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THE T. JONES SITE: ECOLOGY AND AGENCY IN THE UPPER YADKIN VALLEY OF NORTH CAROLINA

by

J. Ned Woodall

Abstract

The T. Jones Site is located in the upper Yadkin River valley of North Carolina, in western Wilkes County. Excavations by Wake Forest University indicate early and middle Woodland components are present, but the main occupation dates between AD 1400 and 1600, and is manifested by South Appalachian Mississippian cultural expressions. Excavations at T. Jones and other sites located downstream suggest that the advent of the Little Ice Age created social opportunities for an accelerated introgression of South Appalachian Mississippian groups, or individuals, into the Woodland societies which had existed for centuries on the periphery of the more complex chiefdoms. The manipulation and subsequent subversion of existing Woodland competitive "Big Man" systems may have incorporated such societies into the chiefdom domains of the late prehistoric period. The combination of environmental circumstance and individual agency, opportunity and social ambition, may have encouraged predation of Mississippian systems on their neighbors.

The T. Jones site, located in eastern Wilkes County, North Carolina, was discovered in 1940 (Figure 1). Although it was revisited several times in the course of regional surveys, the first excavations were not carried out until 1995. In that year a team from Wake Forest University Archeology Laboratories spent five weeks at the site, where 19 excavation units (consisting of two- meter squares) were opened and a number of features located and excavated. That brief work indicated that the primary occupation occurred late in prehistory, ca. AD 1500, although lower portions of the site yielded seemingly older ceramics but no associated radiocarbon samples (Idol 1997). The later ceramic assemblage carried a distinctly Lamar or southern Appalachian Mississippian flavor, and there was the intriguing discovery of large earth ovens and other intact features. T. Jones was chosen for more extensive work in 2001 and 2002. In those years the site was the setting for the Wake Forest University field school in archeological methods,

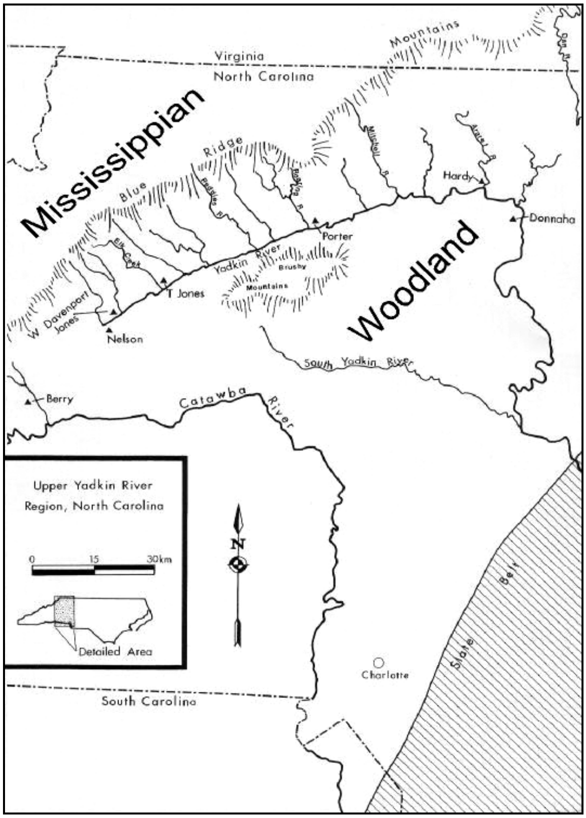

Figure 1. The Upper Yadkin Valley region and archeological sites mentioned in the text.

and 63 additional excavation units were opened, most of them two-meter squares (see Figure 3).

The research value of the T. Jones site is a consequence of its location, age, and contents. Over the past 30 years the Yadkin Valley has been the focus of the Great Bend Project, a research initiative by the Archeology Laboratories of Wake Forest University. Named after the prominent bend in the river just west of Winston-Salem, North Carolina, the general objective of the Great Bend Project was to define and explain the development of Woodland cultural systems in the Yadkin Valley. Early in its history the project focused on questions of subsistence and settlement patterns, and those questions were addressed in a series of theses and publications (Barnette 1978; Mikell 1987; Newkirk 1978; Vacca 1989; Woodall 1984). Eventually the research questions changed or were augmented by concerns with the social and environmental variables influencing the rate and direction of culture change. For example, by 1986 it was clear that although late prehistoric cultures near the headwaters of the Yadkin and Catawba rivers were distinctly Mississippian in many respects, contemporary cultures of the Great Bend region lower on the Yadkin River remained steadfastly Woodland. In order to document sites at the interface of these cultural traditions, our excavation program began to move upstream of the Great Bend proper, and the results of that work were reported through the 1980s and 1990s (Idol 1997; Marshall 1987, 1988; Rogers 1993; Woodall 1990, 1999). We were particularly interested in which culture traits penetrated from the South Appalachian Mississippian, or Lamar, systems of the upper portions of the river into the Woodland cultures downstream. Moreover, we wanted to identify the social and ideological mechanisms driving that interchange. We felt that a focus on social agency would be the most productive approach, inasmuch as there was no discernable difference in the technologies of the two cultural regions, Mississippian and Woodland. Our interest led us to the T. Jones site, where for the first time we found a Yadkin Valley site with a preponderance of its material culture related to the local manifestation of the South Appalachian Mississippian. In particular, Burke phase (Keeler 1971; Moore 1999) ceramics dominate the assemblage. This report is intended to describe the excavations and resulting data, and to suggest some social mechanisms that can account for the behaviors identified there.

Site Location and History

The Yadkin River forms in the town of Blowing Rock, in northwestern North Carolina on the eastern edge of the Blue Ridge Mountains. The river flows south to the village of Patterson where, at the very western edge of the Piedmont, it abruptly turns to the east-northeast. For over 100 km the Yadkin is entrenched in the Brevard Fault, an ancient geological deformation that has severely restricted the river's lateral movement. Here the river follows the edge of the Blue Ridge front, with the Brushy Mountains flanking its valley on the southern side. Thus, the Yadkin is confined within a funnel-shaped array of uplands, the Blue Ridge to the north and northwest and the Brushys to the south, with the narrow end of the funnel directed toward the headwaters of the Catawba River and the higher elevations of the Blue Ridge system. As a result, the floodplain of the river is a corridor pointed at, and almost touching, the upper Catawba Valley and the west or northwest-flowing drainages of the Blue Ridge proper. It is not until the Yadkin reaches the Great Bend, a few miles west of Winston-Salem, that it turns to the southeast and follows that course to its mouth, on the Atlantic Ocean in South Carolina.

The T. Jones site is situated in its upper reaches, on the extreme western edge of Wilkes County, at the juncture of the Yadkin and one of its tributaries, Elk Creek (Figure 1). Beginning at about 2,500 ft in Watauga County, in the uplands of the Blue Ridge, Elk Creek forms a natural corridor into the highlands north of the Yadkin Valley. In fact, the creek bottom served as a passage for herds of cattle that were driven into summer pastures in the early 20th century. The valley of Elk Creek probably was the trail blazed by Daniel Boone leading from the Yadkin Valley to Boonsboro in Kentucky (Myer 1971:67). Like all the tributaries entering the river in the upper reaches, Elk Creek is a short stream that drains the deeply dissected uplands enclosing the Yadkin Valley. Such streams respond quickly to summer storms and especially to the occasional hurricane-induced systems that can follow along the southeastern edge of the Blue Ridge, dropping torrential rains. (It was the threat of such storms to the downstream population centers and rich farms of the Piedmont that stimulated construction of the W. Kerr Scott Reservoir, immediately downstream of the T. Jones site.) As a consequence of the high energy flows received from tributaries in the upper valley, the confluences in that sector often have rather broad floodplains produced by sediment loads of the tributaries and, of course, the Yadkin itself. Those hydraulics are crucial for understanding the settlement and post-depositional processes at the T. Jones site.

