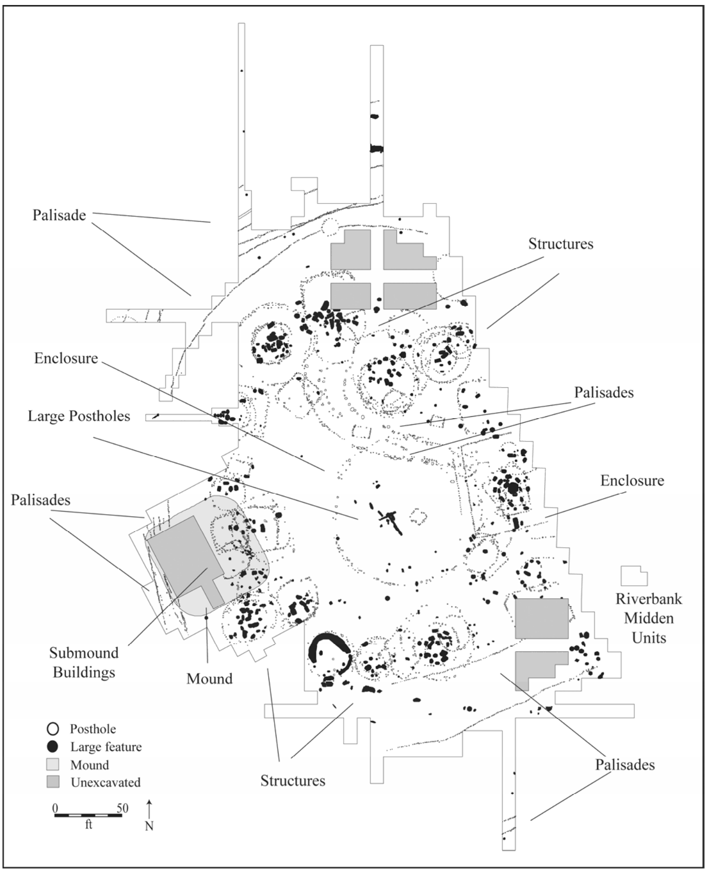
North Carolina Archaeology



Volume 56 2007

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

Officers of the North Carolina Archaeological Society

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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A MISSISSIPPIAN CERAMIC CHRONOLOGY FOR THE TOWN CREEK REGION

by
Edmond A. Boudreaux

Abstract

This article presents a revised ceramic chronology for the Town Creek region. The area's existing ceramic chronology is refined through the consideration of data and radiocarbon dates from the Payne, Leak, and Teal sites in addition to the Town Creek site itself. The seriation methods used in this process are discussed, and the ceramic types and modes that constitute these assemblages are defined (see Appendix A). Stratigraphic relationships and radiocarbon dates are used to evaluate the sequences suggested by the seriations, and these sequences are then used to define ceramic phases. The ceramic phases for the Town Creek area are placed in a regional context by relating them to sequences established for surrounding areas, particularly those to the south of Town Creek (Hally 1994:Table 14.1; South 2002:226–230; Williams and Shapiro 1990:39–77).

Town Creek (31Mg2 and Mg3)[1] is an important archaeological site located on the Little River in the central Piedmont of North Carolina (Figure 1). The site was utilized by Native Americans throughout nearly all of prehistory, beginning during the Early Archaic period, and this use continued through the Early Historic period (Boudreaux 2005; Coe 1995). Town Creek's most intensive occupation occurred during the Mississippi period (ca. A.D. 1000 to 1400) when the site was a town consisting of a platform mound and numerous buildings surrounding a plaza. The Town Creek site has also played an important role in the development of professional archaeology in North Carolina and the southeastern United States. The archaeological investigation of Town Creek began in 1937 when professional archaeology in the Southeast was in its infancy (Lyon 1996; Ward 1983:57). Town Creek is where the fieldwork procedures that continue to be used by the Research Laboratories of Archaeology (RLA) of the University of North Carolina (UNC) at Chapel Hill were developed and refined. Town Creek also served as a training ground for archaeologists, and several of the on-site supervisors who worked there went on to distinguished careers in Southeastern archaeology.[2]

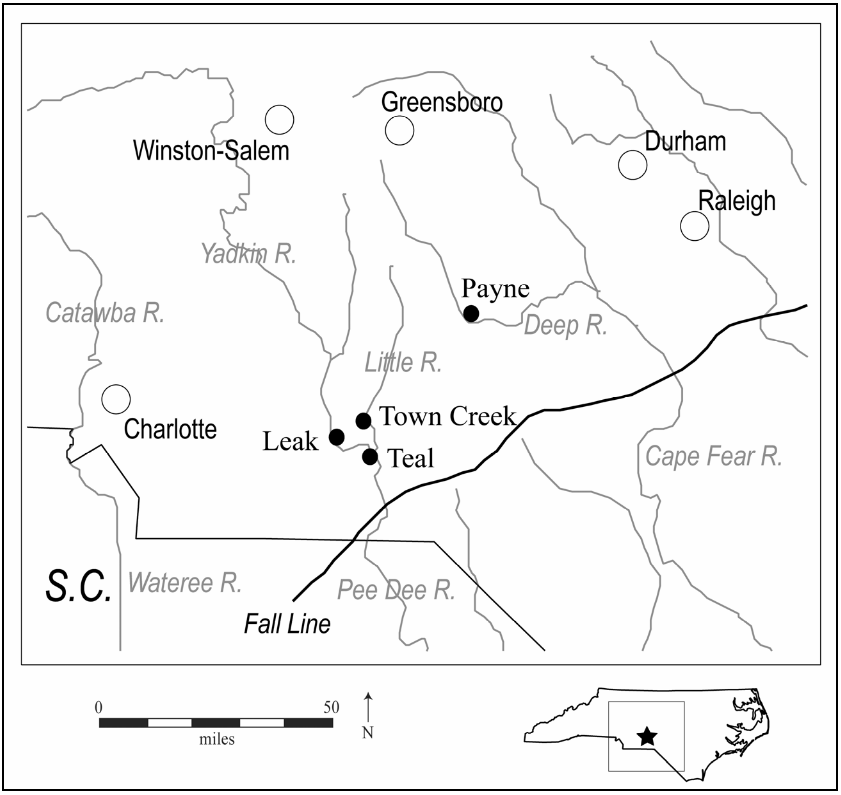

Figure 1. Town Creek and related sites.

Part of Town Creek's importance as an archaeological site is based on the extraordinary amount of fieldwork that has taken place there. Approximately five decades of investigations have resulted in the excavation of nearly all of the site's platform mound and over 800 10×10-ft units away from the mound. This work has documented dozens of structures, hundreds of burials, and tens-of-thousands of features (Figure 2). Most of the fieldwork at Town Creek was performed under the auspices of the RLA under the overall direction of Joffre Coe and the direct supervision of numerous field archaeologists (Boudreaux 2005; Coe 1995). The site has been preserved since 1955 as Town Creek Indian Mound State Historic Site, the only state-run park in North Carolina that focuses solely on the state's prehistory (Coe 1983:170; Ward and Davis 1999:123). Today, the park consists of a museum and an area for living history displays, as well as archaeologically based

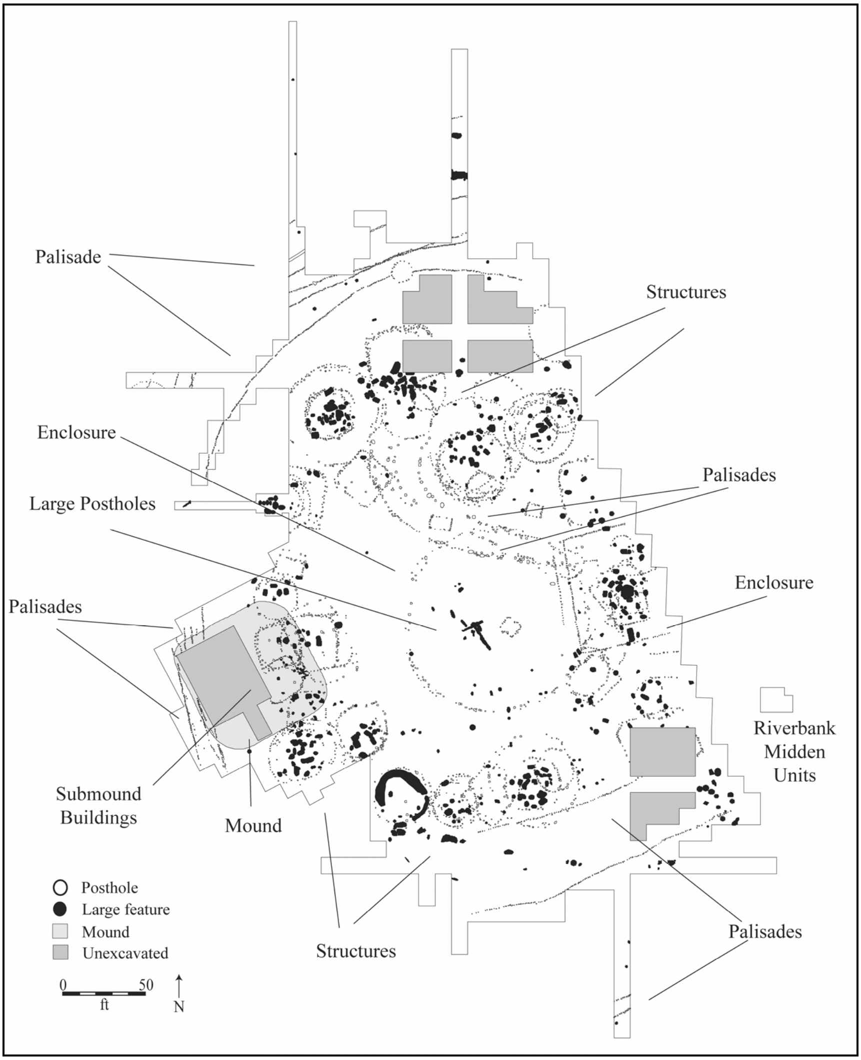

Figure 2. Extent of excavations and major architectural features at Town Creek.

reconstructions of the mound, a palisade, an enclosure, and three structures (Carnes-McNaughton 2002; Coe 1995:29–41; South 1995).

This article presents the methods and data used to develop a ceramic chronology for the Mississippian ceramics of the Town Creek area. Despite Town Creek's importance both as a Mississippian town and as an extensively investigated archaeological site, frustratingly little has been known about the duration of the site's Mississippi period occupation or how the community evolved during this time. While changes in the mound area had been well documented at Town Creek (Coe 1995; Reid 1967, 1985), it was not known how any of these changes related to other parts of the site. One way to address these chronological issues was to establish a ceramic chronology for the site, and then use it to systematically date contexts. Pottery is so ubiquitous at Town Creek that a dating scheme based on ceramic attributes and assemblage characteristics would allow Mississippian contexts to be attributed to smaller temporal units, such as phases and subphases.

The ceramic chronology presented here associates particular ceramic attributes, modes, and assemblage characteristics with particular phases and subphases. The development of a way to divide Town Creek's Mississppian occupation into smaller temporal units is a critical first step for the investigation of almost any topic of research at the site. While the density of features and artifacts, as well as the degree of change documented in the mound at Town Creek, suggests that a great deal of time was represented within the site's Mississippian component, the lack of a clearly defined ceramic chronology has forced other researchers to treat the pottery (Anderson 1989:105) and the burials (Driscoll 2001, 2002) from the site largely as undifferentiated data sets. Additionally, the common use of ceramics for dating purposes in the Southeast in general (see Gibson 1993), and the South Appalachian Mississippian area in particular (see Anderson 1994:363), means that once a ceramic chronology has been established for Town Creek, it can be used to place the site in a regional chronological and cultural framework.

Background

The co-occurrence at Town Creek of complicated-stamped ceramics and a substructural platform mound places the site within the South Appalachian Mississippian tradition (see Ferguson 1971:261). South Appalachian Mississippian has been recognized as a large-scale variant of Mississippian culture that existed in the eastern part of the Southeast (Caldwell 1958:34; Ferguson 1971:7–8; Griffin 1967:190). South Appalachian Mississippian is distinctive from other Mississippian variants because of its predominantly complicated-stamped and non-shell-tempered ceramic tradition (Ferguson 1971:7–8). South Appalachian Mississippian has been divided into three broad cultural units—Etowah, Savannah, and Lamar—that cross-cut the numerous

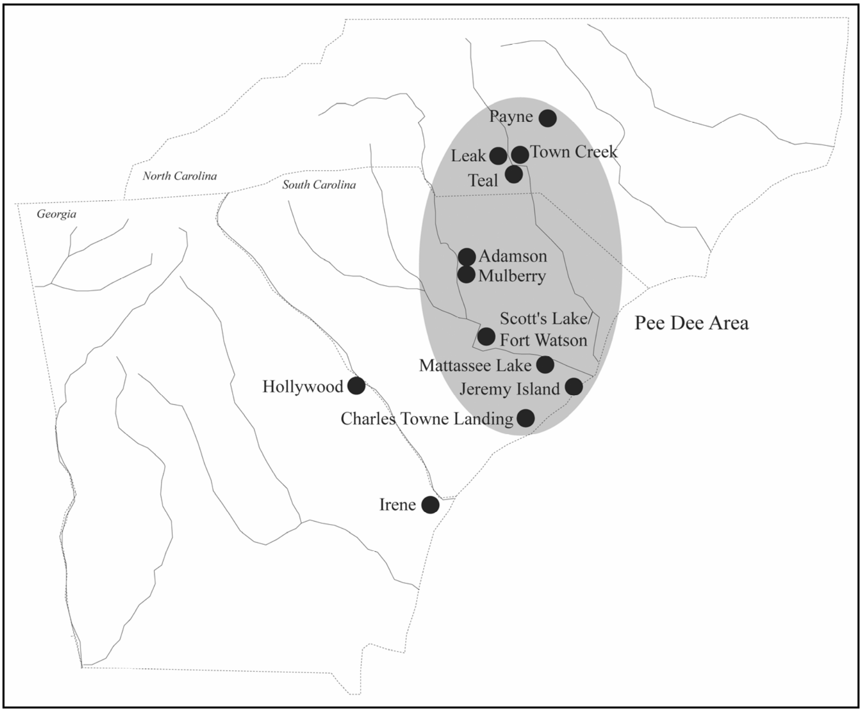

Figure 3. The extent of Pee Dee culture and related sites.

phases that constitute more localized cultural sequences (Anderson 1994; Anderson et al. 1986; Ferguson 1971; Hally 1994; Hally and Langford 1988; Hally and Rudolph 1986; King 2003; Rudolph and Hally 1985; Wauchope 1966).

The South Appalachian Mississippian construct contains a great deal of ceramic variation, and a number of local ceramic series and sequences have been defined within this broader tradition (Hally 1994:Figure 14.1; Williams and Shapiro 1990:30–77). The Pee Dee series, which includes the Mississippian pottery found at Town Creek and surrounding sites, is one of these local variants. The geographic extent of Pee Dee culture (Figure 3), as it is currently understood based on the distribution of sites with a predominance of pottery from the Pee Dee series, includes portions of south-central North Carolina and northeastern South Carolina (Anderson 1982:313; Judge 2003). Several Pee Dee sites in the North Carolina Piedmont in the vicinity of Town Creek have been identified and tested (Mountjoy 1989; Oliver 1992). A number of Pee Dee sites also have been investigated to the south in the

Wateree River valley of South Carolina (Cable 2000; Kelly 1974; Stuart 1975). Further south, Pee Dee sites have been excavated along the South Carolina coast north of Charleston (South 2002; Trinkley 1980). Temporally, a Pee Dee ceramic sequence established for the Wateree Valley spans the period from A.D. 1200 to 1675 (DePratter and Judge 1990:56–58). Stanley South and Leland Ferguson have related Pee Dee pottery to a ceramic construct they refer to as Chicora (South 2002:154; Ferguson 1974 in South 2002), which South (2002:158) has attributed to the period from A.D. 1000 to 1600.

The development of the Pee Dee concept, both as an archaeological culture and a ceramic series, has been closely tied to the work of Joffre Coe. Coe (1952:308–309) gave the first definition of the Pee Dee focus based on his excavations at Town Creek, and he included a brief discussion of the Pee Dee pottery series in his landmark publication *Formative Cultures of the Carolina Piedmont* (Coe 1964:33). Pee Dee culture was initially defined based on the materials that had been recovered from Town Creek (Coe 1952). The pottery from Town Creek was so different from other assemblages in central North Carolina that Coe (1952:308) was convinced the site represented the movement of people from the coast into the North Carolina Piedmont and the subsequent displacement of indigenous groups.

J. Jefferson Reid's 1967 thesis presented an analysis of the pottery from the mound at Town Creek. Reid provided a detailed description of Pee Dee pottery and documented differences in the assemblages from superimposed strata. He also discussed several radiocarbon dates associated with submound and mound-summit contexts. Reid (1965, 1967) noted the similarities among the pottery assemblages from Town Creek and the Irene and Hollywood sites along the Savannah River in Georgia. Based on these similarities, Reid (1967:65) proposed that these sites had been related prehistorically through an interaction sphere that he called the Town Creek-Irene axis. Reid (1985) also used pottery to examine the formation processes that affected the strata of the mound at Town Creek.

Billy Oliver's 1992 dissertation documented his excavations at the Leak and Teal sites, two Pee Dee sites located near Town Creek. Oliver presented a number of radiocarbon dates from these sites (1992:Figure 40), and he established a chronological sequence consisting of three phases—Teal, Town Creek, and Leak—for Pee Dee culture in the Town Creek vicinity (Oliver 1992:240–253).

Ceramic Analysis and Typology

Ceramic analysis for this research consisted of six steps with each step involving several typological options (Figure 4). The goal of the ceramic analysis and the typology was to recognize and document the distribution of elements of Pee Dee pottery that changed through time. This was accomplished by incorporating into the ceramic typology attributes, types, and modes (see Appendix A) recognized as chronologically sensitive both in adjacent regions (DePratter and Judge 1990; Hally 1994; South 2002; Stuart 1975) and in previous analyses of Pee Dee pottery (Boudreaux 2001, 2005; Oliver 1992; Reid 1967).

The first step of the analysis was to distinguish between Pee Dee and non-Pee Dee pottery based on gross differences in temper and paste. Pottery was classified as non-Pee Dee based on the size and distribution of temper particles in the paste. The non-Pee Dee category probably includes pottery from the Early Woodland Badin series, the Middle Woodland Yadkin series, and the Late Woodland Uwharrie series (Coe 1952, 1964, 1995; Ward and Davis 1999). Pee Dee pottery is defined as being generally dark in color (see Reid 1967:51) (e.g., lots of dark browns, grays, and blacks) with a paste that has medium-sized grit and sand temper distributed relatively evenly throughout it. Reid describes the paste of Pee Dee pottery as being compact, granular, sugary, and coarse in appearance (Reid 1967:42, 52). Although a great deal of variability exists in the size and density of temper, patterned distributions to this variation were not recognized, and temper was not used to internally sort Pee Dee pottery. Reid (1967:2) was unable to recognize any chronological significance to differences in paste and temper, although he did describe the temper and paste of plain sherds as being generally "finer" than that of complicated stamped sherds (Reid 1967:52).

The second step of the analysis was to segregate sherds by size based on maximum sherd length. The third step was to classify pottery based on differences in surface treatment, defined as a modification of a vessel's surface that covers all or nearly all of its exterior. Pee Dee sherds with a maximum length less than 4 cm were classified as either decorated, plain, or unidentified because of the difficulty in consistently identifying all surface treatments on small sherds. All Pee Dee sherds with a maximum length greater than 4 cm were classified as a particular type based on surface treatment (see Appendix A).

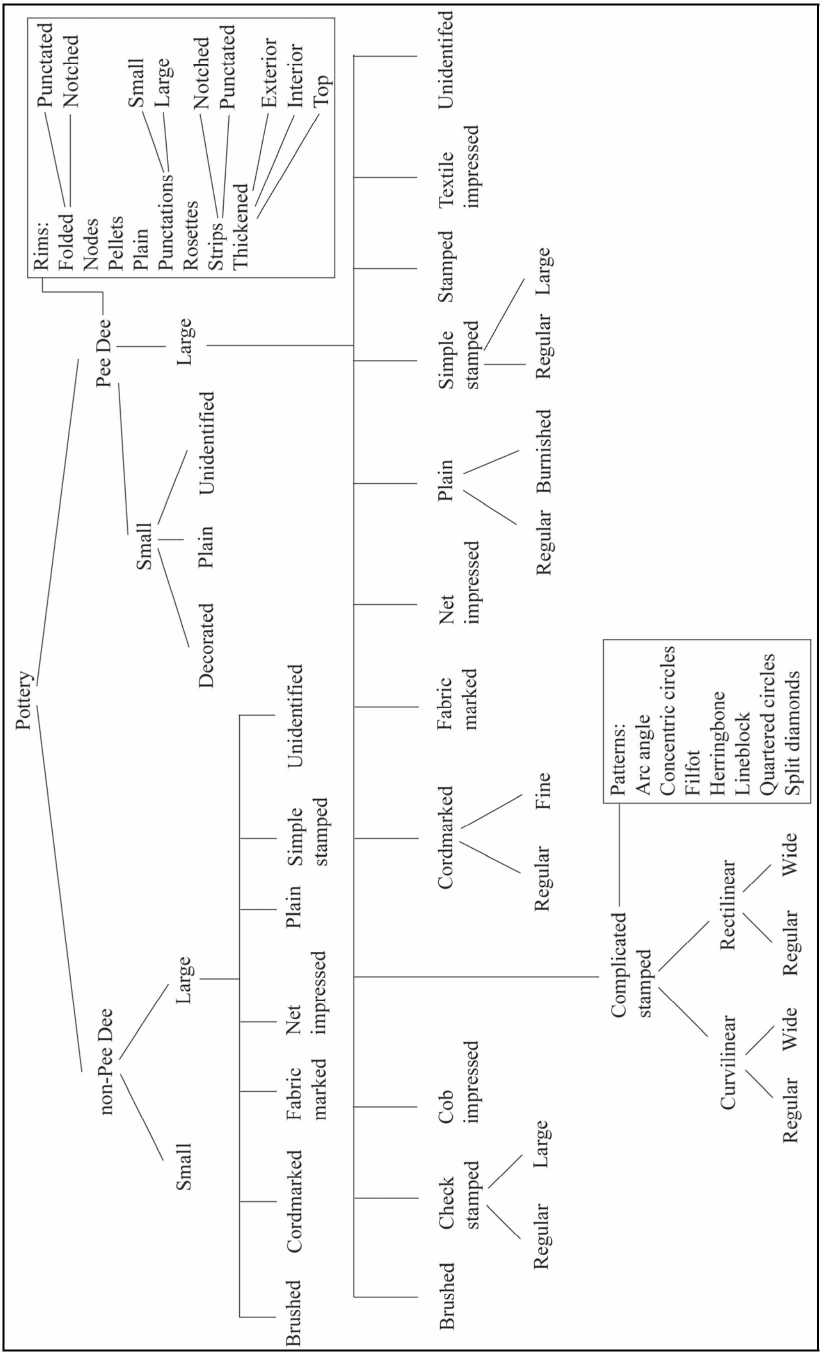

Figure 4. Pottery typology for ceramics from the Town Creek area.

The fourth step was to identify subtypes or what are essentially varieties, although they have not been formally defined as such using type-variety nomenclature (see Phillips 1970:24). These included fine, large, or wide examples of some surface treatments, as well as re-occurring complicated-stamped patterns. Finally, Pee Dee pottery was also classified based on modes—consistently co-occurring attributes whose distributions cross-cut those of the types defined by surface treatment (see Phillips 1970:28). The modes used in this analysis were all based on either the presence or absence of modifications to the upper portion of vessels, primarily to vessel rims but also to shoulders and necks.

Seriation

A ceramic sequence was constructed by ordering assemblages through the use of multiple seriation methods. Seriation can be defined as a technique used to arrange units into a sequence such that, starting from any specific unit, the other units most similar to it are closest to it in the sequence, and similarity decreases with distance in the sequence (Cowgill 1972:381; Marquardt 1982:408; Shennan 1988:341). One advantage of seriation methods is that they allow the integration of contexts from separate areas of excavation into a single chronological sequence, not just those that can be related through stratigraphy (see Drennan 1976). This allowed the incorporation of assemblages from across the Town Creek site, as well as some from nearby Pee Dee sites, to establish as complete of a sequence as possible.

Assemblages Seriated

The Pee Dee ceramic sequence presented here is based on seriations of 11 assemblages from four sites and several types of contexts (Tables 1, 2, and 3). Only assemblages that contained 50 or more sherds that were 4 cm or longer were included. Not only is 50 sherds a threshold others have recognized as being minimally acceptable (Ford 1962:41), but experience showed that problems arose when smaller assemblages were used. Eight assemblages came from Town Creek—six from large pit and basin features scattered across the site and two from midden layers in the mound (Figure 5). The two mound layers are Level A, a premound midden, and Level X, a flank midden (see Smith and Williams 1994) located near the southwest corner of the mound that was presumably associated with mound-summit activities (Reid 1985:25–26).

Table 1. Surface treatment counts in seriated assemblages.

Context	Brushed	Small Check Stamped	Large Check Stamped	Cob Impressed	Curv. Comp. Stamped	Wide Curv. Comp. St.	Rect. Comp. Stamped	Wide Rect. Comp. St.	Cordmarked	Fine Cordmarked	Fabric Marked	Net Impressed	Plain	Burnished Plain	Simple Stamped	Wide Simple St.	Stamped	Textile Impressed	Unidentified	Total
Town Creek																				
Feature 13	-	-	1	-	24	20	7	16	-	-	-	3	38	13	-	8	31	5	19	185
Feature 16	-	-	-	-	36	-	4	-	1	-	-	-	13	3	-	-	11	15	11	94
Feature 19	-	1	2	-	16	-	4	2	-	-	1	-	30	-	2	-	17	6	7	88
Feature 30	-	-	-	-	11	3	3	-	-	-	-	-	18	17	-	-	7	2	3	64
Level A	-	-	-	-	118	-	44	-	1	1	4	-	73	-	-	-	34	10	20	305
Level X	-	-	-	-	65	-	15	-	1	-	2	-	78	4	-	-	15	14	8	202
Sq. 160-170L40/Pit	1	1	3	-	8	7	6	3	2	-	-	-	18	6	1	1	18	-	6	81
Sq. 90L70/Pit 10	-	-	-	-	25	-	4	-	2	-	-	-	10	1	1	-	11	-	3	57
Other sites																				
Leak	-	-	-	-	21	-	17	-	-	-	-	-	23	2	-	-	9	4	2	78
Payne	-	8	-	-	27	-	8	-	6	-	8	4	35	-	13	-	9	12	14	144
Teal	-	1	-	1	109	-	45	-	90	36	1	-	69	8	8	-	46	3	23	440
Total	1	11	6	1	460	30	157	21	103	37	16	7	405	54	25	9	208	71	116	1738

Table 2. Rim modes from seriated assemblages.

Context	Non Pee Dee	Plain	Thickened Top	Small Punctated	Thickened Exterior	Rosettes	Pellets	Punctated Strip	Large Punctated	Folded and Fluted	Nodes	Notched Strip	Folded and Punct.	Total
160-170L40/Pit	1	24	-	1	1	1	1	1	1	-	-	3	4	38
Feature 13	5	102	-	-	-	3	3	5	1	-	4	3	10	136
Feature 30	-	13	-	-	-	-	3	4	-	1	1	-	-	22
Feature 19	-	15	-	-	-	-	1	3	1	-	-	-	-	20
Level X	1	50	-	2	-	1	4	-	-	-	-	-	-	58
Leak	-	29	-	-	-	3	1	-	-	-	-	-	-	33
Feature 16	-	15	-	-	-	2	-	-	-	-	-	-	-	17
Payne	6	152	1	5	1	-	-	-	-	-	-	-	-	165
Level A	5	129	2	1	-	-	-	-	-	-	-	-	-	137
90L70/Pit 10	-	19	-	-	-	-	-	-	-	-	-	-	-	19
Teal	3	138	4	1	-	-	-	-	-	-	-	-	-	146
Total	21	686	7	10	2	10	13	13	3	1	5	6	14	791

Table 3. Contexts of assemblages used in seriation.

Context	Description	Location
Town Creek		
Feature 13	Large basin	Adjoining portions of Sq. 20R0, Sq. 20R10, and 30R0/Mg3
Feature 16	Small basin	Sq. 20L30/Mg2
Feature 19	Large basin	Sq. -30R10/Mg3
Feature 30	Pit	Sq. -100R50/Mg3
Level A	Submound midden	Throughout BL and L10 units/Mg 2
Level X	Mound-flank midden	In southern BL and L10 units/Mg2
Sq. 160-170L40-Pit	Large pit	Adjoining portions of Sq. 160L40 and Sq. 170L40/Mg3
Sq. 90L70-Pit 10	Pit	Sq. 90L70/Mg3
Other Sites		
Leak	General excavation levels	Area excavated by Keel
Payne	General excavation levels	Area excavated by Mountjoy
Teal	General excavation levels	Area excavated by South

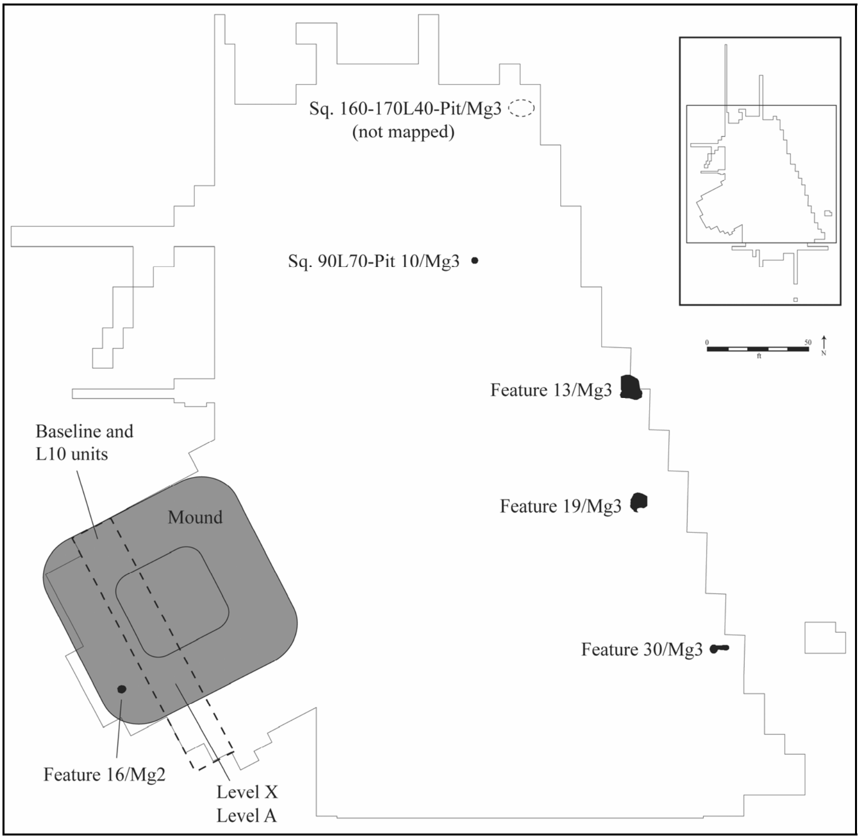

Figure 5. Location of seriated assemblages from Town Creek.

Not all of the sherds that came from Level A and Level X were analyzed because of the large samples involved. The portions of these levels used consist of sherds from a 20×100-ft block of excavation units that crosscut the mound along the baseline and L10 line (see Figure 5).

Materials from the Leak site (31Rh1) in Richmond County, the Teal site (31An1) in Anson County, and the Payne site (31Mr15) in Moore County (see Figure 1) were also included as a way to incorporate assemblages from periods that may have been absent or poorly represented at Town Creek. A Mississippian occupation, as indicated by Pee Dee pottery, is the predominant component represented at each site. The Leak and Teal sites are located along the Pee Dee River within 10 miles of Town Creek. The Payne site is located on the Deep River about 30 miles from Town Creek. The Leak site pottery came from two test units that Bennie Keel excavated in 1961 (see Oliver 1992:87–92). The Teal site pottery came from two test units excavated by Stanley South in 1958 (see Oliver 1992:176–181). Both of these excavations were conducted under the auspices of the RLA, where the collections are still curated. The Payne site materials came from excavations conducted by Joseph Mountjoy (1989) of UNC-Greensboro, who graciously allowed me to use the notes and collections from his fieldwork. Because no single excavated context from Leak, Teal, or Payne had more than 50 sherds of sufficient size, all of the excavated contexts were collapsed into a single assemblage for each site. This was justifiable because surface treatments and rim modes indicate that these three assemblages each represent relatively short occupations.

The assemblages selected for seriation represent an attempt to establish as complete a ceramic sequence as possible while avoiding the misleading results of temporally mixed assemblages and small sample sizes. While one should ideally compare assemblages from similar types of contexts to insure that formation processes unrelated to chronology are not responsible for the variation among them, different kinds of contexts were included—as long as they contained the minimum of 50 sherds—if they allowed the construction of a more useful ceramic sequence. For example, using both pits and midden layers from Town Creek allowed mound contexts to be related to nonmound contexts at the site. Also, the collections from Teal provided a robust example of a component poorly represented at Town Creek. An attempt was made to minimize the effect of temporally mixed assemblages for Town Creek by using large pits which presumably were filled rapidly after their use (see Dickens 1985:42–43; Hayden and Cannon 1983:144) and by using field drawings to isolate collections from the mound that came only from one layer. The same standards could not be maintained for Leak, Teal, and Payne, where all excavated contexts were collapsed into single assemblages. While the final set of assemblages used in the seriations is less than ideal, it results in an order that is consistent across multiple seriation methods and is independently corroborated by stratigraphic relationships, radiocarbon dates, and ceramic chronologies from other regions.

Nonmetric Multidimensional Scaling

Nonmetric multidimensional scaling (MDS) is a quantitative method that has been used for decades to seriate archaeological materials (Cowgill 1972:396) and was one of the methods used to seriate the Pee Dee assemblages. MDS techniques fashion a geometric representation of a matrix of similarities or dissimilarities, which consisted of percentages of pottery types in this case, such that relative distances between points in the geometric representation reflect relative differences between units in the dissimilarity matrix (Marquardt 1982:428). Widely spaced points in the graph produced during this process indicate relatively large differences between consecutive units while clusters of points indicate groups of similar units (Cowgill 1972:398). MDS is nonmetric because it works not on the actual numerical values of the distances between the cases, but rather on their rank ordering (Shennan 1988:348). The MDS method tries to preserve the rank ordering of the distances between points as the dimensions are reduced through an iterative procedure (Shennan 1988:348). Stress is a measure of the success with which the ordering is maintained as the number of dimensions is reduced (Shennan 1988:348–349).

If a body of archaeological data is capable of being seriated well, it can be represented with little stress in only one or two dimensions (Marquardt 1982:429). If there is a strong temporal component in the relative frequencies of the ceramic types, MDS will generally produce a two-dimensional plot in which the collections are arranged in a chronological order along an arc (DeBoer et al. 1996:266; Kendall 1971:223). MDS will not produce a chronological ordering if the data are insufficient (Drennan 1976:292). If the units do not fit into two dimensions with a low stress or if they do but the configuration is not elongated and linear, then there is more than one major factor underlying variation among the entities and it is not sensible to attempt a seriation (Cowgill 1972:397; Kendall 1971:223).

The first step toward producing a MDS plot of the Pee Dee assemblages was the construction of an abundance matrix with rows that represent pottery types and columns that represent assemblages. The subset of types used (Tables 4 and 5) included those that appeared to be most chronologically sensitive, based partially on ceramic chronologies from adjacent regions but, more importantly, on a preliminary analysis of pottery from the stratified layers of the mound and from much trial and error in seriating different assemblages based on various combinations of types and modes. Following DeBoer et al. (1996:26), to imply that the ceramic sequence for Town Creek was wholly “discovered” would be misleading.

Surface treatments represented by fewer than five sherds were excluded because earlier seriations showed them to contribute more confusion than resolution. The individual types of curvilinear and rectilinear complicated stamped as well as wide curvilinear and wide

Table 4. Counts of select surface treatments used for multidimensional scaling.

Context	Large Check Stamped	Complicated Stamped	Wide Complicated Stamped	Cord marked	Fine Cord marked	Plain	Burnished Plain	Wide Simple Stamped	Textile Impressed	Total
160-170L40/Pit	3	14	10	2	-	18	6	1	-	54
Feature 13	1	31	36	-	-	38	13	8	5	132
Feature 30	-	14	3	-	-	18	17	-	2	54
Feature 19	2	20	2	-	-	30	-	-	6	60
Level X	-	80	-	1	-	78	4	-	14	177
Leak	-	38	-	-	-	23	2	-	4	67
Feature 16	-	40	-	1	-	13	3	-	15	72
Payne	-	35	-	6	-	35	-	-	12	88
Level A	-	162	-	-	2	73	-	-	10	247
90L70/Pit 10	-	29	-	2	-	10	1	-	-	42
Teal	-	154	-	90	36	69	8	-	3	360
Total	6	617	51	102	38	405	54	9	71	1353

Table 5. Percentages used for multidimensional scaling.

Context	Large Check Stamped	Complicated Stamped	Wide Complicated Stamped	Cord marked	Fine Cord marked	Plain	Burnished Plain	Wide Simple Stamped	Textile Impressed
160-170L40/Pit	5.6	25.9	18.5	3.7	-	33.3	11.1	1.9	-
Feature 13	0.8	23.5	27.3	-	-	28.8	9.8	6.1	3.8
Feature 30	-	25.9	5.6	-	-	33.3	31.5	-	3.7
Feature 19	3.3	33.3	3.3	-	-	50.0	-	-	10.0
Level X	-	45.2	-	0.6	-	44.1	2.3	-	7.9
Leak	-	56.7	-	-	-	34.3	3.0	-	6.0
Feature 16	-	55.6	-	1.4	-	18.1	4.2	-	20.8
Payne	-	39.8	-	6.8	-	39.8	-	-	13.6
Level A	-	65.6	-	-	0.8	29.6	-	-	4.0
90L70/Pit 10	-	69.0	-	4.8	-	23.8	2.4	-	-
Teal	-	42.8	-	25.0	10.0	19.2	2.2	-	0.8

rectilinear complicated stamped were collapsed into complicated stamped and wide complicated stamped categories, respectively, because pilot seriations showed these more inclusive categories produced more elegant solutions. The percentages used in the abundance matrix are based on counts divided by the total number of sherds per context as used in the seriation—not the total number of sherds per context as excavated. Once again, this was a decision based on the clarity of the plots produced by the different data sets. The city-block metric, which measures differences among cases by summing the absolute differences between each of their variables, was used to construct a dissimilarity matrix of coefficients that express the relationships between cases (Shennan 1988:225). This dissimilarity matrix was then used to produce a MDS plot.

A MDS plot based on the data from the Town Creek, Teal, Leak, and Payne sites is presented in Figure 6. The distribution of points in this plot is curvilinear, a common pattern in MDS plots (DeBoer et al. 1996:266; Drennan 1976:293; Kendall 1971:227). Based on information discussed later, it is likely that the assemblage from the Teal site is oldest and the Feature 13 assemblage is most recent. This configuration has a low stress at 0.07. The distribution in the MDS plot can be characterized as consisting of two clusters and two isolated points. From the earliest to the most recent, these are: the Teal site; a cluster consisting of Sq. 90L70-Pit 10, Level A, Feature 16, Leak, Level X, and Payne; the isolated point of Feature 19; and a cluster consisting of Feature 30, Sq. 170L140/Pit, and Feature 13.

Incidence Seriation

The assemblages were also seriated based on an incidence matrix (see Marquardt 1982:409) which indicated the presence or absence of certain rim modes. These assemblages were ordered by hand based on the Concentration Principle which states that arrangements which reduce the ranges of varieties are to be preferred to those which do not (Kendall in Doran and Hodson 1975:276). The best seriation is one that most closely brings the X’s together in one group in each column (Cowgill 1972:389; Marquardt 1982:410). The incidence seriation of rim modes (Table 6) produced an order that was very similar to that of the MDS plot. The incidence seriation placed Teal at one end and Feature 13 and Sq. 170L40/Pit at the other. Sq. 90L70-Pit 10 was not included in the rim mode seriation because it only contained plain rims. The assemblages also were ordered in another incidence seriation that

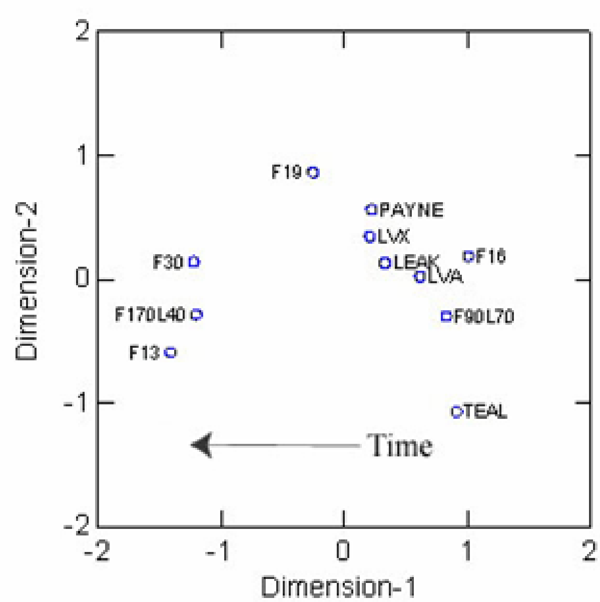

Figure 6. Multidimensional scaling plot of Pee Dee assemblages.

Table 6. Incidence seriation based on rim modes.

Context	Top Thickened	Small Punctations	Rosettes	Pellets	Punctated Strips	Nodes	Folded-and-Punctated	Notched Strips	Large Punctations	Folded
Feature 13			X	X	X	X		X	X	X
160-170L40/Pit		X	X	X	X		X	X	X	X
Feature 30			X	X	X	X	X			
Feature 19		X		X	X					
Level X		X	X	X						
Leak			X	X						
Feature 16			X							
Payne	X	X								
Level A	X	X								
Teal	X	X								

Table 7. Incidence seriation based on select surface treatments and rim modes.

Context	Fine Cordmarked	Top Thickened Rims	Fabric Marked	Rosettes	Pellets	Large Check Stamped	Punctated Strips	Wide Complicated St.	Nodes	Large Simple St.	Folded Rims	Large Punctations	Notched Strips
160-170L40/Pit				X	X	X	X	X		X	X	X	X
Feature 13				X	X	X	X	X	X	X	X	X	X
Feature 30				X	X		X	X	X				
Feature 19			X		X	X	X	X					
Level X			X	X	X								
Leak				X	X								
Feature 16				X									
Payne		X	X										
Level A	X	X	X										
Teal	X	X	X										

included rim modes in addition to select minority surface treatments. Sq. 90L70-Pit 10 was not included because it did not contain any of the types or modes on which this seriation is based. The order produced by this seriation is consistent with the other two (Table 7). It places Teal at one end, opposite Sq. 170L40/Pit and with the remaining assemblages between them.

Comparing the Seriations

In this section, the sequence produced by MDS is compared to that produced by the two incidence seriations in order to abstract as a chronology the order that is common to them (see Dunnell 1970:316). Emphasis will not be placed on the position of individual assemblages, but rather on general trends that will allow the definition of a sequence of ceramic change (see Steponaitis 1983:88). Rather than talk about the position of individual assemblages, it will be more productive to divide the sequence of each seriation into segments and talk about these segments as the aggregate of their constituent assemblages.

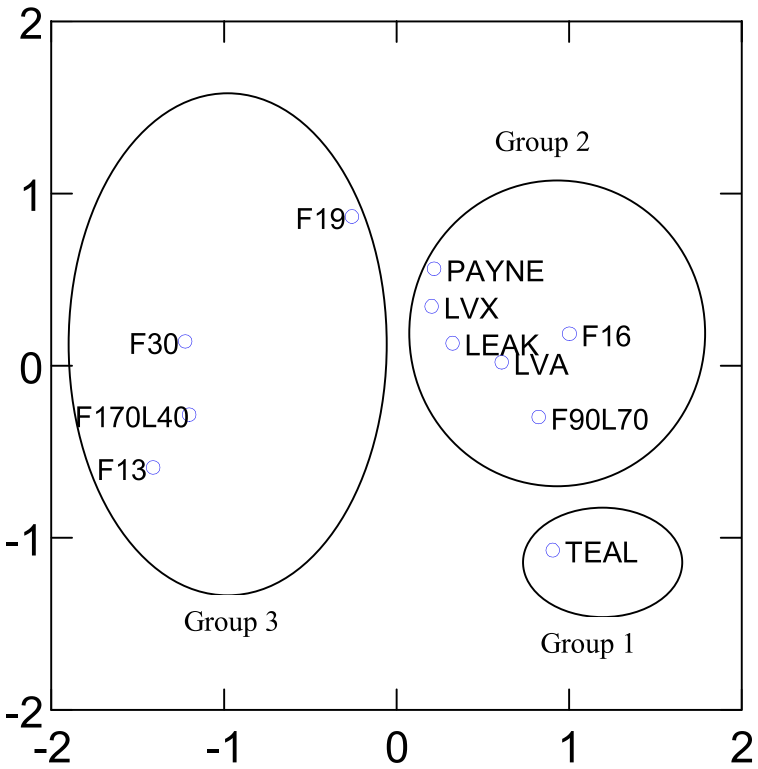

Figure 7. Multidimensional scaling plot of Pee Dee assemblages showing ceramic groups.

All three seriations are in agreement in placing Teal at one end and Feature 13 and Sq. 170L40/Pit at the other. It is the order and grouping of the intervening assemblages that needs to be reconciled. In this section, arguments are made for grouping assemblages (Figure 7) based on information from all of the seriations.

Group 1. This group consists of the Teal assemblage which was placed at one end of the order in each of the seriations. The separation of Teal from all other assemblages in the MDS plot—based on its relatively high percentages of cordmarking and fine cordmarking (Figure 8)—indicates it should be in its own group.

Group 2. The bulk of the assemblages in the seriation are included in this group. It incorporates the large cluster and one isolated point

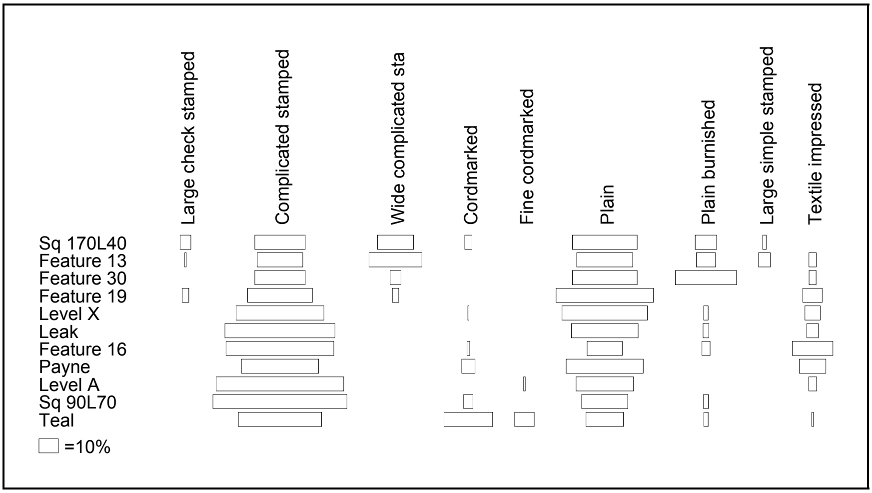

Figure 8. Ford seriation graph based on the percentages used for multidimensional scaling.

from the MDS plot. This group can be divided into two subgroups based primarily on the incidence seriation. *Group 2a* consists of the assemblages from Sq. 90L70-Pit 10, Level A, Feature 16, and the Payne site. These assemblages are placed together in this group because they do not contain the variety of rim appliqués seen in other assemblages. Also, with the exception of the Payne site, similarities among the assemblages are indicated in the MDS plot by the fact that they are located near each other on the right side of the large cluster of points constituting Group 2. *Group 2b* contains assemblages from the Leak site and Level X from the mound at Town Creek. These two assemblages are located close to each other on the MDS plot. Their assemblages of rim appendages include both rosettes and pellets, but punctated strips are absent.

Group 3. This group consists of the assemblages from Feature 19, Feature 30, Sq. 170L40/Pit, and Feature 13. All three seriations agree in placing these assemblages in the second half of the distribution. This group was subdivided based on the incidence seriations. *Group 3a*, which contains the assemblages from Feature 19 and Feature 30, is marked in the incidence seriations by the appearance of punctated strips, wide complicated stamping, and large check stamping, but also by the absence of large simple stamping, notched strips, large punctations, and folded rims. *Group 3b* consists of the assemblages from Sq. 170L40/Pit and Feature 13. These two are distinguished based on the presence of notched strips, large punctations, folded rims, and large simple stamping.

Corroborating the Sequence

In this section, the proposed ceramic sequence based on the three seriations is assessed and corroborated in several ways which indicate that there is chronological significance to the ordering produced by the seriations. Group 1 appears to be the oldest, subgroups 2a and 2b come next, and subgroups 3a and 3b are the most recent.

Stratigraphic Relationships. The stratigraphic relationships among contexts are consistent with the ordering produced by the seriations. Level A (Group 2a) is a premound midden at Town Creek located stratigraphically below Level X (Group 2b) which is a mound-flank midden. Additionally, Feature 16, also of Group 2a, is a pit superimposed by a palisade line that runs beneath the mound, placing it stratigraphically below Level X as well.

Radiocarbon Dates. Radiocarbon dates from three seriated contexts at Town Creek are consistent with the sequence of assemblages. Level A and Sq. 170L40/Pit were dated directly. While Level X was not directly dated, it probably represents trash from mound-summit activities and several samples from mound-summit buildings were dated. The seriations put these contexts in the order of Level A being the oldest, then Level X, and finally Sq. 170L40/Pit. The uncorrected radiocarbon dates of A.D. 1205 $\pm$ 140 for Level A; A.D. 1350 $\pm$ 50, 1280 $\pm$ 40 and 1350 $\pm$ 140 for the mound summit (Reid 1967:62); and A.D. 1650 $\pm$ 60 for Sq. 170L40/Pit (Boudreaux 2005:72) are consistent with the seriations. While a number of radiocarbon dates were obtained by Oliver (1992) from the Leak and Teal sites, they span a large amount of time and are not useful in assessing the seriation presented here.

Pottery from Stratified Deposits. Stratified deposits from the mound and a thick midden along the Little River at Town Creek can also be used to assess the sequence produced by the seriations. An examination of the percentages of types in the assemblages seriated indicates complicated stamped pottery decreased in popularity over time (Figure 8). Complementary to this is an increase in plain wares through time. The riverbank midden shows a decrease in plainwares from bottom to top (Table 8). These deposits also show, in a gross sense, the changes

Table 8. Surface treatment counts and percentages from select riverbank-midden units.

Excavation Levels	Non-Pee Dee	Check Stamped	Cob Impressed	Curv. Comp. Stamped	Rect. Comp. St.	Cordmarked	Fabric Marked	Net Impressed	Plain	Burnished Plain	Simple Stamped	Stamped	Textile Impressed	Unidentified	Total
Counts															
Levels 1-4	1	-	-	61	23	-	1	-	88	12	5	36	33	9	269
Levels 6-10	28	-	1	154	42	-	-	-	78	23	20	38	25	19	428
Percentages															
Levels 1-4	0.4	-	-	22.7	8.6	-	0.4	-	32.7	4.5	1.9	13.4	12.3	3.3	
Levels 6-10	6.5	-	0.2	36.0	9.8	-	-	-	18.2	5.4	4.7	8.9	5.8	4.4	

Note: Counts are based on the riverbank units where excavation levels could be correlated with depositional layers based on field drawings. These units are all of those in the -95R line and Sq. -90R105.

Table 9. Pee Dee rim treatment counts and percentages from select riverbank-midden units.

Excavation Levels	Plain	Small Punctated	Nodes	Pellets	Rosettes	Notched Strip	Punctated Strip	Total
Counts								
Levels 1-4	42	3	1	1	3	2	2	54
Levels 6-10	62	-	-	-	2	-	-	64
Percentages								
Levels 1-4	77.8	-	-	1.9	5.6	-	3.7	
Levels 6-10	96.9	-	-	-	3.1	-	-	

Note: Counts are based on the riverbank units where excavation levels could be correlated with depositional layers based on field drawings. These units are all of those in the -95R line and Sq. -90R105.

in rim modes seen in the incidence seriations (Table 9). The rims in the lower levels of the riverbank midden are mostly plain, but with a few rosettes, while rim modes from the upper levels include plain, rosettes, and punctated as well as notched strips. In the mound, Reid (1967:57) found that plainwares increased in popularity through time. He also

Table 10. Rim modes in the baseline and L10 units from the mound.

Context	Plain	Top Thickened	Small Punctated	Rosettes	Pellets	Lugs	Nodes	Punctated Strip	Notched Strip	Total
Disturbed yellow layer	81	-	2	-	-	-	-	3	1	87
Undisturbed yellow layer	30	-	3	-	4	-	-	-	-	37
Mound topsoil	139	-	7	1	2	1	-	3	1	154
Townhouse I	32	-	-	-	-	-	1	-	-	33
Level X	50	-	2	1	4	-	-	-	-	57
Moundfill	14	-	-	-	-	-	-	-	-	14
Premound embankment	3	-	-	-	-	-	-	-	-	3
Level A	126	1	1	-	-	-	-	-	-	128
Total	475	1	15	2	10	1	1	6	2	513

Note : Contexts are in stratigraphic order with the submound Level A at the bottom and the "Disturbed yellow layer" at the top.

found only plain rims in the premound levels with rosettes and rim strips appearing in later levels (Reid 1967:58–59). Analysis of pottery from two rows of excavation squares that crosscut the mound and sampled most of its stratigraphy, also showed that premound deposits contained only plain rims, the lower parts of the mound had rims with nodes and pellets, and the upper parts of the mound had rims with punctated strips and notched strips (Table 10).

Regional Comparisons. The Town Creek ceramic sequence is consistent with those defined for early and late occupations at the Mulberry site on the Wateree River in South Carolina (Caldwell 1974; Stuart 1975). Temporal changes in surface treatments at Mulberry included an increase in plainwares (Caldwell 1974:95; Stuart 1975:105). Rim mode patterns include the presence of small punctations, rosettes, and riveted nodes earlier and notched strips later (Caldwell 1974:95). Similar trends in Irene pottery from the Georgia and South Carolina coast are also evident. There is an increase in the width of ridges and grooves of complicated stamped patterns later in the sequence (DePratter 1991:190). An increase in the incidence of elaborated rim treatments is noted at the Irene site (Caldwell and McCann 1941:42). The sequence of change is from punctated nodes to punctated or notched rim strips, followed by folded rims (Braley 1990:103). Irene pottery shows plain rims, nodes, rosettes, and plain strips earlier in the sequence, followed by notched strips later (Pearson 1984:22; Saunders 2000:42). Rim strips are replaced later in the sequence by hollow punctations on plain or folded rims (Cook 1986:5).

Groups as Ceramic Phases

Oliver (1992) proposed a sequence of phases for the Mississippi period in the vicinity of Town Creek based on his excavations at the Leak and Teal sites. These Mississippian phases are Teal (A.D. 950–1200), Town Creek (A.D. 1200–1400), and Leak (A.D. 1400–1600), which largely correspond to ceramic groups 1, 2, and 3, respectively. In this section, the assemblages that constitute each ceramic group are combined to define a model ceramic assemblage for each phase (Tables 11, 12, and 13). These model assemblages are related to Oliver's sequence and the phases he defined are modified. Once defined, the ceramic content associated with each phase is related to other South Appalachian Mississippian phases.

The revised temporal spans presented here for the Town Creek area phases differ from those in Oliver's (1992) original definitions (Table 14). The new time periods are based on 15 radiocarbon dates (Table 15) from the Leak, Payne, Teal, and Town Creek sites (Boudreaux 2005; Eastman 1994; Mountjoy 1989; Oliver 1992; Reid 1967). The periods are approximations of the areas where the ranges of the dates associated with assemblages from each phase overlap (Figures 9 and 10).

Teal Phase (A.D. 900–1050; cal A.D. 1000–1150)[3]

While complicated stamping is the most common surface treatment, the Teal phase is distinctive because cordmarking (cordmarked and fine cordmarked) is its second most common surface treatment (Figure 11). In contrast, cordmarking constitutes only about one percent of the assemblage in subsequent phases. Cob impressed appears as a minority surface treatment in this phase, but is absent later. This phase also has the lowest percentage of plain pottery in the sequence. Wide surface treatments (e.g., large check stamped, large simple stamped, and wide complicated stamped) are absent. Rims are mostly plain, but top-thickened rim modes occur on fine cordmarked sherds. Complicated

Table 11. Surface treatments by phase.

Phase	Brushed	Small Check St.	Large Check St.	Cob Impressed	Curv. Comp. St.	Wide Curv. Comp. St.	Rect. Comp. St.	Wide Rect. Comp. St.	Cordmarked	Fine Cordmarked	Fabric Marked	Net Impressed	Plain	Burnished Plain	Simple Stamped	Wide Simple St.	Stamped
Counts																	
Leak (all)	1	2	6	-	59	30	20	21	2	-	1	3	104	36	3	9	73
Late	1	1	4	-	32	27	13	19	2	-	-	3	56	19	1	9	49
Early	-	1	2	-	27	3	7	2	-	-	1	-	48	17	2	-	24
Town Creek (all)	-	8	-	-	292	-	92	-	11	1	14	4	232	10	14	-	89
Late	-	-	-	-	86	-	32	-	1	-	2	-	101	6	-	-	24
Early	-	8	-	-	206	-	60	-	10	1	12	4	131	4	14	-	65
Teal	-	1	-	1	109	-	45	-	90	36	1	-	69	8	8	-	46
Percentages																	
Leak (all)	0.2	0.5	1.4	-	14.1	7.2	4.8	5.0	0.5	-	0.2	0.7	24.9	8.6	0.7	2.2	17.5
Late	0.4	0.4	1.5	-	12.0	-	4.9	7.1	0.8	-	-	1.1	21.1	7.1	0.4	3.4	18.4
Early	-	0.7	1.3	-	17.8	2.0	4.6	1.3	-	-	0.7	-	31.6	11.2	1.3	-	15.8
Town Creek (all)	-	0.9	-	-	33.2	-	10.5	-	1.3	0.1	1.6	0.5	26.4	1.1	1.6	-	10.1
Late	-	-	-	-	30.7	-	11.4	-	0.4	-	0.7	-	36.1	2.1	-	-	8.6
Early	-	1.3	-	-	34.3	-	10.0	-	1.7	0.2	2.0	0.7	21.8	0.7	2.3	-	10.8
Teal	-	0.2	-	0.2	24.8	-	10.2	-	20.5	8.2	0.2	-	15.7	1.8	1.8	-	10.5

Table 12. Rim modes by phase.

Phase	Plain	Top Thickened	Small Punctated	Rosettes	Ext. Thickened	Pellets	Punctated Strip	Notched Strip	Large Punctated	Folded and Punct.	Folded and Notched	Nodes	Totals
Leak (all)	154	-	1	4	1	8	13	6	3	14	1	5	210
Late	126	-	1	4	1	4	6	6	2	14	-	4	168
Early	28	-	-	-	-	4	7	-	1	-	1	1	42
Town Creek (all)	394	3	8	6	1	5	-	-	-	-	-	-	429
Late	79	-	2	4	-	5	-	-	-	-	-	-	91
Early	315	3	6	2	1	-	-	-	-	-	-	-	338
Teal	138	4	1	-	-	-	-	-	-	-	-	-	146

Table 13. Complicated stamped patterns by phase.

Phase	Arc Angle	Two Bar Diamond	Herringbone	Concentric Circles	Filfot	Quartered Circles	Line Block	Total
Leak (all)	-	-	-	4	7	-	1	12
Late	-	-	-	3	2	-	1	6
Early	-	-	-	1	5	-	-	6
Town Creek (all)	7	16	18	25	28	7	2	103
Late	1	7	8	8	13	1	1	39
Early	6	9	10	17	15	6	1	64
Teal	3	1	5	6	3	-	-	18
Total	17	33	41	64	73	14	6	248

Table 14. Calibrated and uncalibrated dates (A.D.) for phases.

Phase	Calibrated	Uncalibrated	Oliver's (1995) Original Dates
Leak	1300-1500	1300-1550	1400-1600
Late	1400-1550	1450-1550	
Early	1300-1400	1300-1450	
Town Creek	1150-1300	1050-1300	1200-1400
Late	1250-1300	1250-1300	
Early	1150-1250	1050-1250	
Teal	1000-1150	900-1050	950-1200

stamped patterns include arc angle, concentric circles, filfot, herringbone, and split diamond.