The large river bottom tract containing the T. Jones site lies partly within the flood pool of the W. Kerr Scott Reservoir, but before the river was dammed the floodplain measured some 2 km along the north side of the Yadkin, with a width varying from 200 to 400 m. The site is located in the wider, upstream section of this tract, 200m east of Elk Creek. From the juncture of the two the Yadkin makes a marked bend to the south, but that course is maintained only through the intervention of the landowners. The more natural course of Elk Creek would take it in a more easterly direction above the confluence, but heavy equipment has been used to block that course and prevent loss to the Jones family of the large tract of land that, despite their best efforts, still becomes an island during high-water stages. This problem can be grasped with a glance at the 1998 aerial photograph reproduced in Figure 2. Elk Creek is

Figure 2. Aerial photograph of the T. Jones Site, 31 WK 33, with excavation units superimposed (at top right). Note the channel of Elk Creek in 1998, the date of the photograph. That channel now has been closed. North is at top of photograph.

maintained in its present bed with considerable effort. As it first approaches the bottomland tract containing the T. Jones site, the creek is turned sharply from its easterly course to a southern direction, a turn enforced by sheathing its banks in riprap and dredging its bed with a dragline. This too is intended to prevent erosion in the bottom; if Elk Creek were left alone it likely would cut directly across the bottomland and join the Yadkin several hundred meters downstream of the present juncture. Evidence that it once did just that can be seen today, where a pronounced swale oriented northwest-southeast lies along the western edge of the site. This is the old, partially filled bed of the creek, and seems to have been occupied in prehistory by a broad, slow-flowing or sometimes stagnant wetland. As explained more fully below, that swampy ground received refuse from the site and provides us with a stratigraphic record of the site's material culture history (Figure 3).

The present isolation and bucolic setting of the T. Jones site belies the important events that occurred in the area during the historic and prehistoric eras. Europeans first entered the region as early as the 16th century, when Spanish expeditions under the command of Hernando De Soto and Juan Pardo visited the nearby Catawba Valley (DePratter,

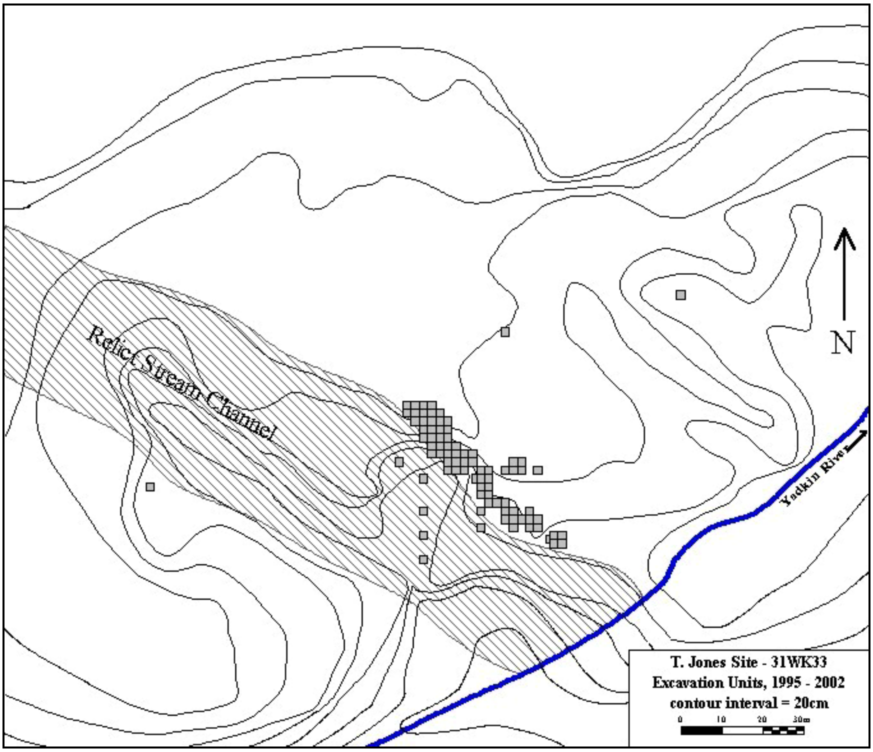

Figure 3. Topographic map of the T. Jones Site, 31 WK 33, with excavation areas and the relict channel of Elk Creek.

Hudson and Smith 1982; Hudson 1990). Although various English traders may have penetrated the region in the seventeenth century (Moore 1999), it was not until the mid-eighteenth century that European settlers began to arrive in the upper Yadkin Valley (Hayes 1962:2). Among the first was Benjamin Howard, who built a cabin at the juncture of Elk Creek and the Yadkin, and a frequent visitor there was Daniel Boone (Arthur 1914:81). Boone's own cabin was on Beaver Creek, about 6 km to the east. An infamous resident of Elkville, as the settlement at the mouth of Elk Creek was known, was Tom Dula or Dooley. Immortalized in folk songs and in the stories told by locals to visiting archeologists, Tom Dula murdered Laura Foster and was hanged for the crime in 1866. Laura's body was found along Elk Creek, and her grave lies a short distance west of the T. Jones site. In the twentieth century, a railroad was built from Wilkesboro to Elkville, and continued up Elk Creek to the community of Darby. Intended to link this portion of North Carolina to existing rail lines in Tennessee, the project was ended by the devastating floods of 1916 and 1918 (Absher 1982:14–16). Today the area is characterized by small farms and, increasingly, by nurseries growing ornamental plants. The T. Jones site is used for the production of silage, and was planted in corn during the 1995, 2001, and 2002 field seasons.

The area also has made a contribution to the history of American archeology. From the mouth of Elk Creek upstream to Patterson (the boundaries are not precise) is a section of the Yadkin known as Happy Valley. In the 1880s, excavations were conducted here as part of the Smithsonian Institution's Division of Mound Explorations. Under the direction of John P. Rogan and a local antiquarian, J.M. Spainhour, the excavations purportedly revealed some of the most bizarre human burial practices in the Southeast: burials standing or squatting under stone cairns arranged within huge circular or triangular pits; ossuaries in pits within pits; cremations; and inhumations (Thomas 1894:333–344). Rogan referred repeatedly to mounds, although no artificial mounds have been found since then in the upper Yadkin Valley. Less suspect are the artifacts reported in association, some illustrated by Thomas and currently part of the Smithsonian's cataloged collection. Included are items like those recovered from two sites downstream of T. Jones and Happy Valley, previously excavated by Wake Forest (the Hardy site and the Porter site [Woodall 1990, 1999]), and certain of these artifacts or artifact attributes have suggested social relations extending into the Lamar systems of the Catawba Valley and the larger South Appalachian Mississippian arena. Examples include Citico-style gorgets, rolled copper beads, spatulate celts, and effigy vessels. Of additional interest are several iron artifacts and iron fragments found by Rogan, conceivably related to the penetration of the region by the Juan Pardo expedition mentioned above. Holmes (1903:137) describes the ceramics from these excavations as "an interesting intermingling of types…[including] many fine examples of pottery, among which were vases and bowls of southern type, bowls decorated with modeled animal heads and other relieved ornaments in western style, fabric-marked pieces, and rude, undecorated vessels, such as characterize the Middle Atlantic tidewater region." In more current terms, the collections include both Mississippian and Woodland artifact styles. Contrasting with sites excavated downstream, including T. Jones, is the sheer volume and variety of burial furniture and personal ornaments reported by Rogan. This, coupled with the probability that the mortuary variability reported reflects to some degree what was actually present, is compatible with a social group embedded in a much more complex set of social networks than those present downstream at that time. These social relations may have been hierarchical in nature, as suggested for the nearby upper Catawba Valley in the early Spanish accounts. Alternatively, heterarchical relationships (Crumley 1992:158; Earle 1997; Rogers 1993) may have created the variability within and between these upstream sites, a structural possibility examined later in this account.

Methods and Stratigraphy

It is appropriate to consider these topics in tandem, because the vertical and horizontal stratigraphy encountered at the T. Jones site strongly influenced the methods used. When the modern work began in 1995, there was no information available from previous surveys regarding the exact location of the archeological deposits. Alluvium has buried much of the site, and the plowed fields revealed little on their surface to guide the placement of our excavation units. The 1995 project, under the field direction of Bruce Idol, excavated several widely spaced two-meter squares before focusing on the main activity area. Those scattered units (Figure 3) were augmented with auger and shovel tests placed across the floodplain, and it became clear that well-preserved remains were located in a confined area around the 1995 excavation block (Figure 4).

Stratigraphy at the site has been affected by both deposition and erosion. Higher portions of the site had a sandy loam plow zone directly overlying, at a depth of 20–40 cm, a very dense yellow sandy clay that invariably was sterile. Artifacts occurred in the plow zone in these areas, although they were not particularly frequent. At slightly lower elevations two plow zones could be observed. The upper plow zone was about 30 cm thick and was produced by modern equipment. Beneath it was a stratum of sandy loam, slightly darker in color, varying from 5 to 30 cm in depth. This zone too had been plowed but with animal power, and the furrows clearly could be seen at the base of the stratum. This soil, which we referred to in the field as the relict plow zone, overlies either the basal yellow clay mentioned above or a very dark, almost black clay loam (Figure 6). When we originally discovered this dark soil we thought it was a midden, and indeed artifacts often were found in it. As our work progressed, however, and the location and artifact contents of the stratum were better defined, it became clear that natural processes (namely, the flooding of the lower portions of the site by Elk Creek)

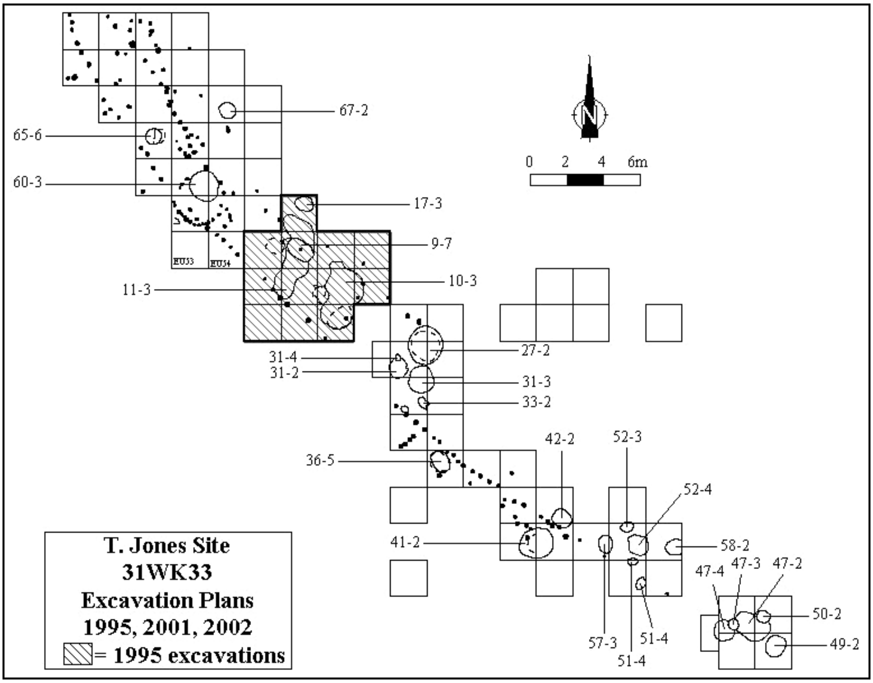

Figure 4. Map of excavation units and features, 31 WK 33.

created it. The dark soil appears along the southwestern edge of our main excavation block and increases in depth as one moves southwest. The swale seen in that portion of the site contains a deposit of unknown depth and marks an abandoned channel of Elk Creek (Figures 4, 5, 6).

As stated above, artifacts are contained in the dark, organic-stained stratum. The pottery recovered during excavations within the stratum is ordered from bottom to top in a way that replicates the ceramic sequence of the area (i.e., the lowermost sherds typically are fabric-impressed and grit-tempered, yielding to plain or stamped sherds with soapstone temper). The only way that sequence could occur in proper stratigraphic order is for the soil to have accumulated during the site occupation. This is also suggested by the fact that the line of postholes marking the edge of the feature concentration, a line interpreted as a village palisade, follows rather neatly the edge of the dark soil. Another way to consider the dark soil is to observe the profile of the yellow clay which underlies it. Along the southwestern edge of the excavated area the clay tilts down strongly and is capped by the dark organic soil (Figure 6).

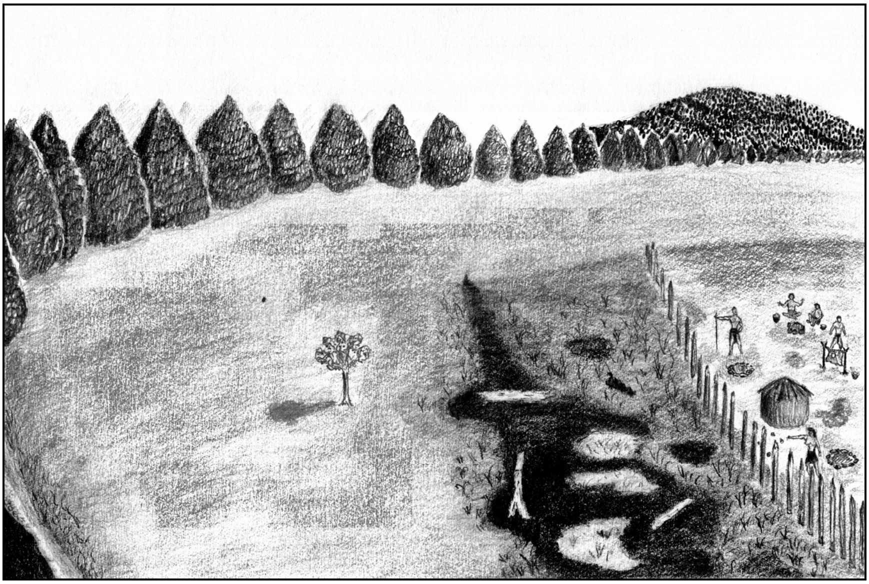

Figure 5. Artist's rendering of the T. Jones Site, 31 WK 33. Note the location of the swampy channel of Elk Creek.