Dating. Oliver (1992:Figure 40) obtained 16 radiocarbon dates from the Teal site, but they are of limited utility for dating the Teal phase because their intercepts range from the tenth through sixteenth centuries. It is unclear as to why this might be the case. The Teal site sherds from Stanley South's excavations that were used in the analysis presented here contained only top-thickened and plain rims, suggesting that other Pee Dee components are not represented. It is possible that Oliver (1992) excavated a portion of the site in which multiple components were present, although this cannot be assessed from the ceramic data he presents. Three of the radiocarbon dates obtained by Oliver (1992) were used in this paper because they came from features that contained types (e.g., fine cordmarked) and rim modes (e.g., top thickened) that suggest a Teal phase component (Oliver 1992:199–210). The dates from these three features are A.D. 950 ± 50 (cal. A.D. 987–1150), A.D. 1000 ± 50, and A.D. 1000 ± 50 (cal. A.D. 1025–1154) (Oliver 1992:209).

Regional Comparisons. Several Teal phase diagnostics appear in assemblages at other sites across the region. The Savannah II phase (A.D. 1100–1200) in the lower Savannah River sequence contains Savannah Fine Cordmarked pottery, and contemporaneous piedmont sites contain cob impressing (Rudolph and Hally 1985:459–460). Simple stamping with stamped lips, probably the same as Teal phase fine cordmarked, is common during the Santee II phase (which ends around A.D. 1200) along the Lower Santee River (Anderson 1990:59). The split

Table 15. Mississippi period radiocarbon dates from the Town Creek, Leak, Payne, and Teal sites.

Sample Code	Site	Context	Age (BP)	Standard Deviation	Uncalibrated Intercept	Uncalibrated 1-Sigma	Calibrated 1-Sigma[a]	Phase Association	References
Beta-184061	Town Creek	Sq. 170L40/Pit	300	60	1650	1590-1710	1496-1651	Late Leak	Boudreaux 2005:72
Uga-5645	Leak	Fea. 1	525	65	1425	1360-1490	1319-1443	Early Leak	Oliver 1992:209[b]
FSU-185/FSU-175	Town Creek	Townhouse I	595	50	1355	1305-1405	1305-1405	Early Leak	Reid 1967:62[b]
Uga-5644	Leak	Fea. 1	485	175	1465	1290-1640	1297-1632	Early Leak	Oliver 1992:209[b]
FSU-186/FSU-176	Town Creek	Townhouse II	670	40	1280	1240-1320	1279-1386	Early Leak	Reid 1967:62[b]
FSU-145/FSU-154	Town Creek	Townhouse II	600	140	1350	1210-1490	1262-1448	Early Leak	Reid 1967:62[b]
Uga-6050	Leak	Fea. 4	680	50	1270	1220-1320	1274-1387	Late Town Creek	Oliver 1992:209[b]
Beta-201468	Town Creek	St. 4a	820	40	1130	1090-1170	1187-1261	Early Town Creek	Boudreaux 2005:157
Beta-18411	Payne	Fea.	820	70	1130	1060-1200	1158-1274	Early Town Creek	Mountjoy 1989:15[b]
FSU-184/FSU-174	Town Creek	Lev. A	745	140	1205	1065-1345	1155-1397	Early Town Creek	Reid 1967:62[b]
Beta-18412	Payne	Fea.	860	70	1090	1020-1160	1051-1255	Early Town Creek	Mountjoy 1989:15[b]
Beta-18410	Payne	Fea.	910	60	1040	980-1100	1040-1173	Early Town Creek	Mountjoy 1989:15[b]
Beta-201469	Town Creek	St. 5a	940	40	1010	970-1050	1030-1160	Teal/E. Town Creek	Boudreaux 2005:157
Uga-6047	Teal	Fea. 47	950	50	1000	950-1050	1025-1154	Teal	Oliver 1992:209[b]
Uga-6048	Teal	Fea. 49	950	50	1000	950-1050	1025-1154	Teal	Oliver 1992:209[b]
Uga-6046	Teal	Fea. 46	1000	55	950	895-1005	987-1150	Teal	Oliver 1992:209[b]

[a] See Stuiver et al. 2005. [b] Dates also discussed in Eastman 1994.

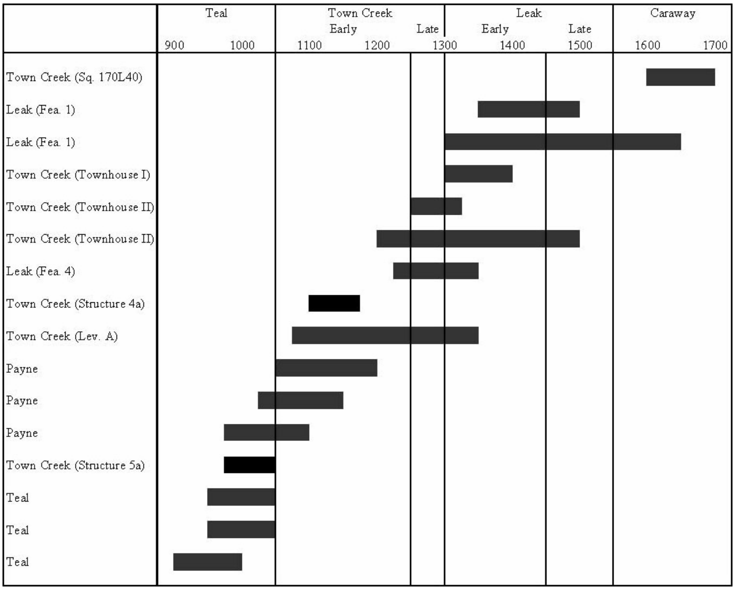

Figure 9. One-sigma range for uncalibrated Mississippi period radiocarbon dates.

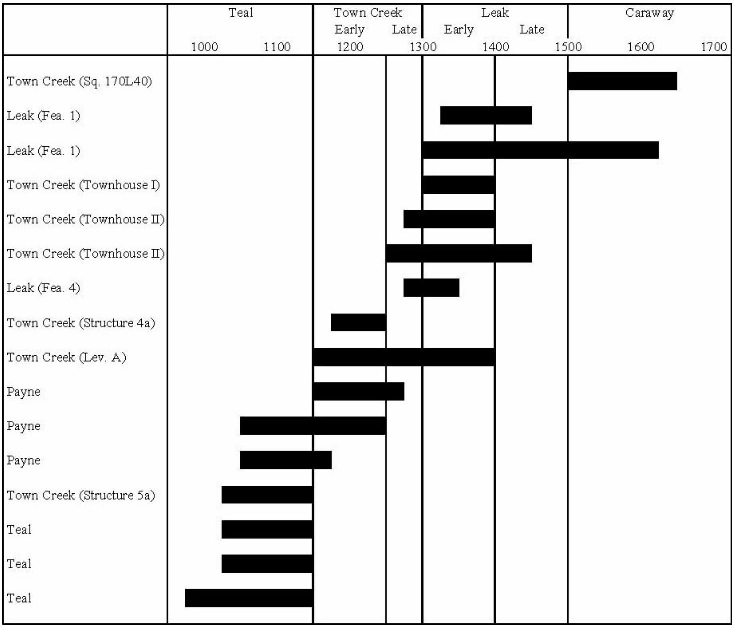

Figure 10. One-sigma range for calibrated (Stuiver et al. 2005) Mississippi period radiocarbon dates.

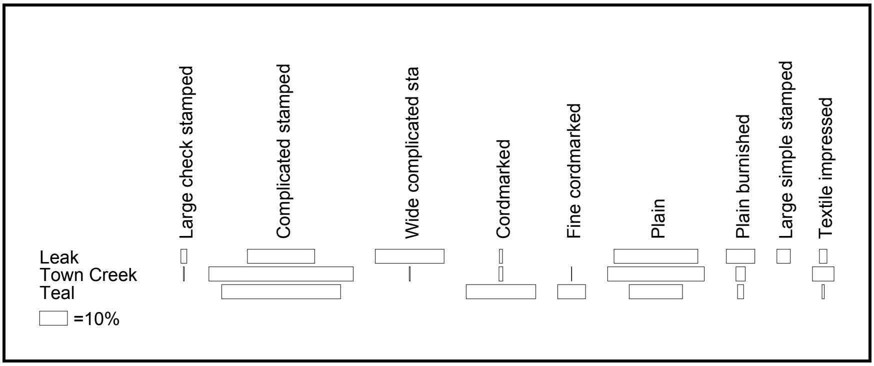

Figure 11. Ford seriation graph of select surface treatments (percentages) by phase.

diamond, filfot, and lineblock stamp patterns are all present in the Etowah III phase of northwest Georgia (Rudolph and Hally 1985:268) which dates to around A.D. 1100 (Hally and Rudolph 1986:Table 2).

Town Creek Phase (A.D. 1050–1300; cal A.D. 1150–1300)

During the Town Creek phase, complicated stamping dominates, textile impressing is at the height of its popularity, and wide surface treatments appear for the first time. The quartered circles and lineblock stamp patterns first appear, with the former apparently dating entirely to this phase because it is absent during the subsequent Leak phase. The Town Creek phase can be divided into an early and late segment—ceramic groups 2a and 2b, respectively—based primarily on the presence of different rim modes. The early Town Creek phase (A.D. 1050–1250, cal A.D. 1150–1250) contains primarily plain rims, but crude rosettes may be present in small amounts. The late Town Creek phase (A.D. 1250–1300, cal A.D. 1250–1300) is marked by the presence of pellets and rosettes as well as the disappearance of top-thickened rims and fine cordmarking.

Dating. In the 1960s, several radiocarbon dates were obtained from mound contexts at Town Creek. One sample that can be attributed to the early Town Creek phase came from Level A and produced a date of A.D. 1205 ± 140 (cal A.D. 1155–1397) (Reid 1967:62). Mountjoy (1989) obtained three radiocarbon dates from the Payne site that also are attributable to the early Town Creek phase. The Payne site dates come from a small, cob-filled pit (A.D. 1040 ± 60) (cal. A.D. 1040–1173), a larger pit (A.D. 1130 ± 70) (cal. A.D. 1158–1274), and a large pit possibly associated with a circular structure (A.D. 1090 ± 70) (cal. A.D. 1051–1255) (Mountjoy 1989:15).

One of the three radiocarbon dates obtained by Oliver from the Leak site may be associated with a late Town Creek phase context, although this is not certain. The Leak site materials excavated by Bennie Keel that were analyzed for this study seem to represent a late Town Creek phase component, but the presence of a punctated rim strip in surface collections and rim strips in materials reported from the site by Oliver (1992:Table 1) indicate that a subsequent Leak phase component may be represented as well. Oliver's (1992:209) three dates of A.D. 1270 ± 50 (cal. A.D. 1274–1387), 1425 ± 65 (cal. A.D. 1319–1443), and 1465 ± 175 (cal. A.D. 1297–1632) (Oliver 1992:209) presumably are related to these late Town Creek and early Leak-phase components, although this is unclear in the absence of Oliver's ceramic data. Assuming that this is the case, the earliest of the three dates from the Leak site has been attributed to the late Town Creek phase and the two later dates have been attributed to the Leak phase.

Regional Comparisons. The Town Creek phase as proposed here corresponds in ceramic content to the Belmont Neck and Adamson phases (A.D. 1200–1300) of the Wateree River Valley (DePratter and Judge 1986, 1990:56–57). Belmont Neck (A.D. 1200–1250) is similar to the early Town Creek phase because both are dominated by plain rims, but rims with small punctations are also present. Adamson (A.D. 1250–1300) seems to correspond to both the early and late parts of the Town Creek phase based on the predominance of plain rims and the presence of rosettes.

The Town Creek phase also shares some features with Savannah culture (A.D. 1200–1350) phases of the Georgia Piedmont (Hally and Rudolph 1986:51). Shared types include curvilinear and rectilinear complicated stamped, check stamped, cordmarked, plain, and burnished plain (Hally and Rudolph 1986:Table 7). Shared stamp patterns include concentric circles, filfot, herringbone, split diamond, and quartered circles (Hally and Rudolph 1986:62). Although the Town Creek phase and the Savannah culture phases generally exhibit the same types and stamp patterns, there is a great deal of variability among these phases regarding percentages of surface treatments (see Hally and Rudolph 1986:Table 7). The Town Creek phase resembles the Wilbanks phase (A.D. 1200–1350) of northwest Georgia based on the percentages of plainwares and curvilinear complicated stamped in their assemblages

(Hally and Langford 1988:Table 11). The Town Creek phase shares essentially the same pottery types with the Beaverdam (A.D. 1200–1300) (Anderson et al. 1986:38; Rudolph and Hally 1985:470) and Hollywood (A.D. 1250–1350) phases of the Savannah River sequence, although the former has a much higher percentage of plainwares (Hally and Rudolph 1986:Table 7) and the latter a much higher percentage of check stamping (Anderson et al. 1986:40). The upper Savannah River Hollywood phase (A.D. 1250–1350) includes punctations and riveted nodes (Anderson et al. 1986:40). A close resemblance between the Hollywood phase and the pottery at Town Creek has been noted (Anderson et al. 1986:41; Reid 1965).

Leak Phase (A.D. 1300–1550; cal A.D. 1300–1500)

Plainwares constitute a relatively high proportion of the Leak phase assemblage. Brushing appears for the first time as does large simple stamping. Net impressing is at its most popular as are large check stamping and wide complicated stamping. The early Leak phase is indicated by nodes, punctated strips, and thickened exterior rims as well as the disappearance of the split diamond stamp pattern. Net impressing and wide surface treatments appear for the first time in the early Leak phase. The late Leak phase is marked by the appearance of notched strips, folded rims, and large hollow punctations. The concentric circle, filfot, and lineblock stamp patterns persist while arc angle, herringbone, and quartered circles have dropped out. Based on the low frequency of incising at Town Creek[4], it is likely that the bulk of the Leak phase component at the site predates A.D. 1450 (see Hally 1994:145).

Dating. Three dates from Town Creek can be attributed to the Leak phase. These samples came from two superimposed mound summit structures. One sample from the lower structure gave a date of A.D. 1355 ± 50 (cal. A.D. 1305–1405) while two samples from the upper structure gave dates of 1280 ± 40 (cal. A.D. 1279–1386) and 1350 ± 140 (cal. A.D. 1262–1448) (Eastman 1994:10, 47–48; Reid 1967:62). As discussed previously, it is likely that two dates from the Leak site—A.D. 1425 ± 65 (cal. A.D. 1319–1443) and 1465 ± 175 (cal. A.D. 1297–1632) (Oliver 1992:209)—are also attributable to the Leak phase. A radiocarbon sample from the seriated late Leak phase feature, designated Sq. 170L40/Pit, produced a date of A.D. 1650 ± 60 (Boudreaux 2005:72). The one-sigma calibrated result is A.D. 1496 to 1651 and the two-sigma calibrated result is A.D. 1448 to 1675. While the upper end of the range of these calibrated dates seems too recent, the lower end—which indicates a late fifteenth- or sixteenth-century date for the late Leak phase—is plausible.

Regional Comparisons. The Wateree Valley Town Creek phase (A.D. 1300–1350) exhibits elements of the Leak phase in that both contain punctated and notched rim strips (DePratter and Judge 1986, 1990:56–57). The absence of incising in the Leak phase assemblage indicates it generally predates the appearance and profusion of Lamar Incised around A.D. 1450 (Hally 1994:145). The Leak phase is similar to numerous phases of the Early Lamar period (A.D. 1350–1450) in that it has punctated and notched rim strips but lacks incising (Hally 1994:147). The Leak phase may predate or overlap the early end of the Caraway phase (A.D. 1500–1700), which has been described as "the southern Piedmont's version of the widespread Lamar style" (Ward and Davis 1999:137). The Caraway phase is similar to the Leak phase as defined here in that plainwares and complicated stamping are most popular and that brushing and net impressing are minority surface treatments (Ward and Davis 1999:137).

The Leak phase also corresponds to the McDowell phase (A.D. 1350–1450) in the Wateree River Valley in that both have wider complicated stamping and notched rim strips (DePratter and Judge 1986, 1990:57). It is important to note that post-1450 assemblages in the Wateree Valley are characterized by an increase in the popularity of incising (DePratter and Judge 1986, 1990; Stuart 1974:107–108), a form of decoration that is poorly represented at Town Creek. The Leak phase resembles the Early Lamar Irene I and II phases (A.D. 1300–1450) of the Georgia-South Carolina coast based on the presence of similar surface treatments and rim strips, although the general lack of incising at Town Creek would place this assemblage at the earlier end of the Irene I and II date range (DePratter 1984:52). The Leak phase is also comparable to the Early Lamar Rembert (A.D. 1350–1450) phase of the Upper Savannah River sequence in the Georgia piedmont. Similarities include the popularity of complicated stamping, the increased popularity of specialized rims, the increasing popularity of plainwares, and the fact that Lamar Incised is not common (Anderson et al. 1986:41–42; Rudolph and Hally 1985:456–458).

Summary and Conclusions

A ceramic typology, multiple seriation methods, radiocarbon dates, and contextual information have been used to revise the Town Creek area's existing Mississippian ceramic chronology. All of this information has been used to define the ceramic content and refine the temporal spans of the Teal, Town Creek, and Leak phases, and to establish subphases when appropriate. The development of a detailed Mississippian ceramic chronology for Town Creek has been a critical step in the continued investigation of this important site, and this revised ceramic chronology has already proved useful. The re-analysis of existing collections has shown that the site was intensively occupied as a Mississippian town between A.D. 1050 and 1450 (cal A.D. 1150 and 1400) (Boudreaux 2005). The revised ceramic chronology has allowed many burials and structures to be attributed to individual phases and subphases that are approximately 100 to 200 years in duration. This finer chronological resolution has, in turn, facilitated the recognition of temporal trends in the late prehistoric development of the Town Creek community. For example, the data suggest that significant changes in architecture, site function, and the distribution of nonlocal goods occurred during the Mississippi period (Boudreaux 2005).

The revised ceramic chronology for Town Creek also allows this important site to be placed into a larger regional framework. Town Creek clearly fits within the South Appalachian Mississippian ceramic tradition (see Ferguson 1971). There are surface treatments and rim modes in the Town Creek-area assemblages that allow us to relate this area—under the rubrics of Etowah, Savannah, and Lamar cultures—to numerous other Mississippian sites located in the eastern part of the Southeast. While Town Creek ceramics fit comfortably with what is found to the south and west, the distinctions between Town Creek's pottery and what is found to the north and east are striking. Detailed chronologies developed for the central and northern piedmont in North Carolina (Ward and Davis 1993, 1999) indicate that these areas exhibit very different yet contemporaneous ceramic traditions that lack the distinctive rim treatments and complicated stamping found at Town Creek. The ceramic traditions in the Sandhills and Coastal regions of North Carolina to the east are equally distinct from that found at Town Creek (Irwin et al. 1999:82; Ward and Davis 1999). As Coe (1952) emphasized in his first publication on Pee Dee culture, Town Creek is clearly distinctive in the North Carolina Piedmont, and it is located at the northeastern edge of Mississippian influence in the Southeast.

Notes

[1] As was the practice when fieldwork began in 1937, the mound area was given a different site number than the remainder of the site. The area that encompasses the mound was designated as Mg^{o}2 while the rest of the site was called Mg^{v}3.

[2] Town Creek's on-site supervisors included Roy Dickens, Leland Ferguson, Bennie Keel, Stanley South, and David Phelps.

[3] The CALIB Radiocarbon Calibration program (Stuiver et al. 2005) was used to determine all of the calibrated dates presented in this article.

[4] Lamar Incised sherds were recovered at Town Creek (Reid 1967:Plate 14), but there are few of them and none are associated with dated contexts. Of the 33,123 sherds from Town Creek that were analyzed for this research, 27,704 are from the Pee Dee series but only 9 could be classified as Lamar Incised. Eight of the Lamar Incised sherds came from the plowzone and one came from a general level in a test pit on the riverbank.

[5] See Coe (1995:175-178) for a discussion of the various textile types represented as impressions on ceramics at Town Creek.

Acknowledgments. The research presented here is the result of the efforts of numerous people and organizations. I want to thank everyone who has made the Town Creek site and its archaeological collection valuable resources for learning about Native Americans in the Southeast. Archie Smith and the staff at Town Creek Indian Mound State Historic Site were helpful and encouraging throughout my research. Steve Davis of the RLA put an incredible amount of time into organizing the materials from Town Creek. Since 1937, much effort has gone into excavating, processing, and curating artifacts from Town Creek. I was able to work with an organized, well-curated collection that included tens of thousands of labeled ceramics and a number of reconstructed ceramic vessels. I want to thank the field workers, the lab workers, and the on-site supervisors for their efforts. Bennie Keel and Stanley South served not only as supervisors at Town Creek, but they also excavated the materials from the Leak and Teal sites analyzed for this article. I also want to acknowledge Joffre Coe, the man who envisioned and oversaw long-term research at the site. Town Creek is an important part of his legacy.

Steve Davis, Brett Riggs, Chris Rodning, Vin Steponaitis, Trawick Ward, and Greg Wilson have all contributed directly or indirectly to the content of this article. Joseph Mountjoy allowed me to analyze the materials from the Payne site, and transferred them to the RLA so that they could be curated with other Pee Dee collections from the region.

This research was supported through funding from several sources. Grants from the North Carolina Archaeological Society and the Timothy P. Mooney Fellowship of the RLA were used to radiocarbon date two structures and a pit feature at Town Creek. The Center for the Study of the American South at UNC provided a grant that partially supported the production of a geographic information systems map of Town Creek. There are few funding sources for collections-based research in the Southeast, and I thank these institutions for their generous support.

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Appendix A
A TYPOLOGY OF MISSISSIPPIAN CERAMICS FROM THE TOWN CREEK AREA

Surface Treatments

Most of the Pee Dee ceramic types presented here are based on surface treatments produced by striking the exteriors of still-plastic vessels with carved wooden paddles or paddles wrapped in fibrous materials. Other surface treatments were produced by brushing or smoothing. These types are generally the same as those described by Reid (1967) and Coe (1995) in their discussions of Pee Dee pottery. Types are related to descriptions of similar materials from other areas where relevant.

Brushed

This surface treatment consists of thin, irregular, closely spaced, parallel lines executed on a very wet paste (Figure 12).

Check Stamped

Caldwell and McCann's (1941:44) description of Savannah Check Stamped as consisting "of a grill of raised lines which intersect to form squares or diamonds" is applicable to the Pee Dee materials discussed here. Two varieties are recognized within this type. *Small check stamped* consists of well-defined, clear checks that were 2.5 mm or less in size (Figure 12). *Large check stamped* consists of less distinct, faintly stamped checks generally greater than 3 mm in size (Figure 12).

Cob Impressed

This pattern consists of thin, parallel, widely spaced lines generally oriented perpendicular to the rim (Figure 12). It was produced by working the exterior of a plastic vessel with a corn cob without the kernels (Coe 1995:170).

Complicated Stamped

Reid (1967:51) provides the best description of this surface treatment:

Figure 12. Pee Dee surfact treatments: brushed, check stamped, cob impressed, fabric marked, and net impressed.

> Exteriors smoothed then stamped with a carved, wooden paddle. A design of evenly cut grooves and moderately narrow lands is generally well executed on the stamp while its application is less precise on the vessel. Stamping occurs over the entire exterior and overstamping prevails to obscure the definition of the total stamp.

Patterns with curved lines are considered *curvilinear* while those with only straight lines are considered *rectilinear*. An additional distinction is made based on the width of the ridges and grooves in the pattern. Most complicated stamped sherds have grooves that are 1 to 3 mm wide with ridges of essentially the same width (Figure 13). Almost all of these sherds correspond to the type Savannah Complicated

Figure 13. Pee Dee series complicated stamped pottery.

Stamped (Wauchope 1966:77–79). Sherds with grooves greater than 3.5 mm and ridges of roughly the same width are classified as wide (Figure 14), and these sherds generally correspond to Lamar Complicated Stamped (see Wauchope 1966:79–82).

It is possible on some complicated stamped sherds to recognize patterns that appear consistently in Savannah and Lamar assemblages across the South Appalachian Mississippian area. Stamp patterns were identified because there may be chronological significance to their occurrence (see Anderson 1994:362). Seven complicated stamped patterns (Figures 15 and 16) are recognized; all of these were also used by Reid (1967:5–8).

Figure 14. Pee Dee series wide complicated stamped pottery.

Arc Angle. A design consisting of nested arcs and nested right angles arranged in quadrants such that two panels of arcs are opposite each other as are two panels of angles.

Concentric Circles. As the name implies, this pattern consists of a series of concentric circles. While Reid (1967:5) recognized two varieties based on the form of the innermost circle, all examples were placed in a single category when early stages of analysis did not indicate any benefit to splitting them.

Filfot. This pattern has the appearance of a rounded cross. The arms of the cross are formed by multiple lines that intersect at a right angle to form the cross and then curve back 180 degrees into the design.

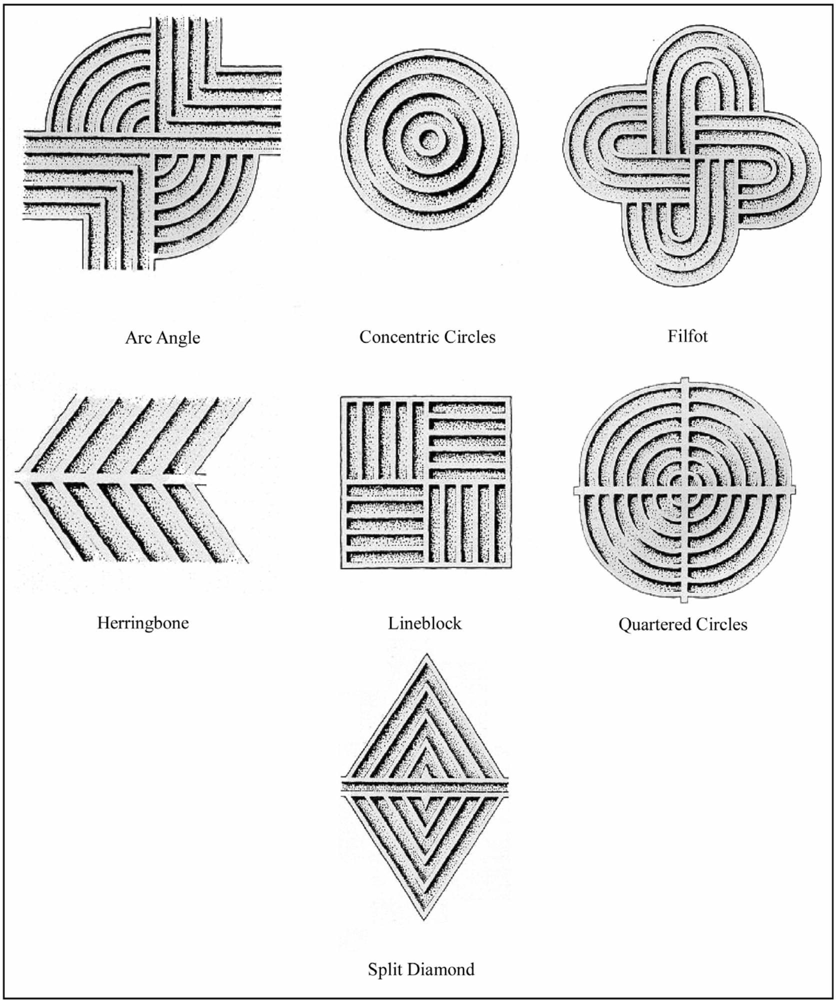

Figure 15. Pee Dee complicated stamped patterns (adapted from Reid 1967:Plates 2 and 3).

Herringbone. This is a design formed by a long, straight line from which a number of smaller lines emanate at a 45 degree angle. All of the smaller lines are parallel to each other.

Lineblock. This design consists of parallel and perpendicular lines arranged in quadrants such that panels opposite each other contain parallel lines.

Figure 16. Pee Dee complicated stamped patterns.

Quartered Circles. This is a series of concentric circles superimposed by a cross formed by two perpendicular ridges passing through the center of the circles.

Split Diamonds. This pattern consists of two equal-sized triangles aligned at their bases on each side of a groove. The overall effect is of a diamond that has been cut in half.

Cordmarked

This treatment consists of a surface covered in parallel, closely spaced lines resulting from the use of a cord-wrapped paddle to malleate the vessel. Two varieties of cordmarking are recognized. Sherds

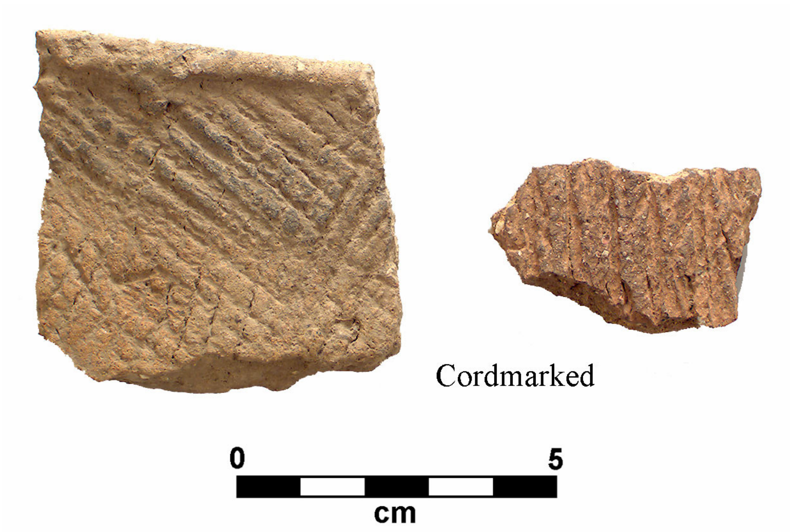

Figure 17. Pee Dee series cordmarked pottery.

classified as *cordmarked* have a good bit of variation in the width, spacing, and orientation of the cord impressions relative to the rim (Figure 17). Twists of the cord were clearly visible in the impressions on these sherds. Sherds classified as *fine cordmarked* exhibited smaller, more closely spaced cord impressions (Figure 18). Twists in the cord often were not visible and many of these sherds could arguably be classified as fine simple stamped (see Oliver 1992:204, 206). Fine cordmarked sherds were generally overstamped, and cord impressions were most frequently oriented 45 degrees to the rim. The cord impressions on fine cordmarked sherds were more evenly spaced, were uniform in width, and generally covered the entire exterior surface. The lips of fine cordmarked vessels were often stamped as well. The top-thickened rim mode appeared exclusively on sherds of this type.

Oliver (1992:203–206) defined the types Savannah Creek Fine Cordmarked and Savannah Creek Fine Simple Stamped based on his excavations at the Teal site. These two types are certainly the same as the fine cordmarked type that is identified here, although sherds that lacked clear cord impressions were not distinguished as being simple stamped. I agree with Oliver (1992:203) that fine cordmarked (and/or simple stamped) sherds appear to correspond to Savannah Fine Cordmarked (Caldwell and McCann 1941:43–44), Santee Simple

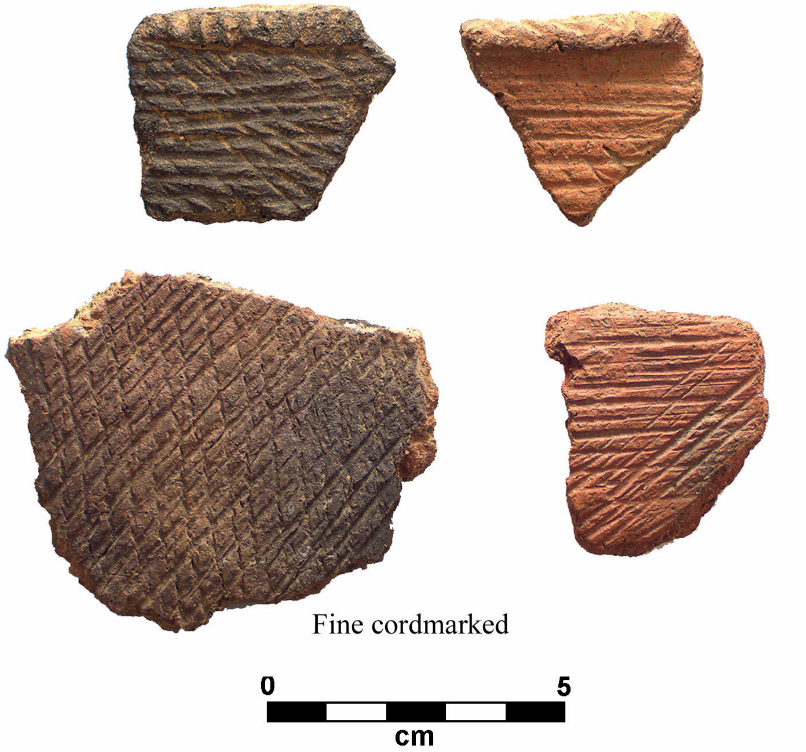

Figure 18. Pee Dee series fine cordmarked pottery.

Stamped (Anderson 1982:302), and Camden Simple Stamped (Stuart 1975:174).

Fabric Marked

This treatment consists of circular impressions in rows oriented parallel to the rim (Figure 12). Coe (1995:174) attributed the pattern to paddling the vessel's exterior with a roll of stiff, plaited matting.

Net Impressed

This treatment consists of regularly spaced, round depressions across the entire exterior surface (Figure 12). These depressions are thought to be impressions of the knots tied in a net that had been wrapped around a wooden paddle (Coe 1995:173).

Plain

Plain pottery has an exterior that was smoothed but otherwise free of surface treatments. A distinction was made between plain and burnished plain based on the luster and more compact paste of the latter.

Simple Stamped

This pattern of parallel lines was produced by a wooden paddle carved with straight lines all oriented in the same direction. Two varieties of simple stamping are recognized. The *simple stamped* category consists of relatively thin, faint impressions while *large simple stamped* consists of clear, distinct impressions with grooves wider than 2 mm (Figure 19).

Stamped

This is a residual category that contains treatments that could not be confidently classified beyond the fact that they were produced by some form of carved wooden paddle.

Textile Impressed

This treatment consists of regularly spaced round to diamond-shaped impressions across the entire surface (Figure 19). This treatment was produced by paddling cloth into the exterior surface of still plastic vessels[5] (Coe 1995:175–178; Reid 1967:8–9). The description of this treatment sounds similar to that for net impressed, but the depressions are more closely spaced in textile impressed. Textile impressed sherds are sometimes similar to check stamped sherds, but a closer examination often shows impressions of interwoven fabrics in the former. Coe (1995) and Reid (1967) both state that textile impressing was produced by wrapping vessels in strips of cloth and then paddling them into the clay rather than using cloth-wrapped paddles.

Unidentified

Sherds in this category could not be classified beyond the point that they had a surface treatment other than plain.

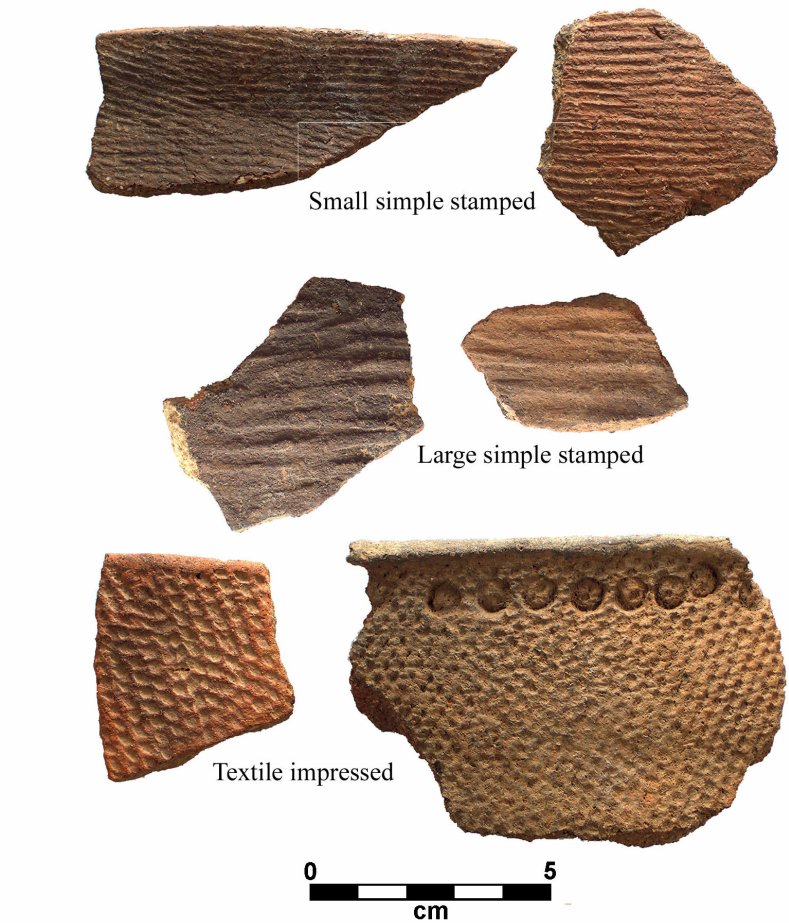

Figure 19. Pee Dee surface treatments: simple stamped and textile impressed.

Rim Modes

The different rim modes observed on Pee Dee pottery include unmodified rims, punctations applied directly to vessel walls, and various appliqués.

Folded Rim

This is a thickening of the vessel wall at the lip that was created either by the addition of a coil to the exterior or by bending the vessel's

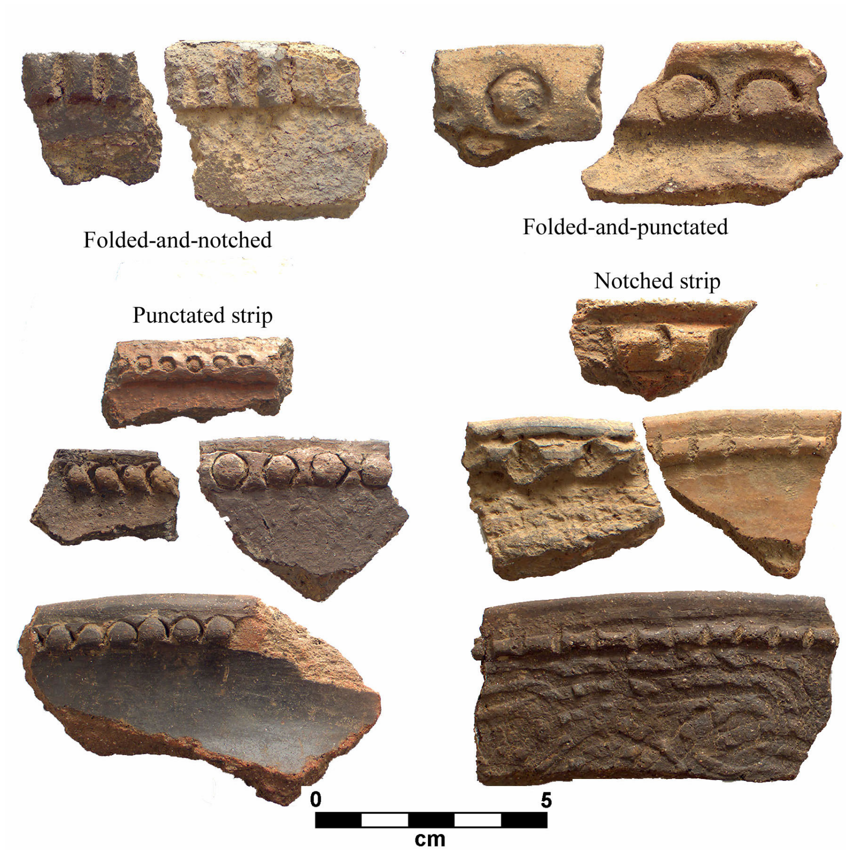

Figure 20. Pee Dee rim modes: folded rims and strips.

lip back on itself. Two varieties of folded rims are recognized. *Folded-and-notched rims* show a thickening of the vessel's exterior that was flush with the lip and that was decorated with large, evenly spaced rectangular punctations oriented perpendicular to the lip (Figure 20). *Folded-and-punctated rims* consist of a thickening that was sometimes flush with the lip but often located well below the lip (Figure 20). Folded-and-punctated rims were decorated mostly with large circular punctations, but rectangular punctations also occurred.

Nodes

Nodes are large (generally greater than 15 mm tall and 5 mm thick), round pieces of clay applied to the vessel exterior just below the lip

Figure 21. Pee Dee rim modes: nodes, pellets, and rosettes.

(Figure 21). Most nodes are punctated in the center, but a few are either plain or punctated multiple times. Some are molded onto the exterior surface of the vessel while others are "riveted" into the body—the vessel wall was actually built around one end of the node. Nodes are widely spaced on vessels with only two or four placed equidistant around its circumference. Nodes are often outlined by one or two rows of punctations that continue along the rim below the lip (Reid 1967:24).

Pellets

Pellets are small (less than 10 mm), round to rectangular, individual pieces of clay added to a vessel exterior around its entire circumference (Figure 21). Pellets were placed either just below the vessel's lip or further down on its shoulder.

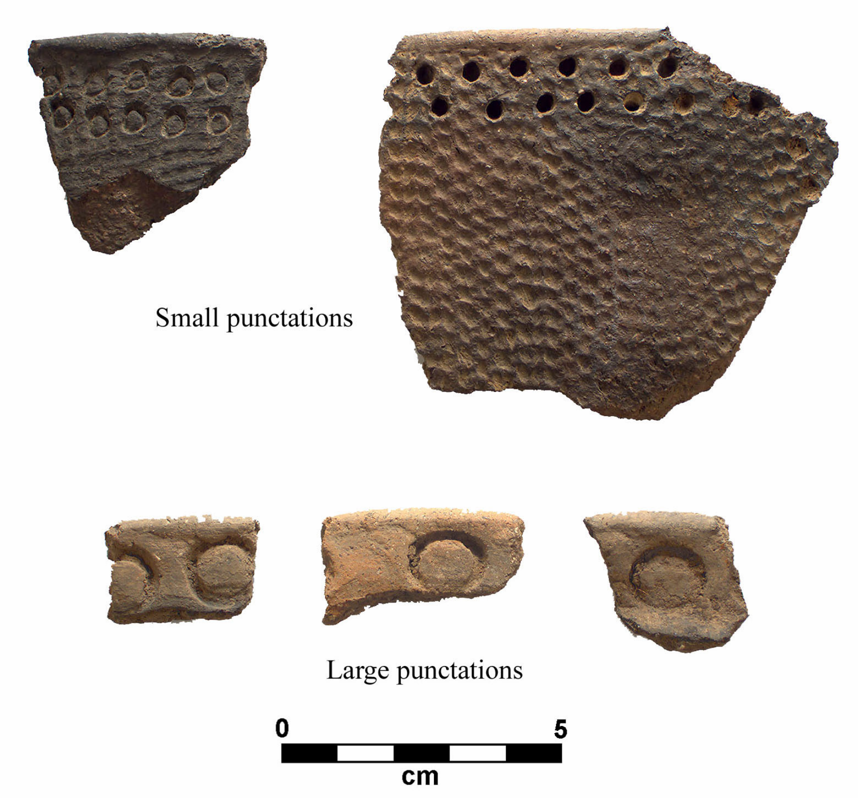

Figure 22. Pee Dee punctated rim mode.

Plain Rim

These are rims with no decoration or appliqués.

Punctated

Punctations are predominantly circular. They were formed with both solid and hollow dowels in a continuous band around the vessel's circumference, often just below the lip but also at the neck. Circular punctations appeared in two size classes. Small punctations are less than 10 mm in diameter and were created with solid or hollow dowels (Figure 22). Large punctations are greater than 10 mm in diameter and were executed with either a cane or a fingernail (Figure 22). Rectangular punctations created with a solid dowel in a band at the shoulder of carinated vessels are also present.

Rosettes

Rosettes are small (generally less than 10 mm tall and 5 mm thick), round pieces of clay applied in a continuous band around vessel exteriors just below the lip (Figure 21). Reid (1967:25) describes them as:

> Closely spaced circular clay pellets [that] are slightly flattened as they are applied to the rim below the lip and then punched centrally with a solid dowel, producing a doughnut shape.

Strips

This mode consists of a narrow strip of clay—generally 5 mm or less in height although occasionally wider—that encircles the vessel parallel to the lip. Strips were never flush with the vessel lip, being located just below or well below the lip. Strips were decorated in one of two ways along their entire length. One form of decoration consists of punctations with a circular dowel (Figure 20) that was most often hollow, but occasionally solid. The second form, notched, also consists of punctations, but the effect is to divide the strip into roughly rectangular segments (Figure 20). Rim strips as defined here are often referred to as fillets in the literature (Reid 1967:25).

Thickened Rim

This mode consists of a coil added to the top, exterior, or interior of the vessel's lip. *Exterior thickened rims* (Figure 23) are relatively rare. Unlike rim strips which are relatively narrow and below the lip, exterior thickened rims are wide and flush with the lip. Exterior thickened rims are distinct from folded rims in that the extra coil used in the former was not completely welded to the vessel wall—a distinct break between the two is visible—while the extra coil used in folded rims often seems to be a continuation of the vessel wall. *Interior thickened rims* consist of an extra coil of clay added to the vessel's interior at its lip (Figure 23). *Top-thickened rims* (Figure 23) appear exclusively on fine cordmarked sherds, and they were most often stamped in the same way as the vessel's surface (Figure 18). In most top-thickened examples, the additional coil was not completely welded to the lip so a distinct break can be seen between the two in profile.

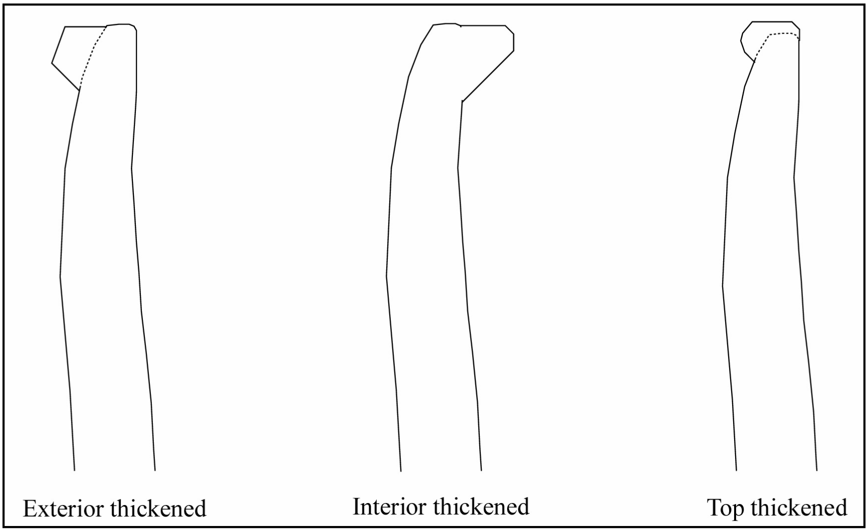

Figure 23. Rim profiles showing thickened rim modes.

ANALYSIS OF SITE PRESERVATION AND CULTURAL TRADITIONS AT 31WK223, A STRATIFIED ARCHAIC TO WOODLAND PERIOD SITE IN THE EASTERN FOOTHILLS OF THE APPALACHIAN MOUNTAINS

by
Susan E. Bamann, Keith C. Seramur, Leslie L. Raymer, and Loretta Lautzenheiser

Abstract

Data recovery excavations at 31WK223, located along the Reddies River in Wilkes County, North Carolina, recorded intact floodplain deposits in a portion of the site. These deposits contained stratified features and artifact deposits from the Middle and Late Archaic periods. Evidence for Middle and Late Woodland occupations was also documented, through largely in a disturbed plow zone above the intact deposits. Geoarchaeological investigation showed that the site was located in a protected cove where sediment accumulated slowly through the Holocene. Particle size analyses determined that the deposits were stratified, with the sedimentary processes that buried the cultural horizons preserving cultural context. Analysis of macroplant remains suggests that the site represents a series of fall occupations during which harvesting and processing of nutmast took place, and artifact analyses suggest shifting orientations with respect to resources and traditions of the Piedmont and mountainous areas. The results add to the growing body of research documenting Archaic and Woodland sites in the Western Foothills and Appalachian Summit archaeological regions and stress the potential for the preservation of archaeological context in the floodplains of smaller tributaries in the mountainous portion of the state.

Archaeological sequences from stratified Archaic sites in the floodplains of the North Carolina Piedmont have been well documented in studies by South (1959, 2005), Coe (1964), Claggett and Cable (1982), and Larsen and Schuldenrein (1990). In contrast, the view of the Archaic period in the Appalachian Summit and Western Foothills archaeological regions of the state is still emerging. Overviews and generalizations have relied largely on research conducted in mountainous areas adjacent to North Carolina (see Ward and Davis 1999), and it appears that there is much to be learned regarding site preservation processes, archaeological stratigraphy, and settlement and subsistence patterns in these substantial archaeological regions.

One recent study along the Swannanoa River valley in western North Carolina (Kimball 1995) concluded that similar river valleys of the Southern Appalachians have potential for buried sites dating to as early as the Middle Archaic period. Kimball proposed a specific model for site burial and preservation, emphasizing such factors as downstream landform constrictions that alter river velocity and flood patterns. The study highlights the potential for buried sites in certain mountainous river valley settings and underscores the need for geoarchaeological assessments and deep testing programs to discover such sites.

The results of data recovery excavations at Site 31WK223, located along the Reddies River in the transitional Western Foothills setting, offer additional insight into site preservation processes and regional settlement and subsistence patterns. The Reddies River can become a torrential stream during flood events as it carries runoff from the Blue Ridge escarpment onto the Piedmont. However, preservation of archaeological stratigraphy at Site 31WK223 shows that buried archaeological sites can be preserved in these high-energy fluvial settings.

Coastal Carolina Research, Inc. (CCR) (Bamann and Lautzenheiser 2002) conducted the excavations for the Project Development and Environmental Analysis Branch of the North Carolina Department of Transportation (NCDOT). Dr. Gerald Glover was the NCDOT project manager. CCR collaborated with Appalachian State University (Seramur 2001) and the Subsistence Studies Department of New South Associates (Raymer 2002) for geoarchaeological and archaeobotanical analyses of the site. The project, located within the right-of-way for the replacement of Bridge No. 51 for North Carolina State Route 16, was undertaken by NCDOT in compliance with Section 106 of the National Historic Preservation Act of 1966, the Advisory Council on Historic Preservation's regulations for compliance with Section 106, and Section 4(f) of the Department of Transportation Act.

Site 31WK223 is located in Wilkes County approximately 2.2 km (1.4 mi) southeast of the community of Wilbar. It is situated on a levee and well-drained terrace along the east side of the Reddies River valley (Figure 1) and was originally recorded by archaeologists from Wake Forest University Archeology Laboratories during a 1999 survey for NCDOT (Terrell et al. 1999). Part of the site, represented by a large scatter of sherds from a single ceramic vessel, was found to lie within a thin sub-plow-zone stratum on the small levee. Limited subsurface investigations suggested that although the cultivated portion of the site was largely restricted to the disturbed plow zone, the sub-plow-zone

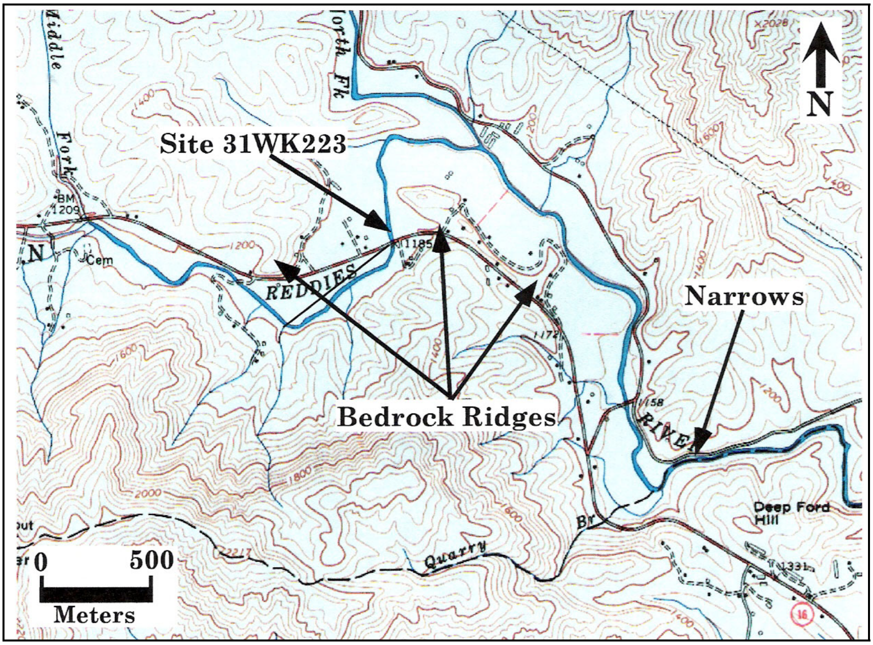

Figure 1. Location of Site 31WK223, shown on the USGS 7.5' Purlear, North Carolina, Topographic Quadrangle. The Reddies River has Carved a Wide Floodplain Upstream of the Narrows at Deep Ford Hill.

stratum on the levee had potential for significant intact deposits. The artifacts recovered suggested the possibility of a small, intact Early Woodland period component represented by Badin and Yadkin series ceramics. Late Archaic steatite vessel fragments were also recovered, suggesting the potential for information on the transition to the Early Woodland period.

CCR's data recovery excavations revealed undisturbed floodplain deposits in a portion of the site. In contrast to the earlier expectations, these deposits contained stratified cultural horizons with features and artifacts from the Middle and Late Archaic periods. The geoarchaeological study determined that the sedimentary processes that buried the cultural horizons preserved cultural context.

Description and Analysis of the Site Setting

The Reddies River flows off the Blue Ridge Escarpment onto the northwestern North Carolina Piedmont. Site 31WK223 is located in the eastern foothills of the Blue Ridge physiographic province about 10 km (6.2 mi) northwest of the Brevard Fault zone. The Brevard Fault zone forms the boundary between the Blue Ridge and Piedmont physiographic provinces. Local relief is about 400 m (1,312 ft) with a ridge crest elevation of 732 m (2,401 ft) and a stream valley elevation of 366 m (1,200 ft).

Bedrock in the vicinity of the site is mapped as mica gneiss and schist intruded by dikes and sills of the Spruce Pine Volcanic Group (Rankin et al. 1972). The Spruce Pine Volcanic Group consists of granitic rocks and pegmatite. Pegmatite is a coarse-grained igneous rock typically of granitic composition. Several pieces of pegmatite were observed at the site; these contained large crystals of mica, feldspar, and quartz.

The upper Reddies River is formed from South Fork, Middle Fork and other tributary streams that drain the Blue Ridge escarpment and adjacent foothills. Site 31WK223 is located about 800 m (2,624 ft) upstream of the confluence with the North Fork. The river flows along many linear stream segments indicating that bedrock fractures influence the location of the stream channel. The Reddies River is part of the Yadkin River watershed; the confluence of the Reddies and Yadkin Rivers is about 14 km (8.7 mi) southeast of the site in Wilkesboro, North Carolina.

At 31WK223 the stream valley forms a wide floodplain that stretches for a distance of 3.3 km (2.0 mi). It is upstream of a narrows in the stream valley located along the north side of Deep Ford Hill (see Figure 1). Three bedrock ridges extend out into the floodplain forming constrictions along the stream valley. Islands and point bars have formed in the stream channel directly upstream of these bedrock ridges. These constrictions in the valley slow the velocity of the floodwaters, resulting in deposition of sediment upstream of the bedrock ridges.

The floodplain at 31WK223 is about 300 m (984 ft) wide. It is located on the east side of the river in a cove formed upstream of a bedrock ridge (Figure 2). The prehistoric stream channel was a shallow channel that flowed through an area of braid bars. A floodplain or T_0 terrace occurs between the levee and stream channel. There is a well-developed levee and flood chute along the eastern river bank. The main portion of the site is located on the first terrace (T_1 terrace) and has been under cultivation. A second T_2 terrace surface was observed adjacent to the bedrock ridge (see Figure 2).

Prior to historic road and bridge construction, the Reddies River consisted of shallow channels with breaks in the natural levees for

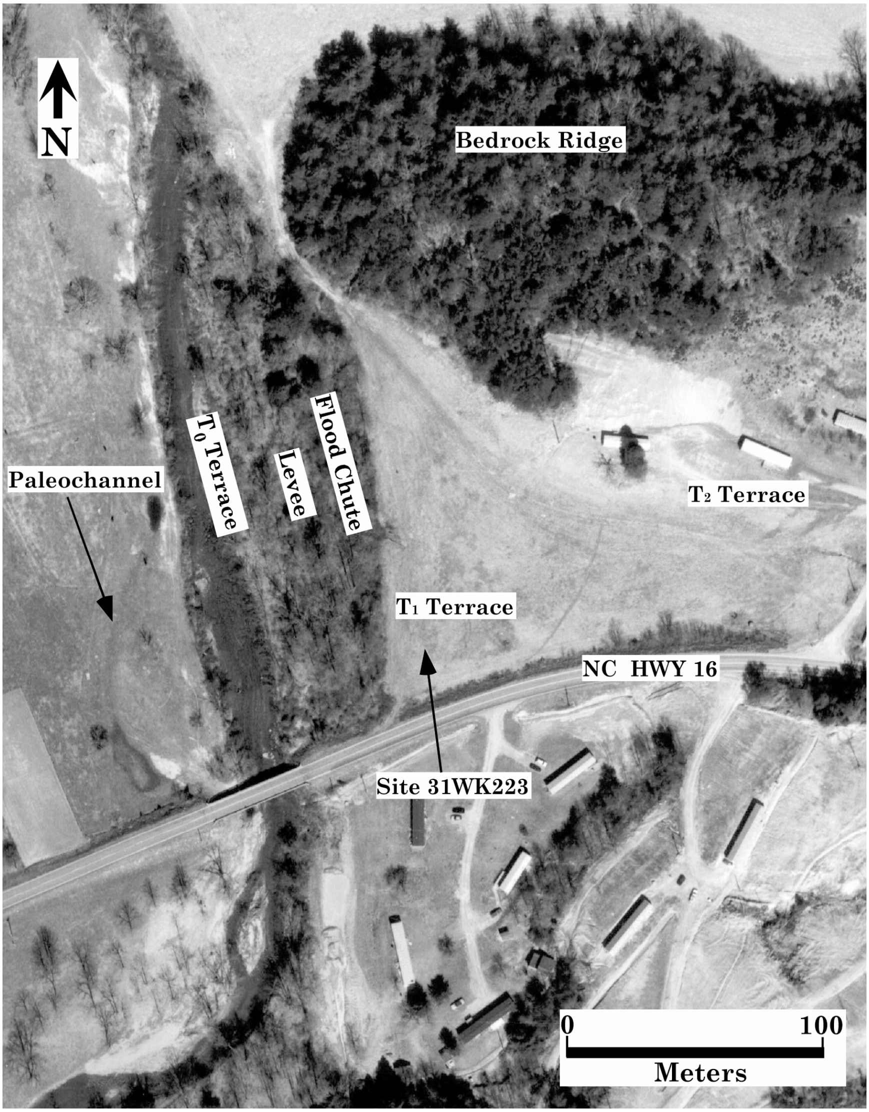

Figure 2. Large-scale aerial photograph of Site 31WK223 showing floodplain geomorphology.

floodwater discharge. The T_0 terrace appears to represent rapid historic sedimentation (probably over the older braided stream channel) due to alteration of the stream hydrology when the existing NC 16 road and bridge embankments were constructed. The levee and the flood chute appear to be older geomorphic features from the prehistoric braided stream environment. The T_1 terrace lies east of the flood chute and appears to have been an area of consistent alluvial sedimentation. Components of the site were found situated on both the wooded levee and the cultivated T_1 terrace. The site covered a total of 0.28 ha (0.7 acres) within the project limits for the new bridge right-of-way. However, an unevaluated portion of the site, perhaps as large as one hectare (2.5 acres), is still intact to the north of the data recovery project area.

A large bedrock ridge extends into the Reddies River floodplain to the north/northeast of 31WK223. This creates a constriction in the river valley, which tends to slow the velocity of river floodwaters. The location of the site upstream of the bedrock ridge appears to have resulted in increased sediment accumulation during flood events.