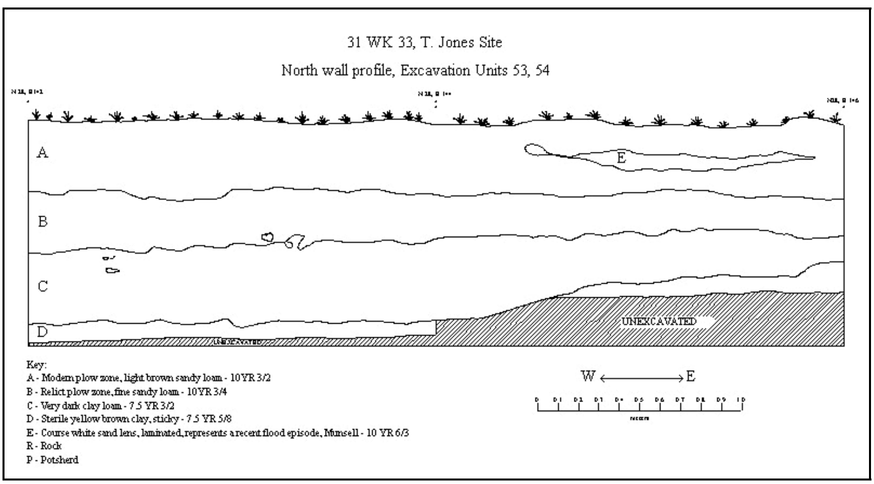

Figure 6. North wall profile of Excavation Units 53 and 54, showing the eastern edge of the swamp deposits (stratum C) and the two plow zones, 31 WK 33.

These observations lead to the following reconstruction. During the period of site use Elk Creek had carved a broad channel, or a series of braided beds, across the present floodplain. Slow-flowing water filled that channel, depositing muck, which ultimately formed the dark stratum we found. While the channel was active, the site's inhabitants tossed debris into the channel, where it was buried by subsequent alluviation to create the stratigraphic sequence mentioned above (Figure 5). The water flow was minimal — in several cases sherds from that stratum could be refitted, and none of the artifacts showed signs of rolling, so the area probably resembled a marsh or swamp. Late in the site's use a palisade was constructed, a portion of which paralleled the edge of the swamp or creek channel.

To summarize, northeast of the edge of the swamp was a linear area some 6 m by 50 m where features, or portions of features, have been preserved through burial by overbank deposition and colluvium transported through sheet erosion and plowing. Above that area, in the slightly higher portions of the site, plowing and deflation has destroyed almost all the features once present. Only a few vestiges (i.e., the bottoms of pit features) were detected here. Some of these feature remnants consisted of wide, filled basins that, when discovered beneath the plow zones, proved to be only a few centimeters thick (Figure 8). These same processes affected our ability to fully trace the palisade. While its postholes were very clear in most of the excavated block, the post stains disappear to the northwest and southeast, erased by deflation. In consideration, the bulk of our excavations focused on the linear area indicated in Figure 4.

Excavation generally proceeded by the removal of the plow zone as a single unit. If the relict plow zone was present it was included, and soil from this disturbed stratum was passed through a quarter-inch screen for artifact recovery. If features were present these were mapped and photographed in flat plan, and excavated using trowels. The feature fill was water-screened through one-sixteenth inch mesh, with soil samples, radiocarbon samples (Table 1), and pH tests taken when appropriate. Larger features were excavated by removing half of the feature at a time, allowing profiles and photographs of the fill. Human burials were excavated but the skeletal remains were in such poor condition that very limited information could be obtained. Teeth were removed and examined on site by a physical anthropologist (David S. Weaver, Wake Forest University) to determine approximate age at death; afterwards,

Table 1. Radiocarbon Dates, 31 WK 33.*

Provenience	Sample material	Lab number	Conventional RC age	Calibrated age
47-2	charcoal	Beta-175638	510 ± 60 BP	AD 1420
58-2	charcoal	Beta-175640	520 ± 50 BP	AD 1420
60-3	charcoal	Beta-175641	250 ± 60 BP	AD 1650
52-4	charcoal	Beta-175639	500 ± 50 BP	AD 1420
51-4	charcoal	Beta-177852	900 ± 40 BP	AD 1160

* Additional data on these dates are presented in the description of the features.

then were returned to the burial location and reinterred. Artifacts and attendant documentation are curated at the Archeology Laboratories of Wake Forest University.

Preservation of organic materials was rare. Bone, shell, and macrobotanical remains were seldom encountered, and even charcoal was scarce. With only a few exceptions, the features contained only dark soil, sherds, and stones. The soil at the site is acidic — the dark organic stratum deposited by the marsh was 6.8 pH, and the yellow sandy sterile clay measured 6.2 pH. Interestingly, the fill of the features consistently was at the lower end of the pH range, varying from 6.3 to 5.7 pH. Already mentioned is the poor bone preservation in the human burials, and the few bits of unburned bone discovered in features tended to disintegrate. Occasional amorphous pieces of burned clay were found, but none of these bear stick or grass impressions, so there is no evidence of wattle-and-daub construction.

Features

Not including postholes, 25 features were recorded at the T. Jones site. Some of these (namely, the human burials and earth ovens/cooking pits) are readily identifiable in regard to function. Others, however, are not as easily classified, either because only the basal few centimeters was intact in the deflated portions of the site or the feature was more or less intact but its form and contents are anomalous. It is quite possible that some of these features are erroneously identified, a result of the poor preservation at the site.

Human Burials

Four features clearly are burials, yielding human remains from a prepared grave. One other feature, 65-6, almost certainly was a fifth example and is included here for reasons given below. It also seems likely that several of the small oval pits (e.g., 57-3, 50-2, and 42-2), also contained burials but the total decay of the remains left no corroborating evidence.

Feature 17-3. Discovered in the 1995 season, this is a flexed burial in a simple oval pit, the typical burial mode in Woodland sites downstream. The skull was to the east. The condition of the bones was very poor and only allowed determination of an adult burial. No grave goods were present.

Pit dimensions: 70cm N–S, 80cm E–W, pit floor at 100cm below surface.

Feature 36-5. This is a modified shaft-and-chamber burial, with the chamber created by excavating the northern portion of the vertical shaft 29cm deeper than the south, and undercutting the east wall 15cm. The result is a vertical shaft with a small shelf left on the south side. Only a portion of the skull was found on the east side of chamber, facing north. The stage of dental eruption indicates an adolescent or young adult (14 years old if female and 18 years old if male). No grave goods were present, but sherds of a single large grit and sand-tempered, fabric-impressed vessel were found throughout the fill, often with several large fragments clustered. The temper particles are very abundant in the paste and some are quite large, with some pieces appearing on both the interior and exterior surfaces. This vessel conforms to Yadkin Fabric-Marked (Coe 1964), an early Woodland ceramic type. As the excavation of Feature 36-5 proceeded, the burial shaft took a different shape than the original feature discovered. This may be a result of the burial intercepting an older feature containing the vessel, and incorporating the vessel fragments in the backfill of the grave shaft. Alternatively, the shaft-and-chamber burial mode may date from an early Woodland time period. It does not date to the final occupation of the site, inasmuch as at least one posthole is intrusive into the feature.

Pit dimensions: 115cm N–S, 85cm E–W, pit floor at 132cm below surface.

Feature 52-3. Encountered immediately below the plow zone, this feature presented as an oval stain against the sterile yellow clay. Scraping the top of the stain to remove the plow scars encountered bits of poorly preserved bone. Excavation in the pit fill revealed portions of the skull on the eastern side of the stain, and a few remnants of long bones suggestive of a flexed position. Although this may represent a flexed burial in a simple oval pit, it is in an area of the site that has been deflated, and the feature as observed may be the bottom of a shaft-and-chamber tomb. Three tubular copper beads were present in a location suggesting they were worn as a necklace, high on the throat. The beads were friable and broken, but the longest fragment measures 3cm, the shortest 1.7cm. No other artifacts were recovered.

Pit dimensions: 65cm N–S, 75cm E–W, pit floor at 45cm below surface.

Feature 52-4. Removal of the plow zone to 37cm below surface revealed this feature, which appeared as a very dark oval stain, a pit filled with midden soil and rich in artifacts. This fill continued to 62cm below surface, although a 11cm-thick lens of sterile alluvial sand occurred within this deposit. At the bottom of the shaft, a chamber had been created on the northwestern side, undercutting the wall by 20cm. A child, age 6–7 years at death, had been placed in the chamber which then was closed using seven very large river cobbles. Except for the teeth, none of the skeletal remains were preserved, and no grave goods were present. The ceramic assemblage from the burial fill was predominantly of the Smyth series. There also were present two Pisgah potsherds, which were unusually large and of unambiguous typological identification; the co-occurrence of Smyth and Pisgah pottery indicates a degree of contemporaneity.

Pit dimensions: 110cm N–S, 120cm E–W, pit floor (within the chamber) at 90cm below surface.

Comments: It is difficult to interpret the lens of sterile sand within the pit fill, which can be seen in Figure 7a. It cannot be backfill from the original grave excavation, inasmuch as the pit intruded into the dense yellow clay, not sand, and the sand itself is so clean and so unadulterated by mixing with the midden soil that it must have been deliberately placed. It could not have been produced by a burrowing animal or by a second, later feature intruding into the original, because it is sealed on the top, sides, and bottom by the same dark midden soil that otherwise fills the burial shaft. One possibility is that is was intentionally placed, along with the large river cobbles, to seal the chamber from the fill of the

Figure 7a. Burial 52-4, a shaft-and-chamber interment at 31 WK 33. Note the sand lens immediately southeast of the stones blocking the chamber.

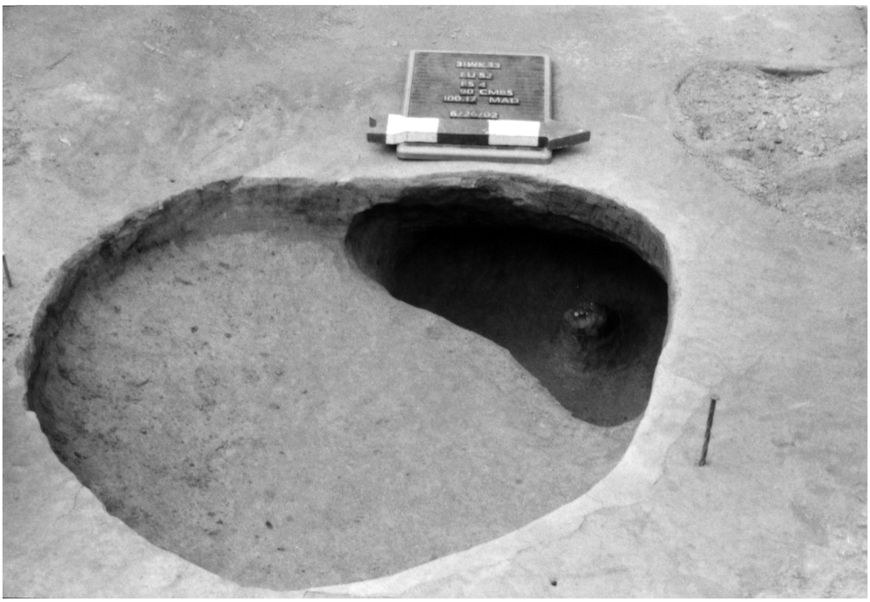

Figure 7b. Burial 52-4 excavated. The pedestaled soil in the chamber supports the human teeth, the only remains present.

vertical shaft. A great deal of charcoal and a few pieces of deer bone were present in the midden soil filling most of the vertical shaft. A charcoal sample, taken between 51cm below surface and the shaft bottom at 62cm, yielded a date of 500 ±50 BP (Beta-175639; charred material). Calibrated to the 2-sigma range this date yields two intercepts at AD 1320–1340 and AD 1390–1460. At the 1-sigma range the calibrated date is AD1410–1440 (Stuiver et. al. 1998).

Feature 65-6. This feature yielded no human remains, but its characteristics are such that there can be little doubt that a burial once was present, but has been entirely destroyed by the acid soil. This is not unlikely considering the minimal amounts of bone present in the burials described above. Feature 65-6 is located in a portion of the site where the dark organic deposit is present beneath the plow zone, but it is thin enough so that features could be seen in the yellow clay that underlies it. The plow zone was stripped from EU65, the dark stratum removed as a unit, and feature 65-6 then was seen at 74cm below surface. The dark clay feature fill was removed to 111cm, where it ended on the western half of the pit, a distinctive characteristic of a shaft-and-chamber grave. In the eastern half the shaft fill continued to 180cm below surface, and a chamber had been created by undercutting the eastern wall to a depth of 20cm. No grave goods were present, nor were any human remains detected. Pottery found in the pit fill was mainly Burke series.

Pit dimensions: 85cm N–S, 85cm E–W, chamber floor at 180cm below surface.

Cooking Pits/Earth Ovens

These features, at least the large examples, are distinctive to the T. Jones site and are not observed in the sites downstream in the Yadkin Valley; however, similar features are reported from other late prehistoric and early historic sites in the North Carolina piedmont (cf. Ward and Davis 1993:85–93, 410–411). The T. Jones examples contain river cobbles, complete and broken, along with burned clay and artifacts. In a few examples, especially those discovered in the 1995 season and reported by Idol (1997), they also have charred maize, acorns, hickory nuts, and animal bone.

Features 9-7, 10-3, 11-3. These features already have been described by Idol (1997:149–152). Except for 9-7, with margins that could be defined, the features are the result of several large, overlapping cooking pits. The fill of the separate pits could not be clearly distinguished, so the size of the individual features was not clear. Arcing sections of pit edges, however, suggest that the pits were very large, up to 2m in diameter. Contents were commensurate with the proposed function, consisting of animal bone, charred corn and acorn concentrations, and complete and broken river cobbles. Pottery present invariably was Burke series wares.

Feature 27-2. This oval stain was seen upon removal of the plow zone, at 39cm below surface. It is located in a portion of the site where deflation almost certainly has destroyed most of the features, hence its very shallow depth. The sides sloped inward slightly, and the floor was flat. Contents included pottery, fire-cracked rock, a few pieces of burned and unburned bone (including deer bone) and turtle carapace, nutshell, a projectile point, and debitage. The pottery indicates a very late date for the feature. Most of the sherds are tempered with soapstone with plain or stamped surfaces, and fit comfortably into the type descriptions of the Burke series (Keeler 1971; Moore 1999). The Smyth series also is represented but in lower frequency.

Pit dimensions: 205cm N–S, 95cm E–W, pit floor at 53cm below surface.

Comments: At 39cm below surface, Feature 27-2 consisted of a very dark ovate stain with abundant flecks of charcoal, large potsherds, and fire-cracked rock. Surrounding this very prominent stain was a light brown stain, forming a distinct halo around the dark fill. The halo varied in width from 7cm to 25cm, but was evident all around the perimeter of the feature, giving an impression of a pit within a pit (Figure 8). The lighter halo (which contained almost no artifacts) was not present at the bottom of the feature, diminishing in thickness as the base of the feature was approached. Others have noted a similar phenomenon in large cooking pits from other sites (Ward and Davis 1993:89). The excavation of Feature 41-2 (below) indicates this is a result of post-depositional leaching.