Geoarchaeological Methods

Field descriptions of sedimentology and soil development were recorded for four profiles of the terrace alluvium using standard soil taxonomy (Birkeland 1999; Schoeneberger et al. 1998) and geological descriptive methods (Folk 1980). The deepest excavation block was 130 cm, and a sediment core extended this to a depth of 190 cm. Thirteen sediment samples were collected and analyzed for particle size distribution from the deep profile. Particle size analyses was used to determine if the alluvium was a homogenous deposit mixed by bioturbation or if distinct stratigraphic horizons could be delineated from changes in sedimentology.

Particle size analyses included determining percent fines (silt and clay) and sand, as well as the distribution of the sand fraction. Distribution of the sand-sized fraction is used to delineate stratigraphic horizons and interpret depositional processes or processes of site burial.

Interpretation of Natural Stratigraphy

The cultural deposits in the levee portion of the site are not contiguous with deposits in the T_1 terrace, as the two landforms are separated by the flood chute. The less accessible levee was probably never plowed, and artifact-bearing zones below twentieth-century sandy alluvium appear to represent relatively intact soil horizons.

The plow zone extends to a depth of about 30 cm on the T_1 terrace. A leached E-horizon was recorded directly below the plow zone, and a weakly developed illuvial B-horizon or cambic horizon was recorded at a depth of 55 to 88 cm. Parent material consisting of alluvium (C-horizon) was recorded below the B-horizon to a depth of 190 cm. The alluvium appeared to be massive, lacking any visual evidence of stratigraphy or bedding.

Alluvium at the site is silty fine to medium sand with sand percentages ranging from 51 percent to 77 percent down the profile (Figure 3). The translocation of silt and clay down the soil profile by pedogenesis results in post-depositional changes in the distribution of fines. The sand fraction is not affected by translocation and therefore stratigraphy can be interpreted from changes in the sand distribution of different stratigraphic horizons. Five possible strata were interpreted from the results of the particle size analyses.

Stratum I is used to designate the disturbed alluvium in the plow zone. Strata II, III, and IV are delineated by changes in particle size distribution with depth in the profile as shown on the sedimentology logs (see Figure 3). They can also be delineated as separate populations on bivariate graphs showing standard deviation and skewness as a function of mean grain size (Figure 4). Stratum II is best represented by the 30 and 40 cm samples that are primarily medium sand (see Figure 3) with a mean grain size of 2.53 phi (see Figure 4). Stratum III is fine sand represented by the 70 cm and 80 cm sediment samples that have a mean grain size of 2.96 and 2.93 phi, respectively. Stratum IV is represented by samples collected between 100 cm and 120 cm (see Figure 3). The mean grain size of these samples ranges from 2.77 to 2.81 phi. A possible Stratum V could be indicated by the coarser sample at the base of the excavation at 130 cm. A sediment core extended this profile to a depth of 190 cm where the boring was terminated on a rock. The profile samples collected at depths between the groups of representative samples have transitional values. For example the samples at 50 cm and 60 cm show a transition between the groups above and below these samples (see Figure 4). This could be due to bioturbation along the contact between the strata or perhaps a transitional period of sedimentation.

Three radiocarbon dates from the hearth features are used to estimate sedimentation rates on the terrace (Table 1). The hearths and radiocarbon dates are discussed below. Sedimentations rates were calculated using the average of the calibrated age for the 2-sigma statistics reported by Beta Analytic, Inc. The calculated sedimentation rate on the T_1 terrace ranged from 9.2 cm to 14.5cm/1000 yr.

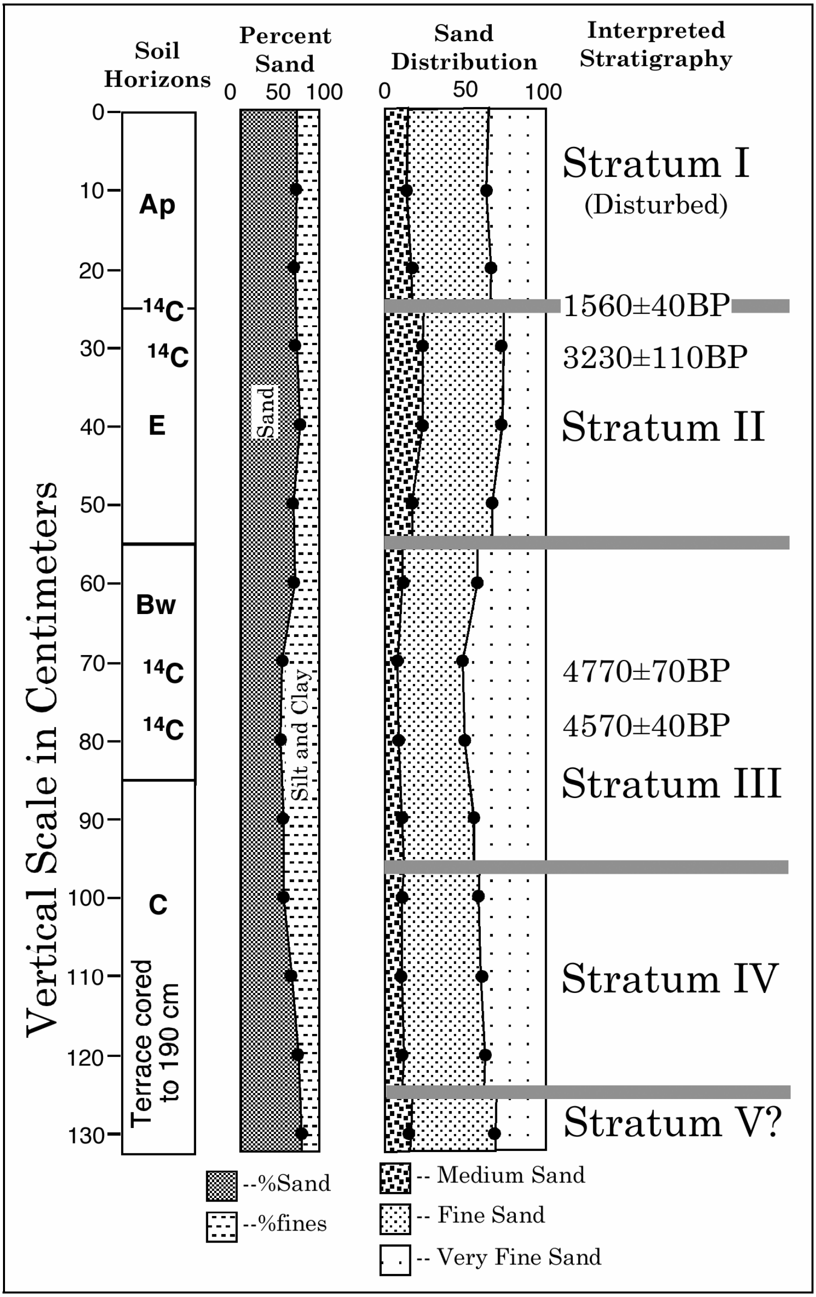

Figure 3. Log of sedimentology and soil horizons for the T_1 Terrace at 31WK223. Interpreted stratigraphy is based on changes in sedimentology with depth and statistical measures shown in Figure 4.

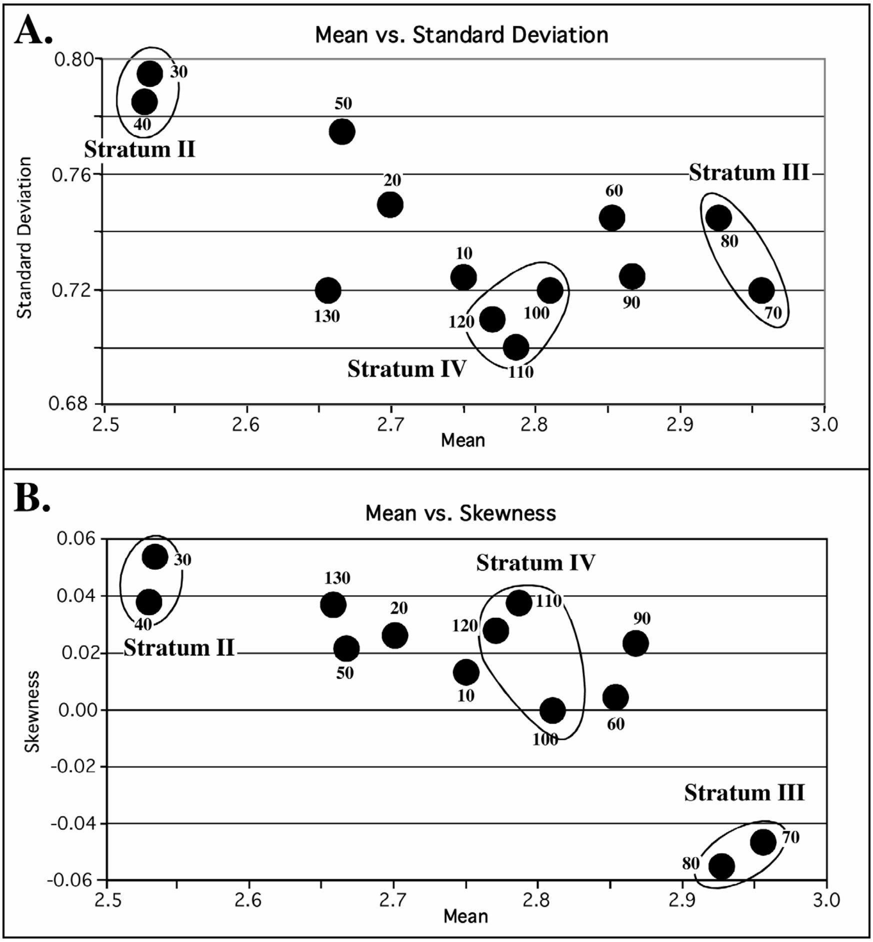

Figure 4. Statistical measures of standard deviation and skewness plotted as a function of mean grain size. The three stratigraphic units interpreted from the deep profile are circled.

Table 1. Sedimentation rates calculated from sample depths and radiocarbon dates.

Sample Location	Depth	2-Sigma Calibration	Sedimentation Rate
Feature 10, 10S38E	32 cm	3700 to 3220 BP	9.25 cm/1000 yr
Feature 39, 4S34E	70 cm	5620 to 5320 BP	12.8 cm/1000 yr
Feature 33, 12S28E	79 cm	5440 to 5410, 5320 to 5260, and 5180 to 5060 BP	14.5 cm/1000 yr

Excavation Strategy and Archaeological Results

At the start of the project four 2x2-m units and one 1x3-m unit were hand-excavated within the western portion of the site, which includes the floodplain (T_0 terrace), the levee, and the flood chute (Figure 5). Two of the units were located on the floodplain. These were useful in the geoarchaeological interpretation of the site since they revealed the historic flood sediments above remains of the former stream channel. Three of the units were located on the levee landform, which appeared to be the only area with potential for intact deposits. These units were excavated to a maximum depth of approximately 120 cm below surface and revealed four visually distinct zones. Zones 1C and 2 (Figure 6), which contained Native American sherds and debitage, appeared to be intact deposits below recent alluvium comprising Zones 1A and 1B. However, excavation within the western site area was terminated when the levee units failed to yield features or significant artifact patterning.

Four 2x2-m units were hand excavated on the cultivated T_1 terrace in the eastern portion of the site. One of these units indicated the presence of a sub-plow-zone feature in the alluvial deposits (Figure 7). Subsequently, an area of approximately 650 m^2 was cleared of the plow zone (Zone 1) by mechanical stripping. This exposed 17 features including hearths, pits/basins, and post molds (Table 2). Based on the distribution of the features, two large excavation blocks were selected and excavated by hand in 10-cm levels (see Figure 5). An additional 15 features (hearths, pits, one post mold, and rock clusters/scatters) were encountered within Zone 2 of Excavation Blocks 1 and 2. Zone 2 refers to the leached E- horizon and the weakly developed illuvial B-horizon. The deepest feature, a possible rock-lined hearth, occurred in Zone 2, Level 6 of Excavation Block 1.

In the case of the pit or post mold features at the top of Zone 2, which were intrusive in nature, it is assumed that the surface of origin was obliterated by historic plowing. Features such as rock clusters are more likely to represent an actual living surface within Zone 2. However, no broad occupational events could be identified since the rock cluster features occurred at varying depths.

Description of Features

The seven features interpreted as hearths ranged from fire-cracked rock clusters with charcoal and oxidized soil to shallow basins with

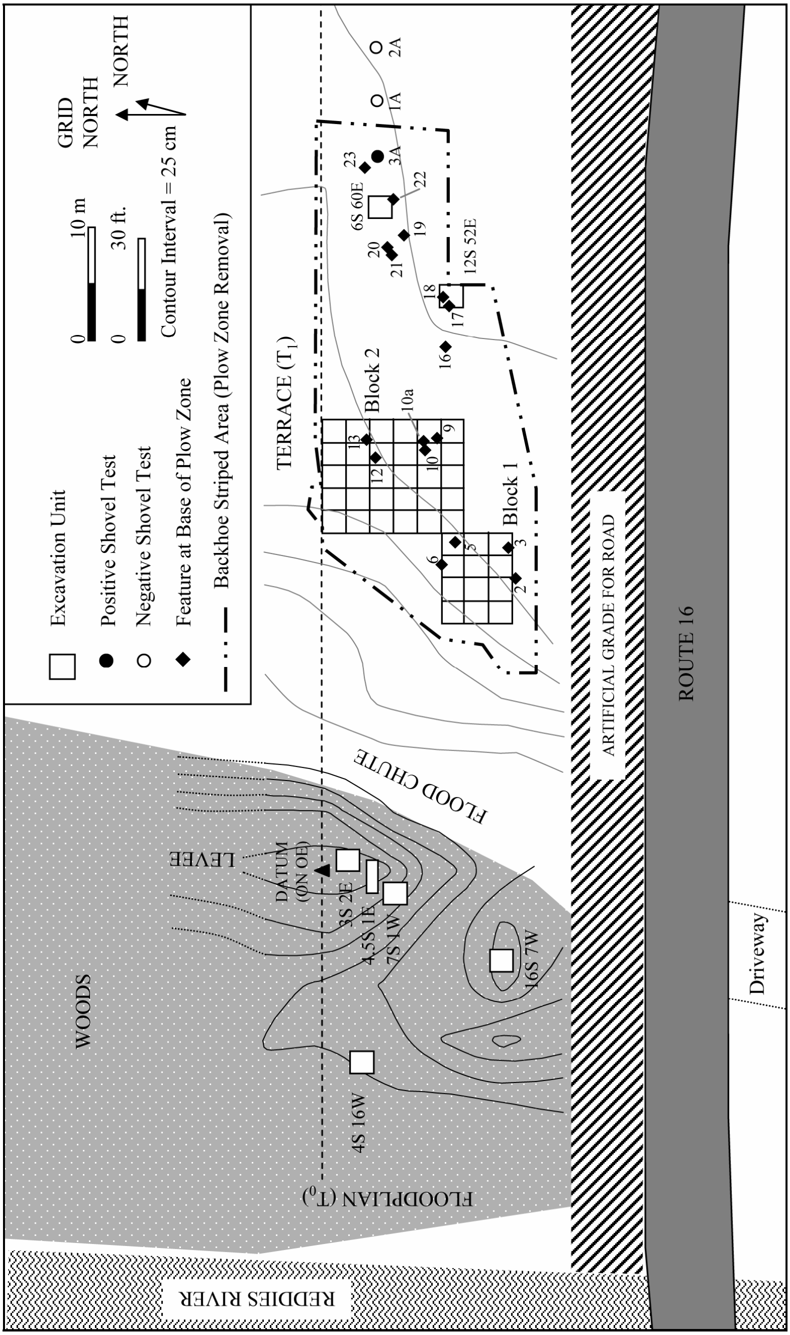

Figure 5. Excavation plan view showing landscape features, units, excavation blocks, and features encountered at the base of the plow zone.

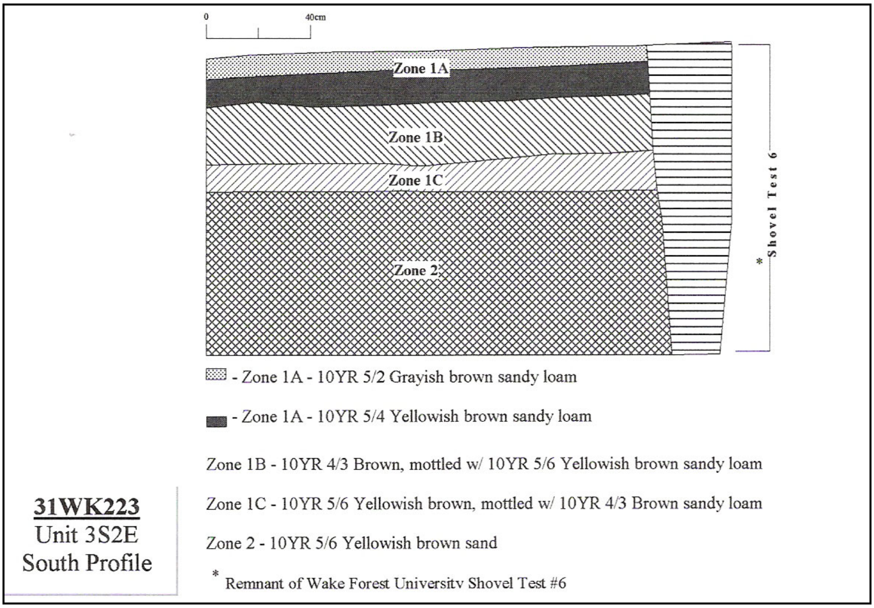

Figure 6. South profile drawing of levee unit 3S2E, showing recent alluvium (Zones 1A and 1B) and intact artifact-bearing deposits (Zones 1C and 2).

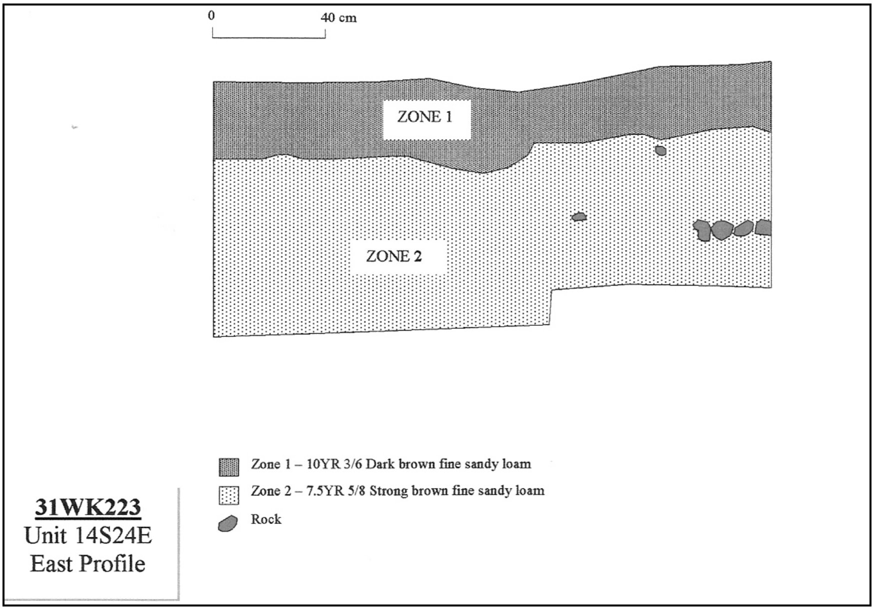

Figure 7: East profile drawing of cultivated terrace unit 14S24E (within Block 1 area), showing the plow zone (Zone 1) and rock from a portion of a buried feature (Feature 30).

Table 2. Features from the Data Recovery at 31WK223.

Feature	Block	Depth at Top of Feature	Description	Associated Material
1	2	50 cm below surface	fire-cracked rock (FCR) and rock cluster	FCR, tabular rock*
2	1	Top of Zone 2 (Base of PZ)	shallow basin with FCR; hearth	FCR, 1 decortication flake, 14 interior flakes, 1 pressure/retouch flake, 6 flake fragments, 92 hickory/walnut shell fragments, wood charcoal
3	1	Top of Zone 2 (Base of PZ)	rock cluster; possible remains of shallow, rock-lined basin	tabular rock, 1 flake fragment, 1 ceramic body sherd (probable Yadkin series), 11 hickory/walnut shell fragments, wood charcoal
4	1	Top of Zone 2 (Base of PZ)	rock fragments in probable plow scar	rock fragments
5	1	Top of Zone 2 (Base of PZ)	shallow basin with charcoal flecking and FCR; truncated hearth	FCR, cobbles, tabular rock, 1 decortication flake, 3 interior flakes, 1 ceramic rim sherd (indeterminate series), 187 hickory/walnut shell fragments, wood charcoal
6	1	Top of Zone 2 (Base of PZ)	shallow basin with FCR and hardened clay nodules; possible hearth	FCR, tabular rock, 1 bifacial thinning flake, 11 interior flakes, 1 flake fragment, 1 ceramic body sherd (indeterminate series), 343 hickory/walnut shell fragments, 1 blackberry/raspberry seed, wood charcoal
7	2	Top of Zone 2 (Base of PZ)	probable mammal burrow	none
8	2	Top of Zone 2 (Base of PZ)	rock fragments in probable plow scar	none
9	2	Top of Zone 2 (Base of PZ)	basin-shaped pit with ash-stained fill	FCR, 11 hickory/walnut shell fragments, wood charcoal
10 & 10A	2	Top of Zone 2 (Base of PZ)	FCR and rock cluster and adjacent shallow basin with charcoal flecking; hearth area	FCR, cobbles, 1 biface fragment, 5 decortication flakes, 7 interior flakes, 3 flake fragments, 4 shatter, 10 hickory/walnut shell fragments, wood charcoal
11	2	Top of Zone 2 (Base of PZ)	small basin with charred wood; probably recent	none
12	2	Top of Zone 2 (Base of PZ)	steep-sided pit with ash-stained fill and charcoal flecking	1 interior flake, 2 hickory/walnut shell fragments, wood charcoal
13	2	Top of Zone 2 (Base of PZ)	post mold	1 interior flake, 1 pressure/retouch flake, 1 soapstone fragment, 4 hickory/walnut shell fragments, wood charcoal
14	2	Top of Zone 2 (Base of PZ)	circular stain; probable root/rodent disturbance	none
15	2	Top of Zone 2 (Base of PZ)	oval stain; probable root/rodent disturbance	none
16 & 16A		Top of Zone 2 (Base of PZ)	basin-shaped pit with FCR and intruding shallow lens	FCR, cobbles, tabular rock, 3 bifacial thinning flakes, 27 interior flakes, 4 pressure/retouch flakes, 3 flake fragments, 1 retouched flake, 3 ceramic body sherds (2 Yadkin series, 1 probable Yadkin series), 6 hickory/walnut shell fragments, wood charcoal
17		Top of Zone 2 (Base of PZ)	steep-sided pit with FCR and charcoal flecking	FCR, tabular rock, 1 decortication flake, 16 hickory/walnut shell fragments, 1 red mulberry seed, wood charcoal
18		Top of Zone 2 (Base of PZ)	tapering pit with charcoal flecking	tabular rock, 1 interior flake, 6 hickory/walnut shell fragments, wood charcoal
19		Top of Zone 2 (Base of PZ)	possible truncated post mold or root and rodent disturbance	FCR, 1 flake fragment, 12 hickory/walnut shell fragments, wood charcoal

Table 2 continued.

Feature	Block	Depth at Top of Feature	Description	Associated Material
20		Top of Zone 2 (Base of PZ)	possible truncated post mold	1 hickory/walnut shell fragment, wood charcoal
21		Top of Zone 2 (Base of PZ)	steep-sided, basin-shaped pit with ash and charcoal	tabular rock, 1 interior flake, 1 pressure/retouch flake, 1 flake fragment, 1 hickory/walnut shell fragment, wood charcoal
22		Top of Zone 2 (Base of PZ)	possible truncated post mold	FCR, 1 interior flake, 1 flake fragment, wood charcoal
23		Top of Zone 2 (Base of PZ)	possible truncated post mold	1 interior flake, 1 flake fragment, 13 hickory/walnut shell fragments, wood charcoal
24	1	40 cm below surface	basin-shaped pit with oxidized soil, burned clay flecks, and adjacent FCR/rock cluster; hearth area	FCR, tabular rock, 4 interior flakes, 4 flake fragments, 5 hickory/walnut shell fragments, wood charcoal
25	1	40 cm below surface	FCR/rock cluster with area of lightly oxidized soil; hearth area	FCR, cobbles, tabular rock, 5 interior flakes, 5 flake fragments, 2 shatter, 1 possible Savannah River Stemmed variant point*
26	1	48 cm below surface	FCR and rock cluster	FCR, tabular rock, 1 possible Savannah River Stemmed variant point*
27	1	60 cm below surface	FCR and rock cluster	FCR, tabular rock*
28	1	58 cm below surface	FCR and rock cluster	FCR, cobbles, 1 bifacial thinning flake, 11 interior flakes, 4 pressure/retouch flakes, 14 flake fragments, wood charcoal
29	1	61 cm below surface	circular, partially rock-capped, basin-shaped pit	FCR, tabular rock, 1interior flake, 1 flake fragment, 1 retouched flake, 1 possible grinding stone, 8 hickory/walnut shell fragments, wood charcoal
29A	1	70 cm below surface	rock-capped, basin-shaped pit overlapped by Feature 29	FCR, cobbles, tabular rock, wood charcoal
30	1	68 cm below surface	FCR and rock cluster with charcoal flecking	FCR, cobbles, tabular rock, wood charcoal*
31	2	40 cm below surface	post mold	1 interior flake, 2 hickory/walnut shell fragments, wood charcoal
32	2	40 cm below surface	shallow basin-shaped pit with charcoal flecking	3 hickory/walnut shell fragments, wood charcoal
33	1	79 cm below surface	FCR/rock cluster with charcoal flecking, tabular rocks at base; rock-lined hearth	FCR, cobbles, tabular rock, 5 cores, 1 biface fragment, 1 bifacial thinning flake, 5 hickory/walnut shell fragments, wood charcoal
34	2	Top of Zone 2 (Base of PZ)	straight-sided pit with ash staining and charcoal flecking	FCR, 2 interior flakes, 1 flake fragment, 27 hickory/walnut shell fragments, wood charcoal
35	2	65 cm below surface	probable root/rodent disturbance	none
36	2	62 cm below surface	FCR and rock scatter	FCR, cobbles, tabular rock, 6 hickory/walnut shell fragments, wood charcoal
37		Top of Zone 2 (Base of PZ)	probable plow scar	none
38	2	68 cm below surface	FCR and rock scatter with charcoal flecking	FCR, cobbles, 17 hickory/walnut shell fragments, wood charcoal
39	2	70 cm below surface	FCR and rock scatter with charcoal concentration	FCR, cobbles, tabular rock, 1 pressure/retouch flake, wood charcoal
40		Top of Zone 2 (Base of PZ)	probable root/rodent disturbance	none

* results reflect lack of suitable soil sample for flotation/macroplant identification

Figure 8. Feature 5, hearth at the base of the plow zone on the cultivated terrace.

charcoal-rich fill and associated fire-cracked rock. Four of the hearths (Features 2, 5, 6, and 10/10A) were encountered at the top of Zone 2 (Figure 8). These were typically very rich in hickory/walnut shell fragments. Two hearths (Features 24 and 25), which may be contemporaneous, were encountered at 40 cm below surface in close proximity. The deepest hearth (Feature 33) occurred at 79 cm below surface. This appeared to be a rather shallow rock-lined basin with associated fire-cracked rock (Figure 9).

Of the 11 features described as small pits or basins, four (Features 9, 12, 21, and 34) appeared to have ashy deposits with charcoal. Three (Features 3, 29, and 29A) appeared to be slightly larger, rock-capped or rock-lined basins that may have been used for storage (Figure 10). Two (Features 16/16A and 17) were pits with well-defined fill including clusters of fire-cracked rock. The remaining (Features 18 and 32) were smaller pits that were more ephemeral in nature. The majority of the pits were defined at the top of Zone 2. The exceptions were Feature 32, which occurred at 40 cm below surface, and Features 29 and 29A, which were encountered at 61 and 70 cm below surface, respectively.

Six features (Features 13, 19, 20, 22, 23, and 31) were defined as post molds. Five of these occurred at the top of Zone 2, but were too

Figure 9. Feature 33, shallow rock-lined hearth at 79 cm below surface on the cultivated terrace.

Figure 10. Feature 29, rock-capped basin at 61cm below surface on the cultivated terrace.

widely scattered to suggest the outline of a structure. One (Feature 31) occurred at 40 cm below surface.

Eight of the features were clusters or scatters of fire-cracked rock, unmodified cobbles, and/or unmodified tabular rock. Associated soil staining was lacking and, though some artifacts and macrobotanical remains were recovered, the matrices were not rich in material. This suggests that the features represent discarded hearth contents or discarded rock from stone-boiling. Features 1, 26, 27, 28, and 30 were denser clusters. These occurred in Zone 2 at depths ranging from 48 to 68 cm below surface, and four of the five clusters were in Block 1. Features 36, 38, and 39 were scatters. These occurred at 60 to 70 cm below surface in Excavation Block 2.

Absolute Dating

Four radiocarbon dates were obtained for macrobotanical remains associated with features from the block excavations:

1. A radiocarbon age of 1560 ± 40 BP (Beta 162156; 2-sigma calibrated result Cal AD 410–600; 1-sigma calibrated result Cal AD 430–550) was obtained from a carbonized hickory nutshell fragment from Feature 5. The shell fragment was recovered from among fire-cracked rock in the feature fill. The feature, which appears to be a truncated hearth, was encountered in Block 1 at the top of Zone 2.

2. A radiocarbon age of 3230 ± 110 BP (Beta 159890; 2-sigma calibrated result Cal BC 1750–1270; 1-sigma calibrated result Cal BC 1620–1400) was obtained from charcoal in the cluster of fire-cracked rock in Feature 10. The relatively large cluster, located at the top of Zone 2 in Block 2, was associated with a small, ash-stained basin and appears to reflect a former living surface.

3. A radiocarbon age of 4770 ± 70 BP (Beta 159891; 2-sigma calibrated result Cal BC 3670–3370; 1-sigma calibrated result Cal BC 3640–3510 and 3420–3390) was obtained from charcoal associated with Feature 39, which was a large fire-cracked rock and rock scatter at the base of excavations in Block 2. The feature occurred at 70 cm below surface and appears to represent a former living surface associated with the rock cluster recorded as Feature 38.