Feature 41-2. This is the one of the most difficult features to interpret. Its classification as a cooking pit is not secure but is based on the large number of complete and broken river cobbles recovered from the fill. Charcoal generally was scarce, as were artifacts. The pit is deep, discovered below the relict plow zone at 45cm below surface and continuing to 160cm. The profile of the fill shows alternating bands of very dark clay loam with rocks and lighter yellow clay loam without

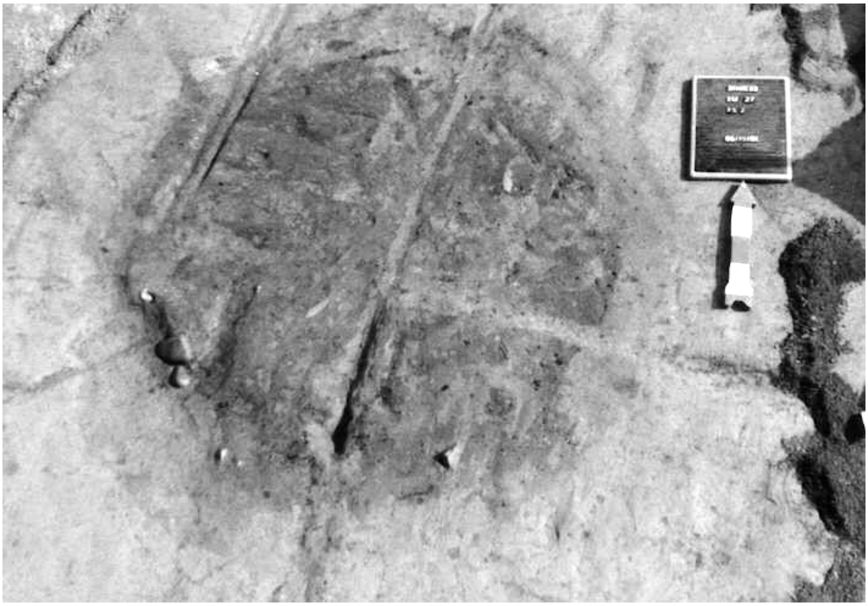

Figure 8. Feature 27-2 before excavation, 31 WK 33. Note the "halo" of lightly stained soil surrounding the darker pit fill. The linear disturbances are plow marks.

rocks (Figure 9). The ceramics recovered belong to the early Woodland Yadkin series and are thick and cord-marked, with abundant crushed quartz temper. Only a single, very small soapstone-tempered potsherd was present. The walls of the pit were slightly in sloping, and the base was flat.

Pit dimensions: 165cm N–S, 180cm E–W, pit floor at 160cm below surface.

Comments: This feature also showed the halo effect mentioned for 27-2, especially clear at 75cm below surface, when the last of the dark organic stratum was penetrated and the pit outline was clearly delineated against the sterile, yellow sandy clay matrix. The process creating this pattern seems to be post-depositional, because the lenses of varying soil color and artifact density, mentioned above, are continuous across the pit — i.e., they are not interrupted at the interface of the halo and the darker fill. Natural leaching of the organic fill probably causes this pattern. It should be noted that this feature, like 36-5, lies outside the palisade line. Coupled with the abundance of Woodland pottery in its fill, this indicates that it belongs to the early component at T. Jones.

Figure 9. Feature 41-2, eastern profile of the pit fill. Note the alternating bands of fill. 31 WK 33.

Feature 47-2. Two other pits intruded upon this large oval feature, but where undisturbed its perimeter shows the halo of lighter soil described previously. Its sides were straight or slightly in-slanting, the floor flat. The fill contained very dark midden soil, along with complete and broken river cobbles, a complete triangular projectile point, a small amount of debitage and potsherds. The pottery is predominantly of the Burke series, including (in descending order) Burke Plain, Burke Complicated Stamped, and Burke Incised (Moore 1999). There are also three instances of check-stamped, soapstone-tempered sherds, here included with Burke. An exception is half a ceramic disc, probably made by grinding a potsherd—this specimen, also soapstone tempered, has a net-impressed surface. A ^{14}C sample from this feature yielded a date of 510 ± 60 BP (Beta-175638; charred material). This date is calibrated at the 2-sigma range to AD 1310–1370 and AD 1380–1470. The 1-sigma range is AD 1400–1440 (Stuiver et. al. 1998).

Pit dimensions: 160cm N–S, 205cm E–W, pit floor at 92cm below surface.

Feature 58-2. Notably smaller than the other cooking pits, with straight sides and an irregular, but generally flat floor, this feature contained dense concentrations of charcoal, fire-cracked rock, and pieces of burned clay. Also present were highly fragmented animal bone and deer teeth, charred maize kernels and nutshell, debitage, stone tools, a stone disc, and potsherds. Most of the pottery is tempered with crushed soapstone but, with one possible exception (a plain burnished sherd), the surface treatment is net-impressed, cord-marked, or brushed. This ware is classified as the Smyth series (Holland 1970:67–69) and dominated the assemblage from the Porter site (Woodall 1999), downstream on the Yadkin. Interestingly, the radiocarbon dates from this and other features, as well as the stratigraphy in the deeper units, support the view that the Smyth and the Burke series are contemporary for some period, at least in the upper Yadkin Valley.

Pit dimensions: 85cm N–S, >100cm E–W (feature not fully exposed by excavation), pit floor at 54cm below surface.

Comments: Among the stone tools is a complete early Archaic Kirk Stemmed point, delicately serrated. The presence of unbroken Archaic points in features has been observed in the late Woodland sites downstream (Woodall 1990:50, 1999) as well as in one site in the Catawba Valley (Moore 1999:370). Material from this pit provided the radiocarbon date of 520 ± 50 BP (Beta-175640; charred material). The calibrated age with 2-sigma probability is AD 1310–1360 and 1390–1450 (i.e., there are two intercepts with the calibration curve). The calibrated age with one standard deviation is AD 1400–1430 (Stuiver et. al. 1998).

Feature 60-3. This large, deep cooking pit contained abundant artifacts as well as burned bone, fire-cracked rock, charred maize and nutshell, and burned clay. Its sides sloped inward to a basin-shaped, rather irregular bottom. The fill of the feature was stratified, with distinct lenses of yellow-brown or gray sandy clay, and a lens of charcoal, in the dark midden soil that filled the pit. The ceramics are predominantly soapstone-tempered Burke series sherds with complicated stamped, plain, and incised specimens most common. Two ceramic discs and several fragments of clay pipes were present. A ^{14}C sample from the charcoal lens deep in the pit fill yielded a date of 250 ± 60 BP (Beta-175641; charred material). The calibrated range at the 2-sigma level shows three intercepts: AD 1490–1690, AD 1730–1810, and AD 1920–1950. At the 1-sigma range there also are three intercepts, at AD 1530–1550, AD 1630–1670, and AD 1780–1800 (Stuiver et. al 1998). Considering the complete absence of historic materials from this feature, and from the site as a whole, the earliest dates of these ranges seem most appropriate.

Pit dimensions: 165cm N–S, 160cm E–W, pit floor at 170cm below surface.

Comments: Surrounding this feature was a pattern of postholes, the only such arrangement detected at the site. The pit is not centered within the circle, nor do the postholes clearly intrude on the pit fill, making it questionable as to whether the pit and the posts are functionally related. The posthole circle is quite small, however, and the pit fills most of its interior, so it seems unlikely that the association of the two is entirely fortuitous. For further discussion of this posthole pattern, see “House” below.

Feature 67-2. This small pit had almost vertical sides and a very flat bottom. Its designation as a cooking pit is based on a zone of charcoal-flecked soil at its interface with the plow zone; below, the soil contained less charcoal and only a few pieces of rock. Distinct soil zonation was seen in the pit fill, layered in a manner similar to that seen in 60-3 and 41-2. The pottery is of the Smyth series — soapstone tempered with surfaces plain or roughened by net, fabric, or cord impressions. Holland (1970) does not include the last two surface treatments in his description of the Smyth types, but because all other attributes of the sherds are commensurate with that series they are so included here.

Pit dimensions: 90cm N–S, 90cm E–W, pit floor at 76cm below surface.

Comments: A portion of a large ceramic disc, made on a net-impressed potsherd, shows a hole near the projected center. When complete the disc would have measured approximately 9cm in diameter, much larger than any other discs found. Its size, and the central hole, suggests its use as a spindle whorl. This feature also contained several small slabs of soapstone, each about 5cm in length. This is the sort of raw material that likely was processed for pottery temper.

Other Pits

Other than human burials and cooking pits, there were several features that could not be classified regarding their function. Their shape, size, and contents do not suggest they were used for storage, although deflation may have made storage pits unrecognizable. Some of these also may be human burials (or perhaps dog burials), where the bone has entirely disintegrated.

Feature 31-2. This is a shallow, oval stain, basin-shaped in cross-section, containing numerous fire-cracked rocks but almost no charcoal and very few artifacts. The five potsherds present, all soapstone tempered, have eroded surfaces but appear to bear cord or net impressions.

Pit dimensions: 90cm N–S, 105cm E–W, pit floor at 59cm below surface.

Feature 31-3. Immediately southeast of 31-2 is a similar feature, with straight or slightly in-sloping sides and a flat floor. It was filled with light brown silty clay with lenses of darker, charcoal flecked silty clay. Several fire-cracked cobbles were present in the fill, along with 70 potsherds, several of which rested directly on the feature floor. The pottery is all soapstone tempered, with Burke plain, stamped and incised types represented. There are thickened, punctated rims and at least one carinated vessel represented, all suggestive of a very late date for this feature.

Pit dimensions: 140cm N–S, 140cm E–W, pit floor at 47cm below surface.

Feature 31-4. This is a small, straight-sided pit intrusive into the northern edge of 31-3. It contained four soapstone-tempered potsherds, a pipe fragment, and a broken cobble in mottled, light brown fill. The floor was flat. Although the sample is very small, there seems to be a pattern of these small pits intruding on the northern or northeastern edge of larger ones. The other examples (i.e., the feature 47 complex and feature 50-2), are described below.

Pit dimensions: 35cm N–S, 35cm E–W, pit floor at 60cm below surface.

Feature 33-2. This feature is an irregular stain extending only 6cm below the base of the plow zone, and it may be natural in origin. It contained only three potsherds: two plain and one complicated stamped, all soapstone tempered.

Pit dimensions: ca. 50cm N–S, 30cm E–W (irregular), pit floor at 53cm below surface.

Feature 42-2. This pit was filled with mottled sandy loam, with occasional pieces of charcoal, sherds, and lithic debris. Artifacts were not dense, nor was the charcoal concentrated so as to suggest a function for the feature. The sides were very straight and the floor flat. On the southern edge of the pit was a posthole, clearly intrusive, that was part of the palisade array, so the pit contents must predate that structure. This pit is an example of a feature which may have held a human burial. The few potsherds present are equivocal, including early, grit-tempered specimens as well as soapstone-tempered Burke series sherds.

Pit dimensions: 98cm N–S, 98cm E–W, pit floor at 76cm below surface.

Comments: Considering the location and contents of this pit, specifically the ceramic assemblage, it likely dates to the early period of the site.

Feature 47-3. Located in a cluster of pit features in the southeastern section of the site, this small pit was intrusive and thus more recent than two others, 47-4 and 47-2. The fill of 47-3 was mottled sandy clay but immediately above the pit floor was a 2cm thick layer of very dark clay loam, probably the result of the decay of some sort of organic fill. The floor was flat and the pit walls vertical, or nearly so. Artifacts were very scarce, consisting only of a few pieces of debitage and several plain soapstone-tempered sherds.

Pit dimensions: 62cm N–S, 55cm E–W, pit floor at 82cm below surface.

Feature 47-4. The fill of this feature was not deeply stained, consisting of lightly mottled yellow-brown sandy clay. There were, however, several large river cobbles, of the sort found previously in pits that were labeled roasting pits (i.e., those that contained abundant charcoal and/or burned organic debris). Artifacts generally were scarce, consisting only of a few soapstone-tempered potsherds. The walls of the feature were straight and the floor almost perfectly flat.

Pit dimensions: 110cm N–S, 125cm E–W, pit floor at 69cm below surface.

Feature 49-2. A very shallow feature, this basin-shaped pit contained almost sterile, slightly mottled sandy clay. The only artifacts present were six tiny sherds, grit or sand tempered, but too small to warrant further analysis. Also found were a few pieces of debitage.

Pit dimensions: 115cm N–S, 110cm E–W, pit floor at 50cm below surface.

Feature 50-2. Like feature 47-3, this little pit is intrusive on Feature 47-2, on its northeastern side. 50-2 also contained, immediately above its floor, a thin stratum of very dark organically stained clay. Otherwise, the fill was homogenous yellow sandy clay with few artifacts. Of the seven sherds present, six are plain or complicated stamped Burke ware, and the sixth is quartz-tempered and cord-marked, classified as Uwharrie or Yadkin Cord-Marked. The pit walls were straight or slightly undercut to produce a bell-shaped cross-section, and the floor was flat.

Pit dimensions: 60cm N–S, 75cm E–W, pit floor at 89cm below surface.

Feature 51-4. This is a small oval pit containing several large river cobbles, charcoal, and slightly stained soil. Except for one plain, soapstone-tempered sherd, the pottery is Uwharrie. Most, and perhaps all, of those sherds are from a single vessel, heavily tempered with coarse sand or grit and with a cord-marked surface.

Pit dimensions: 65cm N–S, 45cm E–W, pit floor at 77cm below surface.

Comments: The high frequency of Uwharrie pottery indicates this feature dates to the early occupation of the site. Although our palisade line could not be traced quite this far to the southeast, if the line as found was projected this feature would lie on the outside (Figure 4). A charcoal sample from the pit was submitted for radiocarbon dating using the AMS method. A date of 900 ± 40 BP was obtained (Beta-177852; charred material). The date is calibrated at the 2-sigma range to AD 1030 to 1230, and the 1-sigma range is AD 1040 to 1190 (Stuiver et. al. 1998).

Feature 51-5. Appearing as an oval stain of mottled, light brown and yellow clay, this feature contained nothing except a single large stone. The floor was difficult to distinguish from the yellow clay into which it had been excavated, although the near-vertical edges were slightly more distinct. Because it seems to have been dug and re-filled quickly, it may have been a burial of a child. The pH test of the fill registered 6, slightly acid, typical of the sub-plow zone soils at the site.

Pit dimensions: 35cm N–S, 58cm E–W, pit floor at ca. 90cm below surface.