4. A radiocarbon age of 4570 ± 40 BP (Beta 159892; 2-sigma calibrated result Cal BC 3490–3460, 3370–3310, and 3230–3110, and 1-sigma calibrated result Cal BC 3360–3340) was obtained from charcoal beneath cobbles and fire-cracked rock in Feature 33. This was located at 79 cm below surface in Block 1, and may represent a shallow, rock-lined hearth or roasting pit at or near a former living surface.

The calibrated radiocarbon dates, which fall within the Middle Archaic period (6000–3000 B.C), the Late Archaic period (3000–1000 B.C.), and the Middle Woodland period (300 B.C. to A.D. 800), suggest that former living surfaces at or near the top of Zone 2 date to the second half of the Late Archaic period. This is consistent with the presence of soapstone vessel fragments in unit levels adjacent to Feature 10. The radiocarbon date for Feature 5, which was a remnant of a hearth basin truncated by the plowing, falls well within the Middle Woodland period. This reflects Woodland occupation surfaces that have been obliterated by plowing. The radiocarbon results for Features 33 and 39 suggest that the deepest deposits in Blocks 1 and 2 date to the second half of the Middle Archaic period. The Zone 2 deposits recorded at depths between the dated features include diagnostic projectile points suggesting Late Archaic Savannah River phase occupations. The radiocarbon dates provide a sedimentation rate for alluvium on the T_1 terrace, indicating that a 1,000-year period of time is represented by 10 to 15 cm of deposits.

Paleoethnobotanical Analysis of Features

The analysis of light and heavy fractions from 29 feature flotation samples resulted in the recovery of two charred seeds, 522 fragments of carbonized nutmast, 18.51 grams of >2.0mm wood charcoal fragments, and 1.73 grams of wood resin. The recovery of seeds was low and included only one blackberry/raspberry seed and one mulberry seed. This may be due to the low volume of feature fill and flotation samples, the effects of seasonality of the occupations, or a combination of both. The carbonized nutmast is comprised of hickory nutshells or indeterminate hickory/walnut shells (Juglandaceae). Since hickory was the only specifically identified type of nutshell in the samples, it is likely that the majority of the Juglandaceae family nutshell originated from hickory nuts. Nutmast was recovered from 85% of the sampled features and is also present in hand-collected samples from fine-screening of excess feature soils. Wood charcoal was recovered from each of the feature samples. Specifically identifiable wood charcoal fragments include pine, hickory, red oak, white oak, oak, sycamore, and maple. Other identifiable fragments were categorized as ring-porous wood or indeterminate hardwood. Overall, the recovery of macroplant remains was very high. The proportion of specifically identifiable wood specimens, in combination with the excellent recovery of mast, highlights the relatively good state of preservation of the macroplant assemblage.

The paleoethnobotanical analysis provides general insights on the nature of the site's occupations. The ubiquity and nutshell-to-wood ratios indicate that nutmast was a significant food resource. Density measures provide additional evidence that the collection and processing of mast (probably for winter consumption) was a primary focus of the site inhabitants. These data indicate that mast was harvested in bulk, probably for storage and winter use during temporary encampments located at this site. Other fall/winter food sources such as acorn are missing in the nutmast assemblage. This, however, may be due to the poorer preservation of fragile acorn shells. The high recovery of Juglandaceae, in comparison, probably reflects the durability of hickory nutshells as well as the possibility that they were used as a fuel source.

The small numbers of seeds in the assemblage suggests that large-scale processing, consumption, and/or storage of summer-ripening fruits was not taking place at 31WK223. The recovery of these plant foods from pit features with a high density and ratio of mast suggests that these seeds represent accidentally charred stored resources that were consumed during a fall mast-gathering encampment. Greater quantities of seeds from edible fruits and herbs would be expected if this site represented a summer habitation. Additionally, archaeobotanical assemblages from Late Archaic to Early Woodland floodplain habitations often contain evidence of garden crops such as maygrass (*Phalaris caroliniana*) and goosefoot (*Cheonopodium berlendieri*). The lack of domesticates, combined with the poor recovery of spring summer ripening fruit and herb seeds, lends additional support to the contention that this site represents a seasonally restricted (fall) occupation whose primary focus was the gathering and processing of mast for winter use.

Nutmast was recovered from all of the feature types (hearths, pits/basins, post molds, rock clusters/scatters). The ubiquity was highest in hearths and pits with ashy deposits (100%). Only two of four sampled rock clusters/scatters yielded nutmast, representing the lowest ubiquity measure for a feature type. Mast-to-wood charcoal ratios suggest that the harvesting of nuts was important throughout the occupations at the site and offer additional perspectives on the features. They suggest that some of the fire-related features represent nut-roasting pits and/or that nutshell was used as a fuel source. In particular, a mast-to-wood charcoal ratio of 4.6:1.0 in the hearth area identified as Feature 10/10A suggests that this was a nut-processing area. Mast-to-nutshell ratios also suggest that nutshells are less prominent in ashy pits and somewhat more common in fire-cracked rock clusters/scatters. Since the latter may relate to hearths or stone-boiling, this is not surprising. Stone boiling, in particular, produces quantities of fire-cracked rock and has been associated with increases in hickory nut exploitation during the Archaic period (Munson 1986).

The wood charcoal from the features probably represents selectively utilized fuelwood or wood associated with structures. Pines and hickories are the most abundant in the feature samples, each accounting for more than 30% of the identified material. There is some evidence to suggest an increase in the abundance of pine during later occupations associated with the Woodland period. This would suggest that pine became a more common forest component and may indicate a preference for harvesting nearby wood as opposed to seeking out preferred hardwoods with superior fuel characteristics. Overall, however, hickories, oaks, maples, and pines appear to be the preferred fuel sources. Hickories and oaks produce high heat values and are often the dominant fuelwoods in prehistoric hearths in the eastern United States. The general composition of the wood charcoal assemblage suggests that the site was surrounded by a mixed forest community that is typical of the Blue Ridge province. Only the presence of sycamore in the charcoal assemblage is suggestive of the ecotonal setting and close proximity of the Piedmont province.

Lithic Analysis

A total of 2,852 chipped-stone items was recovered during the data recovery excavations (Table 3). These were recovered from flood deposits and buried horizons on the levee in the western portion of the site and from plow zone and sub-plow-zone contexts in the cultivated T_1 terrace portion of the site.

The overall assemblage indicates limited core reduction and early biface shaping. The counts for cores and bifaces are relatively low compared with completed projectile points. There is also a noticeable lack of scrapers and few examples of retouched flakes. The debitage totals indicate few cortex-bearing flakes from primary decortication and

Table 3. Summary of chipped stone artifacts in the 31WK223 assemblage.

Type	Count	%
Cores	8	0.28
Early Stage Bifaces	6	0.21
Late Stage Bifaces	5	0.18
Biface Fragments	10	0.35
Projectile Points/Projectile Point Fragments	37	1.3
Retouched Flakes	13	0.45
Utilized Flakes	3	0.11
Core Flakes	2	0.07
Decortication Flakes	60	2.1
Biface Thinning Flakes	151	5.3
Interior Flakes	1764	61.85
Pressure/Retouch Flakes	12	0.42
Flake Fragments	664	23.28
Shatter	117	4.1
Total	2852	100

high representation of interior flakes and flake fragments. The frequency of bifacial thinning flakes is relatively low, though completed bifaces are the primary tool type at the site. These patterns suggest that primary reduction of raw materials tended to occur off-site and that limited activities (perhaps seasonal in nature) were performed within the excavated site area.

Table 4 summarizes the projectile points recovered from the site with respect to the zone and level contexts. The points represent a range of types spanning the Late Archaic to Middle Woodland periods. A number of the points were not typical of established types, which is expected given the transitional location of the site between the Piedmont and Appalachian Summit regions.

The typological identification of points from the block excavations contributes to our interpretation of site stratigraphy. This is especially important in delineating stratigraphic breaks that are not well defined by the sedimentology. The excavation of Zone 2, Level 1 in Block 1 yielded only a point tip and an indeterminate side-notched point (Acc. #s 44A, 44B). Zone 2, Level 2 yielded another tip, an indeterminate lanceolate point (Acc. #s 46C, 47B), a Late Archaic Savannah River Stemmed variant (Acc. # 33C; Figure 11), and a very large, straight-

Table 4. Projectile points by zone and level.

Accession #	Type or Description	Material	Unit/Zone/Level
210191-8A	small triangular point	metavolcanic	6S60E, Z1
210191-8A	unidentifiable point fragment	chert	6S60E, Z1
210191-8B	crude small triangular point	metavolcanic	6S60E, Z1B
210191-8B	unidentified fragment, possible small triangular	chert	6S60E, Z1B
210191-8B	unidentified small triangular with squared tang	chert	6S60E, Z1B
210191-8B	small side-notched triangular, possible Pigeon Side-Notched	chert	6S60E, Z1B
210191-8B	straight-stemmed point with triangular blade-possible Gypsy Stemmed or Lamoka	quartzite	6S60E, Z1B
210191-1B	triangular with shallow side notches, possible Yadkin Large Triangular variant	metavolcanic	Z1/Z2 Interface
210191-1D	Savannah River Stemmed	metavolcanic	Z1/Z2 Interface
210191-1D	Savannah River Stemmed	quartzite	Z1/Z2 Interface
210191-1F	Badin Crude Triangular	metavolcanic	Z1/Z2 Interface
210191-2C	possible unfinished pentagonal form	metavolcanic	2S3E, Z2/L1
210191-8C	triangular point with shallow side notches-possible Pigeon Side-Notched	metavolcanic	6S60E, Z2/L1
210191-11B	point tip, indeterminate	metavolcanic	2S38E, Z2/L1
210191-11C	square-stemmed point, possible Savannah River Stemmed	metavolcanic	2S38E, Z2/L1
210191-29A	side-notched, Lamoka-like	metavolcanic	10S36E, Z2/L1
210191-29B	Yadkin Large Triangular	metavolcanic	10S36E, Z2/L1
210191-29E	concave base, poss. Pigeon Side-Notched variant	metavolcanic	10S36E, Z2/L1
210191-29J	lanceolate with concave base, indeterminate	metavolcanic	10S36E, Z2/L1
210191-29K	triangular(?) with concave base, indeterminate	metavolcanic	10S36E, Z2/L1
210191-30A	contracting stemmed, indeterminate	metavolcanic	10S38E, Z2/L1
210191-36A	shallow side-notched, concave base, possible Pigeon Side-Notched	metavolcanic	12S32E, Z2/L1
210191-36B	medium to large triangular, concave base	metavolcanic	12S32E, Z2/L1
210191-39B	shallow side notched, poss. Pigeon Side-Notched	metavolcanic	12S38E, Z2/L1
210191-40A	medium to large triangular, concave base	metavolcanic	12S40E, Z2/L1
210191-40B	large lanceolate, indeterminate	metavolcanic	12S40E, Z2/L1
210191-44A	indeterminate tip	metavolcanic	16S24E, Z2/L1

Table 4 continued.

Accession #	Type or Description	Material	Unit/Zone/Level
210191-44B	side-notched, concave base, indeterminate	metavolcanic	16S24E, Z2/L1
210191-11D	stemmed, possible Savannah River Stemmed base	quartz	2S38E, Z2/L2
210191-27B	indeterminate	metavolcanic	10S32E, Z2/L2
210191-33C	straight stemmed, slightly concave base with broad reworked blade, probable Savannah River Stemmed variant	metavolcanic	12S26E, Z2/L2
210191-42C	contracting stemmed, very large with straight-sided blade, indeterminate	chert	14S28E, Z2/L2
210191-46C	indeterminate tip	metavolcanic	16S28E, Z2/L2
210191-47B	lanceolate, straight base; well thinned, especially at base, indeterminate	metavolcanic	16S30E, Z2/L2
210191-41C	Badin Crude Triangular	metavolcanic	14S26E, Z2/L3
210191-35E	side-notched, straight base, similar to Brewerton Side-Notched	metavolcanic	12S30E, Z2/L4
210191-45K	straight to expanding stemmed; very long, narrow triangular blade, possible resharpened Savannah River Stemmed variant	metavolcanic	16S26E, Z2/L5

bladed, contracting stemmed point associated with Feature 25 (Acc. # 42C). A Badin Crude Triangular correlate was recovered from Zone 2, Level 3 (Acc. # 41C). This point type is generally diagnostic of the Early Woodland period, but the current specimen may actually represent a generalized biface form that was used in the Archaic period. This would be more consistent with the Archaic diagnostic in the preceding level. Zone 2, Level 4 yielded a side-notched point that is similar to the Late Archaic Brewerton Side-Notched type defined for the Northeast and Mid-Atlantic (Acc. # 35E). Zone 2, Level 5 also yielded a Late Archaic diagnostic, a resharpened Savannah River Stemmed variant (Acc. # 45K). The radiocarbon date obtained for Feature 33, which was detected in the next level in a unit to the northeast, falls into the later part of the Middle Archaic (intercept of Cal BC 3350). The earlier date for the feature is therefore consistent with interpretations regarding the intact nature of the deposits.

The excavation of Zone 2, Level 1 in Block 2 yielded both Late Archaic points (Savannah River Stemmed or similar variant, Acc. # 11B; Lamoka-like, Acc. # 29A), Middle Woodland points (Yadkin Large

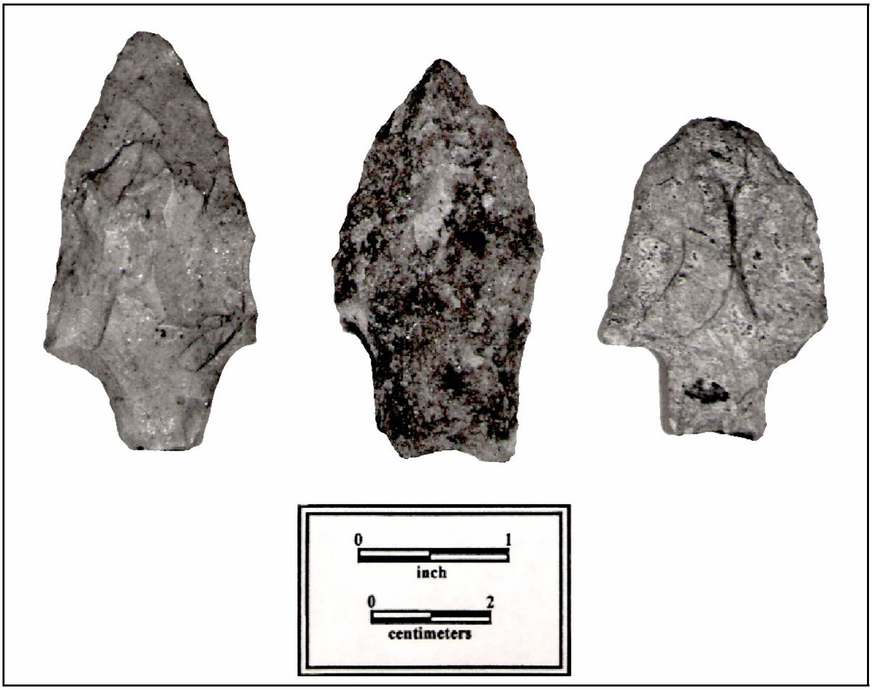

Figure 11. Savannah River Stemmed Points (first and second from left) and Savannah River Stemmed Variant (right).

Triangular, Acc. # 29B; Pigeon Side-Notched correlates, Acc. #s 29E, 36A, 39B), and indeterminate triangular points (Acc. #s 29K, 36B, 40A). The side-notched points are similar to those illustrated for the Cane Creek site in the Appalachian Summit area (Mitchell County) (Keel and Egloff 1984). Other points from the same level include two indeterminate lanceolate points (Acc. #s 29J, 40B) and an indeterminate contracting stemmed point (Acc. # 30A). A number of the Block 2 points were concentrated in 10S36E, Zone 2, Level 1. These include the Lamoka-like point, the Yadkin Large Triangular, one of the Pigeon Notched correlates, one of the indeterminate triangular points, and one of the lanceolate points. The co-occurrence of Archaic and Middle Woodland diagnostics indicates post-depositional mixing of deposits in this unit's vicinity. Many additional artifacts were recorded in this area including soapstone vessel fragments and Late Woodland ceramics. The radiocarbon date from the adjacent Feature 10, which was derived from charcoal in an intact fire-cracked rock cluster at the top of Zone 2, falls into the Late Archaic period. The Woodland diagnostics, therefore, appear to have been introduced into this Archaic level through a process such as bioturbation. Excavation of Zone 2, Level 2 in Block 2 yielded only one additional projectile point, a possible Savannah River Stemmed base (Acc. # 11D).

The projectile points are predominantly fashioned from metavolcanic stone, regardless of Archaic or Woodland affiliation or depth within the site. Woodall's work at the nearby Porter Site (31WK6; Woodall 1999) illustrates that the general vicinity offers few materials for knapping besides quartz. This suggests the need for greater contact with populations providing access to better materials, as appears to be the case at 31WK223. For sites downstream, the most likely source of metavolcanic stone is the Carolina Slate Belt in the Piedmont to the east (Woodall 1984). The metavolcanic points from the current data recovery suggest a similar orientation to the east.

An examination of raw material types in relation to both tool and debitage classes and context further suggests that occupants of the site had a strong general preference for metavolcanic stone throughout the various periods of occupation. In general, much of the metavolcanic stone has the appearance of porphyritic rhyolite described in Daniel (1998). This has characteristic quartz or feldspar phenocrysts, and the matrix is generally light to dark gray. Daniel and Butler (1996) have identified specific porphyritic rhyolite quarry sites in the Uwharrie Mountains of the Carolina Piedmont. Examples of metavolcanic rhyolitic tuff are also present in the Zone 2 assemblage. These tend to be gray to greenish and somewhat coarse-grained, as described for Carolina Slate Belt sources in Daniel (1998).

Other raw material types, though present in much lower frequencies, are quartz, quartzite, and chert. The only exception to the dominance of metavolcanic stone occurs in the case of a concentration of debitage from the northwest corner of Block 2. This area produced a range of chert flakes from Zone 2, Levels 3 and 4, including dark gray, black, an unusual blue/orange mottled, and a distinctive milky opaque with black veins. Some of the dark gray and black chert may be Ridge and Valley chert known as "Knox" chert. This may come from east Tennessee or western North Carolina (Daniel 1998; Kimball 1985; Woodall 1984). Woodall also mentions a chert source to the northwest near Abingdon, Virginia (Woodall 1984). The sources of the blue/orange and black-veined cherts are not apparent.

Only six possible rough or ground stone tools were recovered during the excavations. These include a possible anvil stone collected from the plow zone, a possible grinding stone collected from the rocks comprising the top of Feature 29, a crude quartzite chopping tool, and a possible abrader. No hammerstones, net sinkers, plummets, celts, adzes, or bannerstones were recovered from the site. The lack of these items and the few examples of possible grinding, chopping, and abrading tools suggest a limited range of activities at the portion of the site investigated.

The excavations also resulted in the recovery of a total of 2,542 fragments of fire-cracked rock (245.6 kg), mostly quartz and quartzite, and 545 specimens of unmodified cobbles or tabular rock (159.3 kg) relating to cultural activities at the site. Over 35% of the fire-cracked rock was recovered from feature contexts, primarily in hearths or fire-cracked rock/cobble clusters and scatters. The remaining fire-cracked rock was recovered from the plow zone during initial test unit excavation or from other dispersed contexts. Over 77% of the unmodified cobbles or tabular rock was recovered from feature contexts.

A portion of the fire-cracked rock from 13 features was found to have blackening from soot deposition. The blackened specimens were not restricted to features identified as hearths, but also occurred in rock clusters and scatters. This lack of patterning is consistent with experiments conducted by Cavallo (1987), in which blackening as well as reddening was observed on rocks subjected to heating for roasting or stone boiling as well as slow heating for meat, fish, or hide smoking. It appears that the only potential indicator of feature function for rock clusters and scatters is the relative frequency of fire-cracked rock versus unbroken cobbles or tabular rock. Cavallo found that the intense heating and rapid cooling involved in stone boiling led to greater incidences of spalling and cracking than would occur in roasting or steaming contexts. This suggests that rock clusters and scatters that are primarily comprised of fire-cracked rock are more likely to be the discarded rocks from stone boiling. Features 1, 24, 25, 27, and 36, which include rock clusters/scatters with over 50% fire-cracked rock, no associated soil staining, and limited amounts of charcoal, are especially likely to represent such an activity. These features were encountered at Late Archaic depths within Zone 2 ranging from 40 to 62 cm below surface.

Forty fragments of soapstone were recovered, but only one was recovered from a feature context. This occurred in Feature 13, an undated possible post mold detected at the top of Zone 2. The remaining items were recovered from the plow zone or from Zone 2 block excavations in Level 1 or Level 2. No more than 23 objects are represented in the soapstone assemblage, and 22 of these appear to represent vessels based on curvature and/or the presence of rim sections. No evidence for soapstone slabs, thought to be used in stone boiling, was

Figure 12. Shallow and elongated soapstone bowl (mended) with scraped interior.

recovered from the site. The vessel shapes appear to include two categories: shallow, elongated bowls with rounded or squared ends and hemispherical to conical bowls (Figure 12). Sooting (surface deposits of soot on the vessel exterior) is present in eight cases, suggesting that the vessels were placed directly over a fire during cooking/processing activities or at least, as Klein (1997) suggests, next to a fire. Faint reddening, which may represent direct heating or close proximity to a fire, is present in three cases. Interestingly, none of the three vessels thought to represent shallow, elongated bowls have soot or reddening.

A study of the soapstone raw material was not conducted, but soapstone sources were certainly present within relatively close proximity to the site. According to Woodall (1984), soapstone occurs in small, isolated outcrops in the northwestern Piedmont. He mentions an outcrop along the Yadkin River in Yadkin County, and Holland et al. (1981) studied quarries in Ashe and Watauga counties. Since 31WK223 lies between these areas, it is possible that additional nearby quarries were present. Local availability of soapstone may have influenced patterns of use and technological change.

Ceramic Analysis

A small assemblage of 157 Native American ceramic vessel sherds was recovered from the excavations, and mending of a limited number of sherds reduced the maximum number of represented vessels to 135. When possible, larger sherds were identified with respect to a previously defined ceramic series. This was generally difficult for the following reasons: (1) few comparative ceramic assemblages have been inventoried in the surrounding area; (2) the small and mixed nature of the assemblage limits observation of broad patterns; and (3) it is probable that traditions identified for both the core areas of the Piedmont and Appalachian Summit regions influenced the site's inhabitants.

Table 5 presents the tabulation of temper and surface treatment, and Table 6 summarizes the ceramic series thought to be present. Ceramics consistent with the Dan River series, which reflects a Late Woodland Piedmont tradition (A.D. 1000–1450; Ward and Davis 1999), were recovered from general contexts in the eastern portion of the site (general plow zone or the Zone 1/Zone 2 interface), as well as from the small area of mixed Zone 2 deposits in Excavation Block 2. The overall distribution of the Dan River ceramics suggests that there was a small Late Woodland component in the eastern portion of the site, primarily within the depth of the plow zone.

Those specimens assigned to the Dan River series are primarily coarse sand tempered, but secondary inclusions of rounded or angular quartz are present in at least half of the specimens. Almost half are knotted net impressed while the rest are cord marked, plain, or indeterminate. None have a scraped or striated interior, however, which is inconsistent with the series definition.

One net-impressed rim sherd (Figure 13) was recovered from the edge of Feature 5 in Block 1. The paste characteristics appear consistent with the Dan River series (coarse sand with some angular quartz), but the form and surface treatments are not typical of the series (J. Eastman, personal communication 2001). The sherd has a fine knotted net-impressed surface treatment, a plain interior, a slightly inverted rim profile, and a rounded lip with nicking (almost incisions) at regular intervals. A nutshell fragment from the feature returned the radiocarbon age of 1560 ± 40 BP (Beta 162156; 2-sigma calibrated results Cal A.D. 410–600). This date suggests a Middle Woodland rather than a Late Woodland affiliation for the feature. Since the rim sherd appears inconsistent with the Late Woodland Dan River series and does not

Table 5. Tabulation of temper and surface treatment for ceramics from 31WK223.*

	Surface Treatment							
Temper	**Cord Marked**	**Fabric Impressed**	**Knotted Net Impressed**	**Plain**	**Indeterminate**	**Other**	**Total**	**Percent**
Crushed Quartz	4	9		2	6	5	26	19.3
Coarse Sand	5	3	9	1	6		24	17.8
Medium Sand		1	2	1	1	2	7	5.2
Fine Sand	1				1		2	1.5
Soapstone				1	1		2	1.5
Other		2			2		4	3
Indeterminate					70		70	51.9
Total	10	15	11	5	87	7	135	
Percent	7.4	11.1	8.1	3.7	64.4	5.2		

*total sample of 157 reduced to 135 due to mends

Table 6. Distribution of 31WK223 ceramics by series.

Ceramic Series	N	%
Dan River	19	14.07
Yadkin	23	17.04
Badin	2	1.48
Indeterminate	91	67.41
Total	135	100.00

resemble any currently established Middle Woodland types, it is classified as indeterminate.

Ceramics consistent with the Middle Woodland Yadkin series (dating to as early as 290 B.C.; Ward and Davis 1999) were also recovered. The 23 specimens are primarily tempered with medium crushed quartz (2–5 mm size). The predominant surface treatment, at

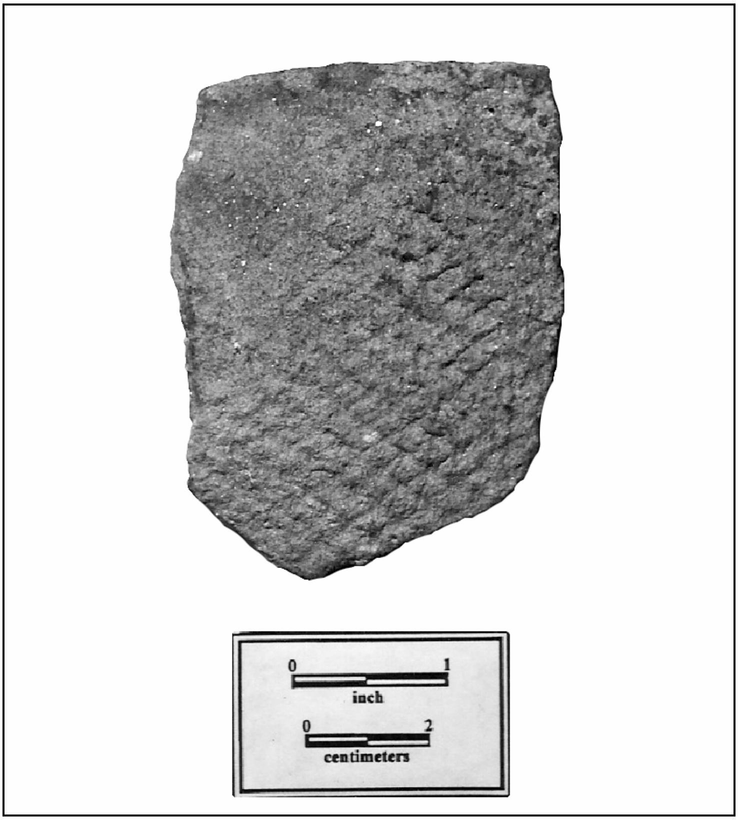

Figure 13. Net-impressed rim sherd from Feature 5.

48%, is fabric impressed (mostly wicker-type fabric). Other specimens are cord marked, plain, check stamped, or smoothed. Vessel interiors tend to be smoothed or plain, though a few specimens appear striated or slightly scraped. Yadkin series ceramics were recovered from general contexts (plow zone, etc.) in both the levee area to the west and in the eastern (cultivated) portion of the site. They were also recovered from what appear to be intact zones on the levee (Zones 1C and 2). A Yadkin series pot bust was recovered from the same levee area during the Wake Forest University Archeology Laboratory excavations at the site (Terrell et al. 1999). This was found at a depth and context that is similar to the current Zone 1C. Only two Yadkin-like sherds were recovered from the block excavations in Zone 2 in the eastern portion of the site. One was recovered from Feature 3 at the base of the plow zone.

The fine-sand-tempered sherds in the assemblage (one cord-marked, one indeterminate in surface treatment) have a much smoother paste and stand out from the rest of the assemblage as possible examples of the Early Woodland Badin series (500 B.C. –A.D. 1; Ward and Davis 1999). Two ceramic specimens are tempered with soapstone, which may suggest later influences related to the McDowell or Burke phases of the South Appalachian Mississippian tradition (roughly A.D. 1000 to contact; Ward and Davis 1999). These are both quite small, and the surface treatment (plain with soot) could only be identified on one. Sherds classified as indeterminate were typically too small or eroded for reliable classification.

Though over half of the sherds recovered from the site were located in disturbed plow zone contexts, the distribution of sherds assigned to the Yadkin and Dan River series suggests some spatial patterning at the site. Sherds assigned to the Dan River series, a Late Woodland ware, were exclusively recovered from the eastern portion of the site. They occurred in both the plow zone and the first level of Zone 2. The specimens in Zone 2 were all located along the southern margin of Block 2, which has a small area with evidence for mixing within the upper portion of the zone. The overall distribution of Dan River ceramics suggests that there was a small Late Woodland component in the eastern portion of the site, primarily within the plow zone. Features 3, 5, and 6, which were detected at the top of Zone 2, have associated ceramic sherds. None, however, suggest Dan River phase affiliation. The sherd with Feature 3 is assigned to the Yadkin series and the sherds associated with Features 5 and 6 are indeterminate. A radiocarbon date suggesting a Middle Woodland affiliation has been obtained for Feature 5.

Ceramics assigned to the Yadkin series occur primarily in the western part of the site on the river levee. These were recovered from probable intact deposits in Zones 1C and 2, and probably reflect an earlier Middle Woodland occupation. No features were encountered in the levee deposits, but Feature 3 in the eastern part of the site, as discussed above, had an associated Yadkin series sherd and may reflect Middle Woodland deposits that have been truncated by the plow zone along with the evidence for the Dan River occupation.

Discussion

Initial investigation of 31WK223 indicated potential for information on Early and Middle Woodland period occupation in this transitional area between the Piedmont and the Appalachian Summit archaeological regions. Intact deposits were expected in a sub-plow-zone stratum in the portion of the site situated on the natural levee of the Reddies River. In contrast to the early expectations, the data recovery investigation recorded only limited information relating to Woodland period occupations at the site. However, buried deposits dating to the Middle and Late Archaic periods were recorded on the T_1 terrace in the eastern portion of the site. The results of this study address a variety of questions regarding Native American occupation of the transitional Western Foothills area.

Site Preservation

Historic sedimentation buried and preserved limited Middle Woodland deposits in the natural river levee. The prehistoric A-horizon on the T_1 terrace has been eroded and incorporated into the plow zone. Evidence for Middle and Late Woodland occupation of the site is in this plow zone with portions of some intrusive features preserved below (e.g., Feature 5). The T_1 terrace was deposited in a cove upstream of a bedrock ridge that extends out into the stream valley. Deposits on this terrace are protected from erosion as higher velocity floodwater is directed to the north in order to flow around the bedrock ridge. When the terrace is inundated during flood events lower velocity floodwater deposits silt and medium-to-fine sand across the surface. This process is unlikely to disturb artifacts and features on the terrace. The geoarchaeological investigation did not find any evidence of erosional surfaces below the plow zone.

Three undisturbed alluvial strata are interpreted from changes in grain size with depth in the terrace deposits. These indicate a change in the sedimentary environment or a variation in the magnitude of flood events through time. The sedimentary environment can change as the stream channel meanders across the valley. Generally finer grain deposits indicate a greater distance to the stream channel. A paleo-channel was observed west of the present channel location and can be seen on an aerial photograph (see Figure 2). Bioturbation has affected all buried archaeological sites to some extent; however, the strata identified on the T_1 terrace indicate that the effects of bioturbation are limited at 31WK223.

Radiocarbon dating of buried features indicates that sediment was deposited on the T_1 terrace at a rate of about 10-15cm/ka. The lowest sedimentation rate was calculated for the sample from 32 cm at the base of the plow zone. Historic erosion would result in a lower sedimentation rate for samples collected from shallower depths. The calculated sedimentation rates are fairly consistent and represent a good estimate of the Holocene sedimentation on this terrace (see Table 1). Using a sedimentation rate of 15cm/ka, the base of the deep profile (see Figure 3) would date to about (190 cm / 15cm/ka) 12k B.P.

Preservation of buried archaeological sites adjacent to constrictions in the width of stream valleys has been documented in the Piedmont and southern Appalachians (Coe 1964; Gunn 1991; Kimball 1995; Seramur et al. 2007). These are typically areas of high sedimentation rates and good stratigraphic preservation. A riffles or rapids is present at each of the three bedrock ridges that extend into the Reddies River stream valley. These riffles serve as a ford across the stream and the associated variation in aquatic habitat would have provided a greater abundance of food resources.

The location of 31WK223 fits with previous models of buried archaeological sites on fluvial terraces. The sedimentology and interpreted stratigraphy documents an area of consistent alluvial sedimentation on the T_1 terrace. Sedimentary processes that buried the cultural horizons were favorable for the preservation of archaeological context, as indicated by the presence of multiple intact features at varying depths up to 79 cm below surface.

Middle Archaic Through Woodland Period Occupations and Trends

Thirty-two features were encountered on the cultivated T_1 terrace during the data recovery, including hearths, pits/basins, post molds, and rock clusters or scatters. Radiocarbon dates from charcoal associated with the features suggest that any former living surfaces at or near the base of the plow zone generally date to the Late Archaic period. The deepest excavated deposits appear to date to the second half of the Middle Archaic period. With the exception of possible intact Middle Woodland deposits in the uncultivated levee portion of the site, former Middle and Late Woodland living surfaces appear to have been subsumed by plowing.

Diagnostic projectile points recovered from various depths within the intact floodplain deposits represent a sequence of types spanning the Late Archaic period to the Middle Woodland period. The overall pattern of cores, points, other tools, and debitage in the lithic assemblage suggests that primary reduction of raw materials tended to occur in another part of the larger site or off the site completely. It also suggests that limited activities (perhaps seasonal in nature) were performed during any given period within the excavated site area.

The use of lithic raw materials may reflect cultural affinities or patterns of interaction. Metavolcanic stone was the most commonly recovered material throughout the various contexts at the site. The most likely source of metavolcanic stone is the Carolina Slate Belt in the Piedmont region to the east. A similar pattern was noted for the Late Woodland Donnaha site (31YD9), which is located down the Yadkin River watershed in Yadkin County (Woodall 1984). More extensive survey of Yadkin drainage sites from various periods, however, has revealed a decline in use of metavolcanic rock in the areas between the Yadkin and Reddies River confluence and the Donnaha site. Woodall (1990) has suggested that Yadkin River shoals above the Donnaha site formed a physical barrier to movement of metavolcanic materials originating in the Carolina Slate Belt. The results from 31WK223, which lies on a tributary some 40 to 50 miles upstream of the Yadkin shoals, are therefore unexpected and suggest a strong orientation toward the east. They also suggest established patterns of metavolcanic stone procurement that were not affected by barriers to the main river course.

Minor amounts of various types of chert are present in the 31WK223 lithic assemblage, but not enough to suggest extensive use. Some of the dark gray and black chert may be Ridge and Valley province chert known as Knox chert. This could have origins in east Tennessee or in nearby western North Carolina (Daniel 1998; Kimball 1985; Woodall 1984). Previous investigations of sites to both the east and west of 31WK223 have revealed evidence for more frequent use of chert raw material. The Porter site (31WK6), located downstream along the Yadkin River, is a Late Woodland site with evidence for South Appalachian Mississippian tradition influence. A substantial assemblage of Ridge and Valley chert artifacts was present, suggesting orientation toward the south and west and possible connections with Mississippian territorial expansion (Woodall 1999). The T. Jones site (31WK33), located upstream along the Yadkin River, has substantial representation of Ridge and Valley chert in the artifact assemblage (Idol 1997). The site is associated with the Burke phase, which is related to the South Appalachian Mississippian tradition. Assemblages from the Nelson Mound group sites along the upper Yadkin River in Caldwell County have further suggested Burke phase orientation toward the south and west (Kimball et al.1996). The results from 31WK223, with the emphasis on metavolcanic stone, stand in contrast. While Mississippian-influenced sites have more substantial chert assemblages reflecting orientation towards the south and west, the results from 31WK223 generally suggest that earlier Woodland and Archaic period communities may have been more closely tied to Piedmont-based resources and cultural traditions.

Soot deposits and reddening on some of the recovered soapstone vessel fragments suggest that hemispherical to conical forms were used for cooking, which may not have been an efficient technology when compared to early pottery technology at the transition to the Early Woodland period. The site, however, is located in a region with numerous soapstone sources that could be exploited for local use and regional exchange. Retention of soapstone technology may have been favorable to the maintenance of local and regional exchange networks featuring soapstone, as suggested in a broader model by Sassaman (1993). Unfortunately, most of the soapstone vessel fragments were not recovered from feature contexts. Without more precise chronological control, it is impossible to tell how late the soapstone technology actually was in use.

Taken together, the distribution and chronology of the features and intact stratified deposits at 31WK223 suggest repeated precontact Native American occupations of the site from the Middle Archaic period through Woodland times. The artifact assemblages suggest only limited information on site function and seasonality, but lithic materials and the presence of Badin, Yadkin, and Dan River ceramic wares seem to suggest strong ties to Piedmont-based resources and cultural traditions. Such ties may have been in part related to exchange of soapstone materials, which were fairly abundant in the plow zone and upper portions of Zone 2 at the site. The study of macrobotanical remains suggests that the site represents a series of fall occupations for the harvest and processing of nutmast for winter use. The occupations may have been restricted to this processing, or may have been part of larger winter aggregations for social and economic exchange. Data for winter habitation structures and broader activity areas were generally lacking at the site, but additional site deposits from outside the compliance-based project area, if present, could reflect a larger or longer-term occupation of which the current synthesis only partially represents.

Notes

We offer thanks to the following individuals for assistance with the project: Claude Hall of Wilbar, North Carolina, for access to the site; Ned Woodall and Bruce Idol for background information; and Jane Eastman for opinions on the ceramics. We also thank Matt Wilkerson of NCDOT for cooperation in the publication of the excavation results.

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DEFINING CULTURAL LANDSCAPES THROUGH HUMAN ECOLOGY: A CASE STUDY FROM THE 1819 CITIZEN CHEROKEE RESERVATIONS IN WESTERN NORTH CAROLINA

by
Shane C. Petersen

Abstract

The linear facilities typically associated with transportation projects provide opportunities to examine the living landscapes through which they pass. These landscapes may be seen as palimpsests of evolving cultural activities and the interactions associated with human ecology. Typically, these cultural landscapes are viewed through the lens of design intent in the built environment. But, a survey conducted by the NCDOT in western North Carolina has provided an opportunity to examine the definition and evolution of rural historic landscapes through the interactions between human communities as influenced by the environment. Here, Cherokee and Anglo-American communities serve as examples of such interactions.

Agnosco veteris vestigia flammae; "I recognize the footprint of an old fire."

Several years ago, I adopted this quotation from Vergil's *Aeneid* to illustrate the point that oftentimes archaeologists are used to looking for the obvious signs of human occupation of the landscape (Petersen and Mohler 2002: 98). However, as archaeologists and other cultural resource specialists have observed over the past few decades, the record of human modification of the earth over time is far too complex to only be recorded through the most basic of identification procedures. In more recent years, the concept of the "cultural" or "historic" landscape has become one of the more exciting and enigmatic topics of both academic and applied cultural resource studies. It is irrefutable that human beings are an integral catalyst for evolution in our landscape. Those of us that have been involved in cultural resource management are acutely aware of how the development of our social systems may radically alter our natural and human environment (cf. Stilgoe 1998). Archaeologists and historic resource specialists involved in transportation projects, in particular, are provided dramatic opportunities to observe and consider the evolution of the cultural landscape on a scale that few other sub-disciplines achieve. This is largely due to the magnitude of scale involved in most projects of this type (Jackson 1984: 21–27, 35–38). In such cases, the first challenge is not to determine if cultural landscapes exist, for we are always actors in the living landscape around us; rather, the task is to determine the nature of the cultural landscape and then to determine its significance.

The concept of the "historic" landscape is by no means a new one; specialists have long understood the value of particularly significant landscapes. However, the concept of a "cultural" landscape has long remained somewhat more enigmatic and has only recently begun to be addressed. In the development of this nascent "cultural" perspective on the environment, specialists and practitioners are admonished to consider the "intent" of the designer in a particular landscape; a perspective that works remarkably well for resources that have been shaped towards a cultural aesthetic. However, the "design intent" becomes problematic for interpretation of the rural historic landscape, especially when that intent is not based in typical western concepts of the land. "Design intent," as it is commonly conceived, fails to incorporate the full spectrum of behaviors incorporated in human ecology; even such vague concepts as "function" that might be utilized as a substitution may not adequately denote human ecology for a resource. When we examine a particular area from a landscape perspective, it is perhaps useful to consider that we are, in fact, examining the evolution of human ecology for a particular place.

In 2002, the North Carolina Department of Transportation (NCDOT) was presented this challenge through of the proposed widening of a rural secondary road in the western part of the state (Petersen et al. 2006). This gravel track in the Appalachian Mountains of North Carolina, ironically named Needmore Road, was situated along the narrow alluvial terrace bordering the Little Tennessee River, a location subject to frequent flooding and causing numerous road maintenance problems (Figure 1). In anticipation of NCDOT's proposal to improve Needmore Road, cultural resource investigations were planned.

It was already understood that the project area passed through the heart of the most remote and culturally conservative portions of the traditional Cherokee lands and that this same project lay adjacent to the location of several ephemeral individual Cherokee reservations of the early nineteenth century (Ellison 1992:82–83; Riggs 1988). Nevertheless, conventional wisdom was that a pedestrian survey with subsurface testing in appropriate areas would be sufficient to thoroughly investigate the project corridor. Since no structures over 50 years in age lay within the viewshed of the project, a traditional historic property

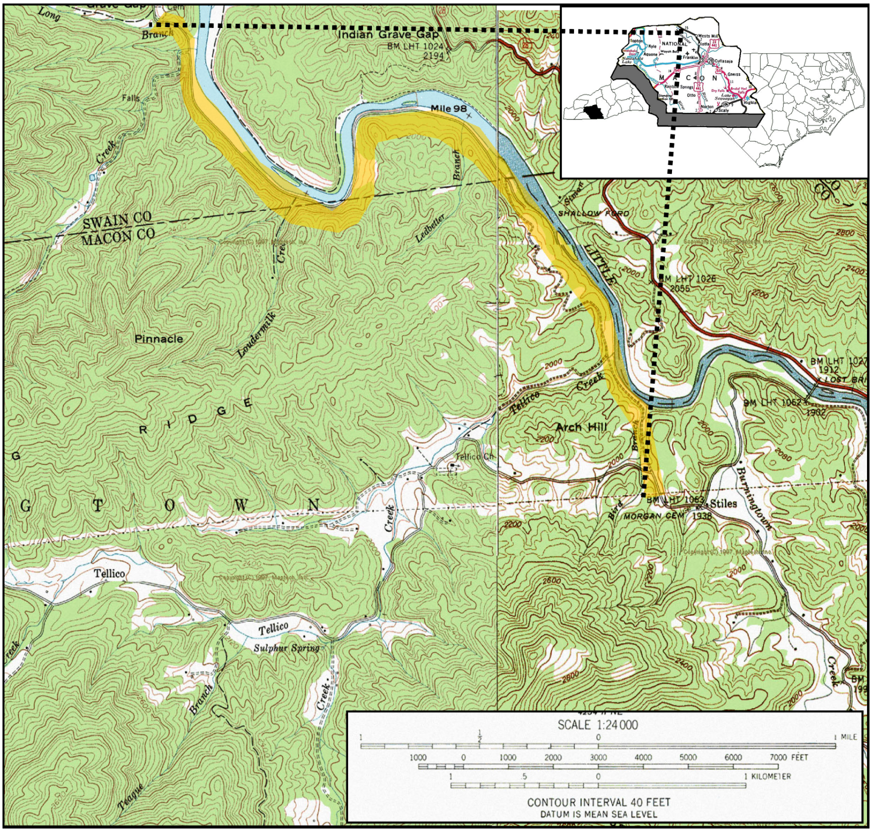

Figure 1. The location of the NCDOT road improvement project for Needmore Road in Macon and Swain counties, North Carolina.

survey was initially considered unnecessary. However, as archaeological resources were beginning to be documented and the research into the cultural context of the region began to be investigated further, it became increasingly apparent that this gravel road lay along the margins of a resource that was more than a simple sum of its individual parts.

For the archaeologists attempting to understand an area and thus assess its cultural significance from a holistic perspective, the relationships between individual resources are just as important as the resources themselves. In rural areas, in particular, resources are placed and preserved as dictated by local environmental factors; archaeological sites, local physiography, and landscape features are interconnected aspects of past relationships between human communities and their environment. Obviously, human ecology may evolve or change through time, especially with reference to changing cultural perspectives on the relationship between community and the natural environment.

Needmore Road, situated along the Little Tennessee River in North Carolina, lay within an area well-known for its challenges to human communities, whether it be the settlers in the early Anglo-American frontier, or their Native American predecessors. From the late seventeenth through the mid-nineteenth centuries, historic Cherokee communities typified cultural adaptation to the southern Appalachian environment (Rodning 2002a). The Little Tennessee River watershed formed the core of what would become known as the Cherokee "Middle Towns," which included such settlements as Nequassee, Joree (occasionally called Iotla), and Cowee (Goodwin 1977:38–40). The noted naturalist William Bartram picturesquely described the Cherokee landscape adaptations of the Middle Towns in 1775. Following a short excursion east from the town of Cowee, he wrote in his journals of the view west into the Little Tennessee River Valley:

> …perhaps as celebrated for fertility, fruitfulness and beautiful prospects, as the Fields of Pharsalia or the Vale of Tempe; the town, the elevated peaks of the Joree mountains, a very distant prospect of the Joree village in a beautiful lawn, lifted up many thousand feet higher than our present situation, besides a view of many other villages and settlements on the sides of the mountains, at various distances and elevations, the silver rivulets gliding by them, and snow white cataracts glimmering on the sides of the lofty hills; the bold promontories of the Joree mountain stepping into the Tanase river, whilst his foaming waters rushed between them. [Van Doren 1928:287]

Bartram, having traveled from Charleston, South Carolina, through the Lower Towns of the Cherokee to the headwaters of the Little Tennessee River, took note of the cultural modifications and landscape features of the Cherokee lands. He reported abandoned settlements, open fields, orchards, pastures, stone cairns, and trails far from concentrated human habitation (Rodning 2002b). What Bartram did not find was a natural environment untouched by human hands; rather, he found a landscape that had been modified and had evolved along the lines dictated by Cherokee ecology.

Many of these Cherokee modifications to the landscape remain and have been well documented in the region, so that when a large, well-preserved stone fish weir in the Little Tennessee River near Tellico Creek was observed (Figure 2), NCDOT began to suspect that a more holistic interpretation of the project vicinity might be required. The major Cherokee Middle Town at Cowee, which had so impressed

Figure 2. Photograph of the large fishweir immediately downstream of Tellico Creek on the Little Tennessee River, Macon County.

William Bartram in 1775, was centered on a large ceremonial mound built on a hill overlooking a similar stone fish weir across the Little Tennessee River. Our archaeological survey for Needmore Road had identified a small collection of materials adjacent the Needmore fish weir, including the Qualla phase ceramics considered diagnostic of Cherokee occupations. This weir, situated to take advantage of the increased flow in the river downstream of the mouth at Tellico Creek, lay upstream of the portion of the river named Shallow Ford. Local residents reported the presence of a stone cairn between Shallow Ford and the weir, very much like those described by Bartram in his journals along trails through Cherokee country (Petersen et al. 2006:79).

More importantly, local residents reported that Tellico Creek, adjacent to Needmore Road, was the location of a small Cherokee community up until the mid-nineteenth century. This same village was described by ethnologist James Mooney as Talikwa' when he recorded oral histories among the Eastern Band of Cherokee Indians in the late nineteenth century (Ellison 1992:533). Mooney describes the town of Talikwa' in his *Myths of the Cherokee,* as "Little Tellico, on Tellico

Creek of Little Tennessee River, about ten miles below Franklin, in Macon County," a location immediately adjacent to the Needmore Road study area. However, he also notes that multiple locations in the Middle, Valley, and Overhill Towns had been designated as "Talikwa'" at one time or another. In any case, early eighteenth-century sources record the population of Talikwa' as representing a fairly small community, below the estimated mean population for Cherokee settlements at that time (Goodwin 1977:46, 109; Wood 1989:61).

The Cherokee environment appears to have been organized into a multi-tiered system of community and gender relationships (Goodwin 1977, Rodning 2001a, 2001b, 2002a, 2002b). At the top of the system were large town sites centered on pre-existing ceremonial mounds, such as those at Nequassee and Cowee. Below this type of settlement were the somewhat smaller communities centered on townhouses that may (or may not) have generated an accretion mound through successive destruction and building phases. Below this tier lay the very small communities of hamlets and farmsteads that possessed no townhouse, but may have looked to a distant community center based of kinship or clan ties (Gearing 1962). At the bottom of the settlement and adaptive system lay the extra-community resources such as fields, weirs, trails, orchards, meadows, and woods. Within the individual communities and in the fields, women dominated subsistence and inter-community life; outside the community, in the woods and on the trails, men were responsible for intra-community affairs.

In large part, the confusion over names and locations for early Cherokee community results from European attempts to quantify native demography and geography in the region while the Cherokee were in the throes of a major shift in settlement patterning and ecology (Goodwin 1977:114; Smith 1979:46–47). These attempts were driven by the Western-dominated expansion of the global market place throughout the eighteenth century. The Cherokee, who had initially been drawn into the Indian slave trade, had quickly been reoriented towards the deerskin trade as European traders had moved into Cherokee communities with new technologies and trade items (Dunaway 1996:32–34; Perdue 1979:1–35). The presence of British traders among the Cherokees intensified acculturation influences, reorganized the gender-based spheres of influence, and stressed local environmental conditions.

Desirous of accumulating European goods, the logistic harvesting of white-tailed deer for raw materials and subsistence by Cherokee males was intensified into a year-round activity that stressed the existing diversified subsistence system and gender-based division of labor

(Dunaway 1996:37–38; Hatley 1989). Agricultural activities and the processing of game were designated female activities among Cherokee groups. Given the labor-intensive activities associated with the processing of deerskins for trade, labor was diverted from other activities to meet this demand. Males, traditionally tasked with inter-community contact and trade, were provided increased opportunity to accumulate personal prestige at the expense of traditional village-based values and local economic systems. Thus, European traders became the conduits for the introduction of European technology and ideology, as well as the direct connection to the global market.

Hunting territories that had once been the source of subsistence-level activities quickly became critical resource bases, subject to external threats from colonial Euro-American encroachment and ecological disaster, while local native economies became increasingly tied to trade markets (Lapham 2004:172–192). This shift from logistical economics to increased participation in a market economy dramatically increased the stresses on the immediate environment of Cherokee settlements, through intensified exploitation of floral and faunal resources. As a result, many second-tier communities, like Talikwa', were abandoned, relocated, or reconsolidated when ecological or political demands required it (Rodning 2002b; Van Doren 1928:288). Movements of such communities only added to the confusion of contemporary travelers, mapmakers, and modern scholars alike regarding Cherokee settlement patterns. Eighteenth-century accommodations to such dramatic changes likely involved intensification of traditional ecological behaviors such as allowing old fields to lie fallow and old village sites to become cleared hunting areas while local natural resources rebounded.

Among the more drastic responses to environmental stresses was the dissolution of Cherokee communities across the landscape. This process was unquestionably intensified by the ravages of the smallpox epidemics of the eighteenth century and the destruction of the Lower and Middle Cherokee Towns during the Seven-Years War and American Revolution conflicts. The ecological revolution in the Southern Appalachians during the late eighteenth century involved the shift from logistical subsistence patterns centered on dense population centers to diffuse settlement patterns that retained subsistence-based agricultural practices but was ripe for the emerging Western capitalist revolution.

Many Cherokee communities in North Carolina at the turn of the nineteenth century were organized differently than many of their eighteenth century predecessors. For some communities like that at Cowee, the drastically reduced population density dramatically changed the structure of the community. For other smaller communities, like Talikwa', the changes may not have been as dramatic at face value. From an ecological perspective, the introduction of new technologies and new animal species into the system accelerated these revolutionary changes. Traditional Cherokee agricultural practices that emphasized corn, squash, and beans, supplemented with wild game and fish, evolved to take advantage of plow technology, hogs, cattle, and horses, if not necessarily the associated Euro-American ideological values that accompanied them (Finger 1984:6–7; Merchant 1989:149–197; White and Cronon 1988). Subsistence became a male rather than female dominated sphere of influence with an emphasis on the individual farm rather than the community fields.

This is not to say that traditionalist Cherokees had become the Jeffersonian yeomen that the United States government promoted, or that they had abandoned the traditional Harmony Ethic in favor of a capitalist philosophy (Kappler 1904:31; Riggs 1999:24–25). In fact, nativist elements among the Cherokees in North Carolina continued to doggedly resist acculturation and were well-known for their persistent resistance to the supposedly advanced perspectives of Anglo-American culture.

It is instructive to observe that the centralized government of the Cherokee Nation in the early part of the nineteenth century attempted to loosely codify the pattern of Cherokee settlement. Families were allowed to clear and improve as much land as they required as long as they left at least a quarter mile of unimproved buffer between their farmstead and the next (Wilms 1991:9–13). This regulation suggests that the relationship between fields, orchards, and woodlands was considered essential enough to proper Cherokee ecology of the nineteenth century to protect it through legislation. Anglo-American visitors to the region also reported that Cherokee settlement patterns continued to gravitate towards the drainages of the region as the core of their communities. Thus a general pattern of relationships can be seen with regards to nineteenth-century Cherokee ecology that involved these landscape features in addition to the houses, barns, corn-cribs, and fences of the farmstead.

When the United States government decided to actively pursue the removal of native groups from the east into the newly acquired territory of the Louisiana Purchase, Cherokees were encouraged to migrate west to the Arkansas territory (Finger 1984:19). The successive attempts by the Federal government to acquire Cherokee land through treaty cessions in 1817 and 1819 resulted in limited Cherokee migration to the West, but also generated unexpected complications (Kappler 1904:143; Smathers 1938:80–81) (Figure 3). Attempting to buy the support of mixed-blood

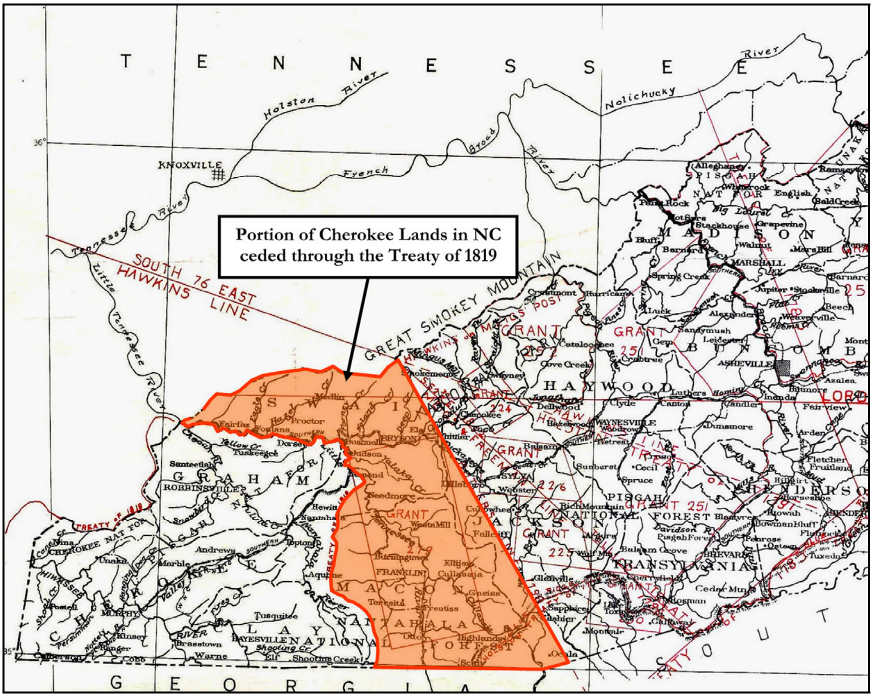

Figure 3. A detail of the 1937 map by E. M. Moffit illustrating the history of land grants in western North Carolina (in Smathers 1938).

Cherokee land speculators and assuage the fears of some traditionalists over elderly residents in the ceded lands, the government added reservation stipulations to the Treaty of 1819:

> It is also understood and agreed by the contracting parties, that a reservation, in fee simple, of six hundred and forty acres square, with the exception of Major Walker's, which is to be located as is hereafter provided, to include their improvements, and which are to be as near the centre thereof as possible, shall be made to each of the persons whose names are inscribed on the certified list annexed to this treaty, all of whom are believed to be persons of industry, and capable of managing their property with discretion, and have, with few exceptions, made considerable improvements on the tracts reserved. The reservations are made on the condition, that those for whom they are intended shall notify, in writing, to the agent for the Cherokee nation, within six months after the ratification of this treaty, that it is their intention to continue to reside permanently on the land reserved. [Kappler 1904:178]

To the consternation of some government representatives, nearly 100 Cherokee heads of households attempted to register for individual

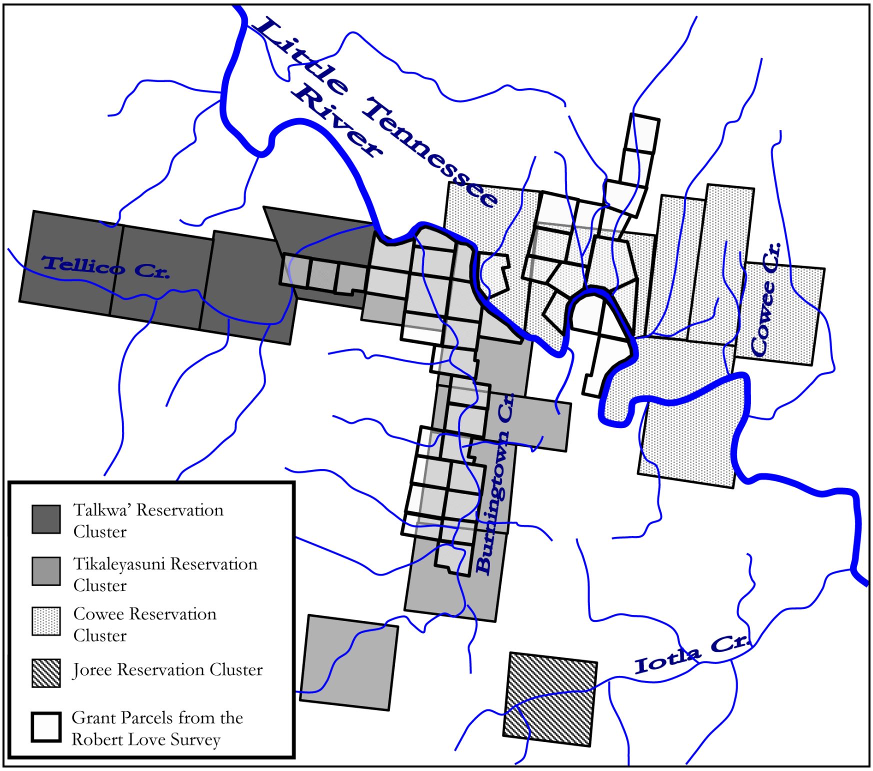

Figure 4. Overlapping survey allotments from the 1820 Robert Love survey and the Armstrong Individual Reservation survey.

640-acre reservations in the ceded lands in exchange for United States citizenship. Ultimately, only 49 life estates and two fee simple reservations were granted; however, even these few appear to have been perceived as threats to the authority of the North Carolina and Cherokee National governments. In North Carolina, state surveyors sent to the ceded territory to evaluate the land for lottery ignored the life estate claims, registering only the two fee simple properties (Figure 4). At the same time, Federal surveyors drew up individual plats for the 640-acres reservations based largely of the current improvements of the Cherokee residents in the area (Douthat 1993; Jurgelski 2004; Riggs 1988:13–20).

As previously noted, Cherokees residing in North Carolina were considered among the most culturally conservative of the Cherokee Nation, so much so that some elements among the more acculturated Cherokees had hoped that ceding those lands would bring their traditionalist brethren to a more westernized perspective. Traditionalist Cherokee agricultural practices had indeed been influenced by new technologies and the introduction of new domesticated floral and faunal species, but these changes were folded into traditionalist practices (Riggs 1996:33–36). Estimates of Cherokee improvements made in advance of the 1819 land cession suggest that most Cherokee farmsteads were small with land under cultivation ranging from 2 to 30 acres per family (Jurgelski 2004:37–40). Much like their eighteenth-century ancestors, nineteenth-century Cherokee farmers in western North Carolina largely practiced subsistence agriculture in the valleys and bottomlands of the Appalachians. Small fields were cleared for the cultivation of diverse crops, and these fields were often moved when local soils became depleted. These native practices frequently gave white visitors the impression that traditionalist Cherokee farmers were indifferent agriculturists at best. Swine, which required very little in the way of labor-intensive landscape improvement, were popular introductions to the Cherokee farm, along with a few other domesticated animals like cows or sheep. All the while, the Cherokees continued to hunt and fish as part of their diverse subsistence strategy.

The traditionalists of western North Carolina were frequently considered by more acculturated Cherokees and Anglo-Americans alike to be the poorest citizens, in a material sense, of the Cherokee Nation. Ideologically distrustful of the Anglo-American capitalist ethic and thus poorer in terms of excess produce for trade, many traditionalist Cherokees continued to utilize Cherokee ceramic (and even perhaps some lithic) technologies. Farmsteads among traditionalist Cherokee tended to consist of western-style log cabins and other structures built directly upon the cleared ground with no foundations and surrounded by swept yards. This type of farm organization was very similar to the style practiced by many poorer Anglo-American settlers on the frontiers and was maintained in the Appalachians by the Eastern Band of Cherokee Indians late into the nineteenth century. The few western trade goods and metal objects used by traditionalist Cherokees, like shallow draft plows or metal hand tools, would have tended to be subject to extreme curation. From an archaeological perspective, Federalist period Cherokee farmsteads in western North Carolina might appear little different from their predecessors of the Colonial era (Ellison 1992:81–83; Riggs 1988:99, 103, 1996:14–15).

The presence of the reservations set Anglo-American settlers and Cherokee reservees on a course for immediate conflict. In many cases, Anglo-American settlers, many of whom believed Cherokee claims to be invalid, bullied Cherokee families out of their homes or forced them to sell at drastically reduced prices. Many Cherokees sought recompense and protection through the state and federal legal systems, frequently at great disadvantages; and although court findings often supported Cherokee claims, the reservees found those victories to be hollow (Jurgelski 2004:214–240). Surrounded by foreign, often unfriendly, Anglo-American farmsteads, these Cherokee communities quickly dissolved as reservees withdrew from their homesteads either back into the Cherokee Nation or into more remote (or less desirable) portions of the ceded territory. By 1824, the North Carolina state government had agreed to purchase the remaining reservations from the Cherokees, thus eliminating the remaining legal barriers to Anglo-American resettlement (Riggs 1988).

By March 1830, only months before Andrew Jackson would sign the infamous Indian Removal Act, most of the reservees near Tellico Creek had sold their property to the state of North Carolina. By the middle part of the nineteenth century, several small landowners had established small farmsteads on the former reservation lands. For their part, some of the 1819 reservees moved back into the Cherokee Nation and a few moved out into the Arkansas territory, although some of the former later returned to the Appalachians. Many of the former reservees, divested of their reservations, devoted to their mountain homeland, and possessing little more than their new United States citizenship, moved deeper into the ceded portions of the Appalachians to more marginal lands and began again (Jurgelski 2004:180–240). It was this core of Cherokee Americans that would form the foundation for the Eastern Band of Cherokee Indians and save many other Cherokees from the Trail of Tears (Finger 1984:10–40).

In 1988, archaeologist Brett Riggs conducted a reconnaissance study of citizen Cherokee reservations in North Carolina based on documentary evidence and archaeological survey. Riggs established the locations of all 49 life estates by comparing Robert Armstrong's survey plats with United States Geological Survey 7.5-minute series topographic maps and observed physical characteristics such as rivers, streams, and ridges (cf. Douthat 1993). He noted that many of the Cherokee life estates appeared to have been clustered around the locations of known Cherokee Middle Towns, including the locations of Cowee, Joree, Tikaleyasuni (also known as Burningtown), and Talikwa'. Of particular interest are the six 640-acre life estates that lie adjacent to or overlap Needmore Road along the Little Tennessee River. These reservations include those of Yellow Bear, Jenny, Oo-san-ter-take, Skeken, Suaga, and Coolee-chee (Figure 5). The 640-acre reservation registered to Oo-san-ter-take was situated along Tellico Creek, immediately adjacent to the Little Tennessee River and the location of the stone fish weir. This tract is the first in a cluster of four reservations centered on Tellico Creek which were registered in a contiguous cluster in both the 1819 reservation rolls and its 1817 predecessor (Blankenship 1992:13–16; Douthat 1993). According to the rolls, 19 individuals were registered to remain along Tellico Creek; five on the Oo-san-ter-take estate, seven on that of Skeken, two on the lands of Suaga, and five on the Coo-lee-chee reserve (Riggs 1988:117–118). These reserves are listed in the surveyor's notebook, that of Robert Armstrong as having been recorded together on September 28, 1819 (Douthat 1993:18, 56, 58). It appears, based on Armstrong's renderings of the existing improvements in the allotted areas along Tellico Creek, that he attempted to plot reserves that incorporated both improvements and creek, while maximizing prime land in rugged terrain. Looking at Armstrong's survey book, it is clear that he generally tried to adhere to an abstract grid system with homesteads being located near the center of each reserve. However, the Tellico cluster of reservations markedly diverges from this general pattern, suggesting that the plats had to be drawn around existing improvements (Figure 6). By allowing for minor errors in Armstrong's rendering of Tellico Creek and the Little Tennessee River on the Oo-san-ter-take plat, the cluster of reserves can be reconstructed on modern USGS mapping.

An examination of the survey plat associated with Skeken's reservation indicates Armstrong's placement of the farmhouse in relation to the rest of the property on the inside of the bend in the course of the creek. At the time of the 1988 reconnaissance, this was the location of a modern barn (Petersen et al. 2006:145; Riggs 1988:65). A local informant recalled that the general area was the old Skeken farm, but didn't know where the old farmstead had been. The reconnaissance also collected some information from local residents regarding the "the old chief's house, and his grave, and where he got his water" just below present-day Tellico Baptist Church on the east side of Tellico Creek in the area that should have been Oo-san-ter-take's property. More substantial archaeological investigations in this area had recovered scatters of Qualla-phase pottery and nineteenth-century ceramics (Riggs 1988:68–70).

No archaeological reconnaissance was conducted on either Suaga's or Coo-lee-chee's reservations; however, both of these tracts contain the current community of Tellico in Macon County, North Carolina

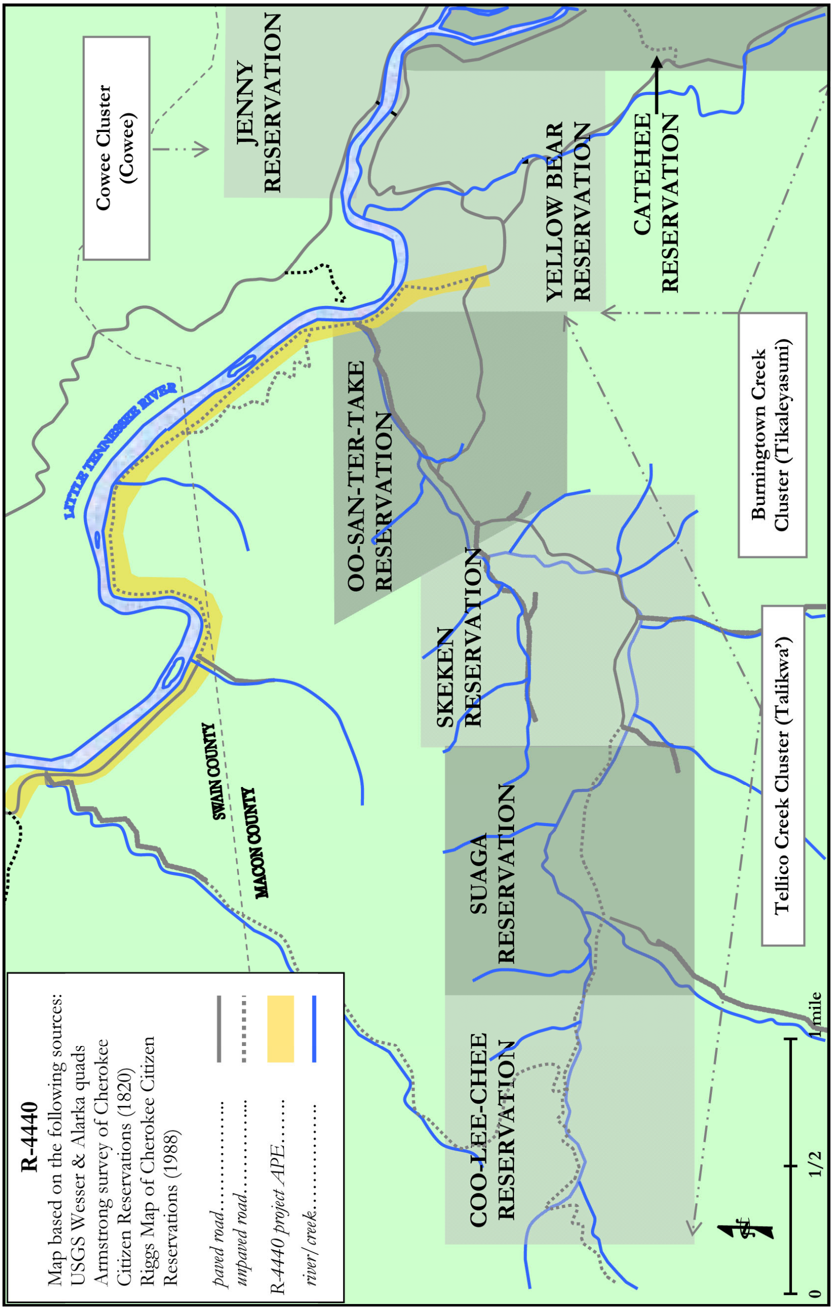

Figure 5. Citizen Cherokee life-estates adjacent Tellico Creek, Burningtown Creek, and the Little Tennessee River in Macon County, North Carolina.

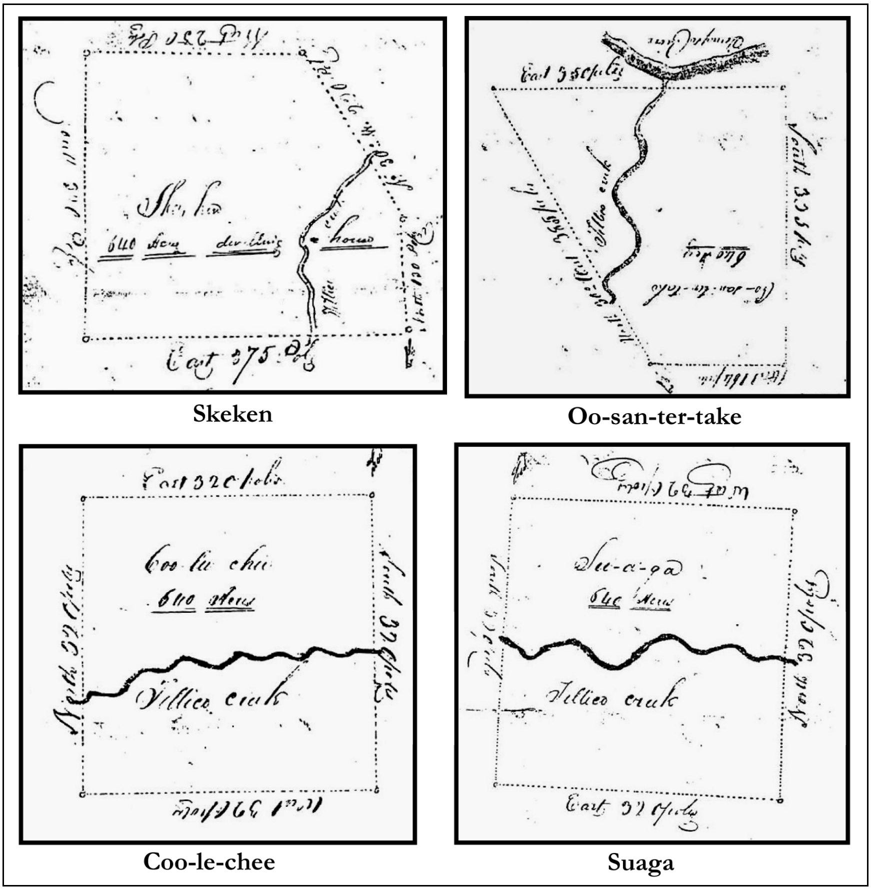

Figure 6. Plat sketches from Robert Armstrong's 1819 Survey Book of Cherokee Lands (adapted from Douthat 1993).

(Petersen et al. 2006:149–150; Riggs 1988:102). This western portion of Tellico Creek had been previously proposed as the nineteenth and early twentieth-century Euro-American settlement, the Tellico Valley Rural Historic District. Local folklore and oral history suggest that this was the core area of the Talikwa' community and that some Cherokees resided in this portion of the valley well after the demise of the village and the dissolution of the reservations. Gideon Morris, a white man married to a Cherokee woman, later stated in a deposition that by 1828 Suaga had moved back into the Cherokee Nation and that white settlers rented his former reservation (Jurgelski 2004:209).

Needmore Road also runs through the reservation registered to Yellow Bear, straddling the area where Burningtown Creek joins the Little Tennessee River. While the reservation of Yellow Bear abuts that of Oo-san-ter-take and the Tellico Creek cluster, the description of Yellow Bear's farm on Burningtown creek makes it likely that this reservation should be clustered along with those of Catehee, Little Deer, The Trout, and The Whipporwill into another community, likely the remnants of Tikaleyasuni. Another white resident of the area, Joseph Welch, reported that by 1828, Yellow Bear had died residing on his property (Jurgelski 2004:208).

When the first permanent Anglo-American farmsteads were being established along Tellico Creek in the mid-nineteenth century, these settlers moved into a landscape that had already been modified for use (Figure 7). Fields had been cleared, orchards established, and even fence lines had been placed. Many settlers moved directly into Cherokee homes and outbuildings until new structures could be built (Jurgelski 2004:198–240; Petersen et al 2006:52–61, 142–146). Other settlers incorporated Cherokee improvements into their own. Even the fish weirs of Cherokee antiquity were repaired and used, providing a bounty of fish from the rivers and streams of the ceded lands. A few of the Cherokees themselves continued to reside or travel through marginal areas of their former homes, passing information about the land onto its new tenants. These Anglo-American farms were in many ways very similar to their Cherokee predecessors. Often occupying the same or similar space as the Cherokees before them, the white farmers of southern Appalachia later in the nineteenth century practiced a style of agriculture with marginal surplus, occasionally called "subsistence plus" (cf. Cronon 1983:75–80). In general, these farmsteads maintained many of the same ecological relationships between human adaptations and natural landscape features (Figure 8).

The case of the 1819 Citizen Cherokee Reservations highlights some of the basic problems inherent to the study of smaller native communities of the nineteenth century in the Southeast. The landscape in which these resources are located is a living cultural resource, and settlement and subsistence behaviors of humans throughout time have tended to occupy the same geographical area. Thus, in the living landscape, dominant western land-use has a tendency to overlap, incorporate, or partially erase earlier native cultural features.

Therefore, in such landscapes, particularly rural ones, it might be useful to consider dramatic shifts in human ecology, or the functional adaptations to which human communities modify the land. It has been

Figure 7. Nineteenth-century Cherokee community in western North Carolina, photographed by James Mooney in 1888 (National Anthropological Archives, Neg. No. 1004B).

Figure 8. Historic nineteenth-century community of Tellico in western North Carolina, photographed in 2003.

argued that whenever there is a dramatic shift in the pattern of the local ecology, an ecological revolution has occurred (cf. Merchant 1989). While such shifts may occur as a result of factors such as disease and climate change (or combinations thereof), the kinds of ecological revolutions that we are most concerned with are human-influenced. Thus, in the Needmore Road case, it is not the specific shift from Cherokee to Anglo-American communities that forms the structure of the historic resource. Rather it is the rapid and dramatic shifts of relationships to the environment, the ecological revolutions, that we must outline. Only once those trends are recognized can the cultural resource specialist assess the integrity, significance, and potential impacts to a cultural landscape.

Clearly, the ecology of the Tellico Creek Valley and the adjacent Needmore Road area has changed since the nineteenth-century Cherokee and early Anglo-American populations utilized them. But, while the remnants of the Cherokee Middle Towns in North Carolina have largely faded into the background of the landscape, the ecological revolution initiated by the Cherokee has not. The rapid late eighteenth-century evolution from corporate agricultural communities anchored on dense population centers to smaller individual subsistence-plus farmsteads across the landscape constitute such an ecological revolution, one that has not yet been effaced from the landscape of western North Carolina (Figure 9). In places like Tellico Valley and the Needmore Tract, the physical and cultural relationships between the natural environment (the mountains, forests, streams, river) and human adaptations (fields, homes, roads) remain as a monument to the ecologies of the Cherokees and Anglo-Americans that came before us (Figure 10). It is important that, as we continue to influence the living landscape, we try to do so in such a way as to recognize and respect such places, for they continue to define who we are.

Notes

Acknowledgments. I'd like to extend my appreciation to all of my colleagues in the Archaeology Group and the Historic Architecture group at the North Carolina Department of Transportation for their perspectives, opinions, and assistance with my understanding of cultural landscapes. I'd also like to extend my appreciation and love to my family, upon whose tolerance I always heavily depend when I am writing. Nevertheless, the opinions expressed in this paper are entirely my own, and I am completely responsible for any shortcomings contained herein.

Figure 9. Road though Cherokee landscape in western North Carolina as photographed by James Mooney in 1888 (National Anthropological Archives, Neg. No. 1004A).

Figure 10. Needmore Road and the Little Tennessee River in western North Carolina, photographed in 2003.

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BOOK REVIEWS

In Praise of the Poet Archaeologist: Papers in Honor of Stanley South and His Five Decades of Historical Archaeology, edited by Linda Carnes-McNaughton and Carl Steen. Publications in South Carolina Archaeology Number 1. The Council of South Carolina Professional Archaeologists, Columbia, 2005. vi + 230 pp., illus., tables, biblio. $20.00.

Reviewed by John J. Mintz

As a practitioner of historical archaeology and a longtime student of Stanley South, I embraced the opportunity to review this monograph. I first met him while a student at Appalachian State University in the early 1980s, and he was impressive then and even more so now. When discussing South and his many contributions to archaeology—both prehistoric and historic—what can one say that in all probability has not been said numerous times before? His contributions to the discipline are many and diverse, and range from friend, colleague, teacher, poet, and, for me most of all, mentor. For those receptive and willing, South could and did mentor from close and afar, and he did it willingly. In my particular instance, he led by example.

Few archaeologists could ever be accurately described as influencing the study of both prehistoric and historic archaeology in a single state, much less two. Yet South did this and did it well. He first moved dirt alongside Lewis Binford in the exploration of North Carolina's prehistoric past. Data obtained from the Roanoke Rapids River Basin Survey served as the basis for his Master of Arts in Anthropology degree obtained from the University of North Carolina at Chapel Hill in 1959. This thesis was a contributing element in the seminal monograph, *Formatives Cultures of the Carolina Piedmont*, authored by Joffre Coe, his then advisor and later trusted friend and colleague. South's acceptance of the position as site manager of Brunswick Town, and his next decade of research on historic sites across North Carolina, was the dawn of fusing anthropological inquiry with historical data that later resulted in *Method and Theory of Historical Archaeology*. This single tome has influenced more than two generations of historical archaeologists, and it still dominates the discipline today. When South left North Carolina for the fortunes of neighboring South Carolina in 1968, he left behind a rich and varied legacy—and a most promising future—for historical archaeology in the Old North State.

In Praise of the Poet Archaeologist, a tribute to the man and his lifetime of exploration, grew out of a symposium held at the 2002 annual meeting of the Society for Historical Archaeology in Mobile, Alabama. Conceived and organized by Linda Carnes-McNaughton and Carl Steen, a most impressive roster of 16 participants, representing several generations of historical archaeologists, presented papers in a daylong celebration. These contributors comprise a virtual who's who among historical archaeologists in the Southeast. Of those 16 original presentations, fourteen comprise *In Praise of the Poet Archaeologist*.

As noted in the editors' introduction, this volume is organized into four general sections: Past Perfect; Evolutionary Theory and Cultural Process; Pattern Recognition by Case Studies; and Stan South, Teacher by Example, Poet by Nature.

The first section by Carnes-McNaughton and Steen details South's metamorphosis from an inquisitive Navy seaman to his employment, while still a graduate student at University of North Carolina, with the North Carolina Division of Archives and History as a Site Manager for Town Creek Indian Mound. It was here at Town Creek that Stanley first began what modern professionals now refer to as "multitasking." Not content to merely occupy a chair, Stan undertook a myriad of research projects at various historic sites in North Carolina, often working in tandem with historians such as Lawrence Lee in the investigations of Brunswick Town (beginning in 1958) and the search for David Caldwell's Log College in Guilford County. As noted above, Stanley left North Carolina in 1968 for the "milder climate" of South Carolina and continued apace. Steen emphasizes that in association with Stanley's continued contribution to problem-oriented archaeological research. South, along with several others at the South Carolina Institute of Archaeology and Anthropology, not only realized the importance of sound archaeological method and theory but also began to insist on its inclusion within the newly emerging practice of Cultural Resource Management. Again not content to merely pontificate, Stanley proactively set the course and that has resulted in propelling South Carolina to the forefront of "scientifically based and research oriented" Cultural Resource Management studies.

Section Two, Evolutionary Theory and Cultural Process, is comprised of three chapters. South's former classmate, Lewis Binford, disapproves of any archaeologist who begins an analysis with a preconceived theoretical paradigm, instead advocating the judicious study of artifact patterns to assist in the development of multiple hypotheses. Kathleen Deagan discusses how she employed Stanley's "pattern recognition method" as she investigated and analyzed artifact groups from Spanish colonial sites. Closing this section, South and Halcott Green reinforce the concept of energy efficiency theories and, using extant artifact assemblages, propose a methodology to derive energy cost (in kilocalories of individuals).

Section Three, Pattern Recognition Studies, is by far the longest section, covering six chapters and 64 pages. As the title suggests, this section is primarily focused on several specific pattern recognition studies. Included within this section is: a proposed Carolina Elite artifact pattern for high-status British colonial residences (Thomas Beaman); how the South's Brunswick Pattern of Refuse Disposal was used to assist in the interpretation of a seventeenth-century structure at Charles Towne (Michael Stoner); landscape studies utilizing pattern recognition in the backcountry of South Carolina (Kenneth Lewis); and an interesting examination of nineteenth-century urban trash midden from Charleston, South Carolina (Martha Zierden). Richard Polhemus compares the quantity and distribution of several definable types of building nails obtained from two dated historic sites to determine structure construction techniques and type along with their possible non-architectural use from shipping containers. Finally, Russell Skowronek takes the reader literally from the East Coast to the West Coast as he discusses the use of pattern recognition to examine and understand the Spanish Colonial Frontier.

The final Section, Section Four, coincidentally consists of four chapters and is somewhat of a departure from the previous material culture studies. Using data from the World War I component recovered from the Santa Elena site on Parris Island, Jim Legg acknowledges South's fastidious recording of all data obtained from archaeological investigations, regardless of the original intent. In one of the more entertaining contributions, Joe Joseph uses his literary license to create an evening with Stanley South to demonstrate that, though the shovels may have been put away for the day, the lessons continued. Following Joseph, South and Halcott P. Green ruminate on the use, misuse, or ignorance of using evolutionary theory in archaeological studies, and share some comments that South received in 1957 from several "leading archaeologists" after the publication of his "Evolutionary Theory in Archaeology" in *Southern Indian Studies* (1955:10–32). The final chapter by John Idol, Jr., is a discussion of Stan's poetry. Idol characterizes the verse as humanistic in nature with an eye and an ear for all that surrounds him, which if you know the man, is as much a part of his life as it is his archaeology.

The organizers and participants of the symposium that gave rise to *In Praise of the Poet Archaeologist* should be congratulated for recognizing and celebrating the many and varied contributions of Stanley South (as well as following through with this publication). Most reviewers generally close with words such as "this volume and/or book belongs on everyone's shelf with an interest in this or that…." That is also true for this volume as well, but it also should have a place on everyone's bookshelf because it demonstrates how possibilities become opportunities.

Huts and History: The Historical Archaeology of Military Encampment during the American Civil War, edited by Clarence R. Geier, David G. Orr, and Matthew B. Reeves. University Press of Florida, Gainesville, 2006. xviii + 279 pp., illus., biblio., index.. $65.00 (cloth), ISBN 0-8130-2941-4.

Reviewed by Alexander J. Keown

Huts and History: The Historical Archaeology of Military Encampment during the American Civil War is a book that's long past due. It is a much-needed work in the scholarship surrounding the Civil War. Historians have studied this conflict from numerous angles, including topical perspectives of the period from social, military, political, and economic approaches. More works have been written about the Civil War than any other single American event. Yet, there have been few archaeological undertakings outside of studying certain site-specific areas of the antebellum era, such as the Confederate Arsenal in Fayetteville, specific naval vessels like the *USS Monitor* and the *CSS Hunley*, and limited battlefield archaeology including Stephen Potter's landscape investigations at Antietam.

Huts and History continues the thematic studies of Civil War sites that were presented in *Archaeological Perspectives of the Civil War* (University Press of Florida, Gainesville, 2001), edited by Potter and Clarence Geier, one of the editors of *Huts and History*. Like *Archaeological Perspectives* and the seminal *Look to the Earth* (also edited by Geier [with Winter, University of Tennessee Press, Knoxville, 1995]), *Huts and History* continues to study the material culture of the Civil War, focusing not on the most famous sites or skirmishes of the war, but on the areas that were most widely traversed by the soldiers—the encampments they called home.

The first task of the authors was to define an encampment. To the soldiers, they were in an encampment of some sort or another virtually every day of the war (p. 1). Joseph Whitehorne, author of the article "Blueprint for Nineteenth Century Camps," records that U.S. Army regulations defined a camp as any place where troops were housed for a relatively short period in tents, huts, or a bivouac (p. 28).

Why should archaeologists study these encampments? Soldiers' lives have been well recounted through letters that have survived, and the Civil War has been thoroughly documented by historians. Yet there remains a gap when it comes to archaeological documentation. The data presented in this volume provide a greater material understanding of the Civil War soldier's average daily life during his time in the theater of battle. These camps are the least protected, understood, and interpreted of contemporary military sites, yet they were an integral part of the cultural landscape that provides one more glimpse at life during the war (p. 1).

All of the chapter authors set parameters for their studies by examining the life of the soldier in the environment of the encampment. The encampments were far more familiar to the soldier than the battlefield, for more of a soldier's time was spent in camp than in battle. Serving as temporary and readily mobile home to soldiers, Civil War encampments were also militarily practical, as they were strategically and tactically located for easy deployment (p. 29). Terrain and topography were often the determining factors, but troop positioning in the camps was often based on upcoming battle formations. Geier, Orr, and Grieves also assert that studying the encampments could lead to greater understanding of battle and war (p. 16).

Geier, Orr, and Grieves additionally consider sanitary conditions of the encampments, something that is sure to generate even more understanding of the lives of the soldiers. It has been said that more soldiers in the Civil War died from disease than they did from battle. By understanding the sanitary conditions of the camps, as well as the support networks from governmental agents who inspected the camps for the Sanitary Commission, a fuller understanding of the camps and their importance during the war can be gained.

But why has it taken so long for archaeologists to explore these sites? Geier, Orr, and Grieves suggest that Civil War encampments have not been more extensively studied because the specific locations of campsites were not known and they were not considered historically significant (p. 52). In the chapter "Finding Civil War Sites," authors Bryan Corle and Joseph Balicki suggest that traditional archaeological survey techniques have proven too limited to study encampments, as they are “tailored to locate domestic scatters from long-term occupations, such as house sites, rather than the low-density artifact scatters that typically characterize camps” (p. 52). The fact that these are military sites has also proven problematic for uncovering material culture evidence. Historical information shows that the soldiers spent a good deal of time in the camp “policing” the area of refuse and depositing the items in a discreet area (p. 61). In addition to policing the camps, the soldiers had numerous camp duties, including cutting firewood. They also passed the time by putting on theatrical productions, gambling, and playing music.

Yet the camps weren’t just a place for the soldiers to eat, sleep, and pass the time between battles. They served many other purposes, including the sites of hospitals to care for the wounded as well as the political centers for the commanding officers. The archaeological information related to these activities continues to richly flesh out the lives of these men, and even provides tantalizing clues to their ethnicity and political leanings.

Because of the dispersed area of artifacts around suspected encampments, Corle and Balicki point out that, when investigating the camps, attention must be given both to the places where the artifacts were found and to the places where the artifacts were not found (p. 61).

To help alleviate that situation, Corle and Balicki also make a brave call—enlist the aid of artifact hunters in searching for these sites. Relic hunters, as the authors refer to this group traditionally shunned by archaeologists, have an intimate knowledge of many areas where Civil War soldiers camped. Some are quite willing to share the information with the archaeological community, and efforts should be made to bridge the gap between the two communities. They explain some of the tensions between the artifact-hunting community and professional archaeologists, particularly suggesting that archaeologists haven’t synthesized their findings about Civil War sites for general public consumption—a statement that’s sure to generate discussion within the two communities and one which hopefully will push these traditionally combative groups into working together to preserve these historical sites.

The study of Civil War encampments is a time-sensitive issue due to the commercial and private development of many of the areas the soldiers traversed through, particularly in the vicinities of Richmond, Virginia, and Washington, D.C. Nearly 75% of Civil War engagements in the Eastern Theater took place within 75 miles of Richmond, which means the soldiers of the Confederate and Union armies spent a great deal of time in those areas. Several of these chapters are based on cultural resource management studies, which illustrate the successful recovery of encampment information at the compliance level of documentation. Certainly more such studies should take place before more important sites from the war are covered up by development.

The many authors within *Huts and History* have taken important steps into the needed field of Civil War archaeology as it pertains to the lives of the soldiers who fought in this conflict, and this book is sure to leave the desire for more archaeological research in Civil War history. This volume also offers practical approaches and implications for archaeologists studying camp life of other military conflicts, past and present. While *Huts and History* is recommended for historical archaeologists, the research will also benefit Civil War historians, re-enactors, and anyone else interested in this era of American history. Military historians will also find it of particular interest because it provides one additional lens through which to glimpse the lives of the Civil War soldiers.

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