Feature 57-3. This feature, like the preceding 51-5, was marked by mottled orange-brown clay fill that was completely sterile. The walls were straight or slightly in sloping, and no discernable floor was found. Excavation of the feature simply was abandoned when it was clear that we were removing undisturbed soil, although the boundary between the pit fill and the undisturbed matrix could not be precisely defined. As was the case with 51-5, the pit seems to have been excavated and refilled at once, suggesting a human burial once was present but subsequently destroyed by the acidic soil.

Pit dimensions: 85cm N–S, 65cm E–W, pit floor between 60–88cm below surface.

Postholes

Along the southwestern side of the site, postholes and occasionally postmolds were preserved. All of these were sectioned and profiled, and most of them extended only 15cm or so into the sub-plow zone soil. In other parts of the site it seems very likely that post stains once present have been destroyed by erosion and plowing, considering the clear evidence of deflation there.

Palisade. Most of the postholes discovered are part of a linear array, oriented northwest to southeast and some 45 meters in length. At its southeastern end the line stops in an eroded area of the site (also marked by very shallow pit features). At its northwestern end it was not followed to its terminus, but the stains here were becoming shallower as the surface elevation increased. The pattern probably was erased by erosion not far beyond the excavated section. About halfway along its length the posthole line seems to bifurcate, with two lines parallel in the northwestern segment. As can be seen in Figure 4, it is not clear whether two palisades are represented, one inside the other, or a single palisade was augmented/replaced and its location altered.

In his report on the T. Jones site, Idol (1997:154) suggests that postholes he located may represent a storage facility or ramada. As a result of the 2001 and 2002 work, those same postholes clearly are seen to be part of the palisade. There is, however, a circular structure intersected by the palisade and encircling the large feature 60-3 described above. Despite our best efforts in the field, we could not detect any post stains inside this feature (which would indicate it predates the structure), nor does the feature necessarily interrupt the circular, perhaps oval, sequence of postholes. In short, whether the feature is older, younger, or contemporary with the circle of postholes is not clear, nor is it known how the circle relates to the palisade. Also, in the area of Burial 36-5, there are two short lines of postholes set perpendicular to the palisade on its outside. These posthole lines are on a steeply sloping clay stratum, the edge of the clay bank descending into the swamp deposits. Because of the black organic stratum the lines could not be followed further to the southwest, hence they also remain enigmatic. Clearly, however, the eastern line postdates the burial, with one posthole visible in the feature fill.

Three observations regarding the palisade may be important in understanding its purpose. First, the posts are widely set, averaging 65cm of spacing. In most Mississippian sites palisade posts are set much closer, usually 30cm or less. There is no evidence of wattle-and-daub construction of the palisade or, for that matter, of any other structure at the site. It may be that vines or branches were intertwined between the posts to produce a less permeable barrier, but even so, if a fortification were intended, it was less than formidable. Secondly, the palisade parallels the edge of the old swamp. Immediately outside (i.e., southwest of the palisade line), the black, organic deposits thicken markedly, layered atop the basal yellow clay that slopes sharply downward. It thus would seem that the palisade marked the margin of the swamp. Finally, Figure 4 shows that there is little curvature to the palisade. If it were complete and circular it would have defined an enormous area of some 285 hectares, 10 times the size of the Etowah site, one of the largest Mississippian communities. Apart from common sense, this is completely contrary to the evidence of the surface scatter and artifact density. It is much more likely that the palisade inscribed an oval of much more modest size, with the long axis paralleling the depression formed by the old bed of Elk Creek, at the time a swampy, slow-flowing drainage.

House

The structure mentioned above in connection with Feature 60-3 deserves additional commentary, in part because it is unique at the site. It is in the area of the palisade where two lines of posts were present, and it is impossible to disentangle the pattern of house posts from posts of the interior palisade line. In other words, the structure may be circular and 2.5m in diameter, in which case the large pit feature 60-3 clearly post-dates the house and has destroyed the house post pattern on the northern side of the circle. This seems more likely as a glance at Figure 4 will show, and accommodates the very late radiocarbon date for the pit, Feature 60-3. The house may, however, be oval in shape and 3m north–south, in which case the pit feature lies just within its northern edge. The bottoms of the house post stains typically were about 15cm below the base of the plow zone, so plowing and/or erosion have destroyed the original floor level. No interior structural elements were detected, nor were there any atypical artifacts or artifact distribution to suggest a function for this small structure. The southern arc of posthole stains was found in a wall trench; the remaining the posts were set in individual holes. As stated previously, no daub was recovered here or elsewhere at the site.

Ceramic Artifact Description and Analysis

The T. Jones site has yielded potsherds, pipe fragments, ceramic discs, and other clay artifacts. An overview of the various classes is provided below.

Pottery

Potsherds are the most abundant artifacts at the T. Jones site, with 8,337 specimens large enough for analysis. (For the analyses that follow, all the potsherds were size sorted using a half-inch screen. Sherds passing through were classed as "sherdlets" and not considered further.) Previous studies in the upper Yadkin region, including the upper Catawba Valley, strongly support the use of temper and surface treatment as two meaningful variables for assessing temporal relationships. It is very clear that Burke series vessels, with soapstone temper and complicated stamped or plain surfaces, are late, probably dating between AD 1400 and 1600 (Idol 1997; Moore 1999, 2002). Less secure is the age of vessels with soapstone temper and net, cord, brushed, and fabric-impressed surfaces. This pottery is known from southwest Virginia and the Yadkin Valley of North Carolina, and has been classified as the Smyth series (Holland 1970; Woodall 1999:60). Late prehistoric grit- or sand-tempered wares at the site include the Pisgah, Cowans Ford, and Dan River series (see below). Finally, the T. Jones site has produced an assemblage of early and middle Woodland ceramics stratified below the Burke and Smyth materials in the swamp deposits along the southwestern margins of the site.

The majority of potsherds were recovered from the plow zone, and these specimens were usually heavily eroded and small. The size of the complicated stamped sherds, for example, seldom showed enough of the design element to determine whether it was curvilinear, rectilinear, or simple. A sample of 950 potsherds from the plow zone of 17 scattered

Table 2. Temper vs. Surface Treatment, Plow Zone Ceramic Sample from 31 WK 33.

Surface Treatment	Soapstone Temper	Sand/Quartz/Grit Temper	No Visible Temper
Plain	406	40	9
Stamped	316	18	3
Incised	71	10	2
Net Impressed	25	13	1
Fabric Impressed	0	8	0
Cord Marked	2	14	0
Unidentified	8	4	0

excavation units was examined for the correlation of temper and surface treatment. The results are shown in Table 2.

Even a casual inspection of these numbers shows the tendency for soapstone tempered sherds to have plain, stamped or incised surfaces. The association with net-impressing is less strong but present. Both the Smyth series (soapstone temper) and the Dan River series (grit or sand tempered) have net-impressing as a major surface treatment, and both series probably are represented in the plow zone. Fabric and cord-impressed surfaces usually are associated with sand, crushed quartz, or grit tempering, and most of these sherds probably belong to the Yadkin or Uwharrie series of the early and middle Woodland. So, as expected, all the ceramic variety of the site is present in the plow zone. In those portions of the site where there is vertical separation of the components, these various types sort themselves more clearly. Table 3 shows the ceramic types found in the various features. Specimens recovered below the plow zone, from the swamp deposits, or from features, were more readily identified and typed. These were sorted according to temper and then surface treatment. The following ceramic series were recognized.

Burke Series. The most frequent pottery encountered at the site is the soapstone-tempered, plain, incised, or complicated stamped Burke series (Keeler 1971; Moore 1999). The Burke Plain and Burke Complicated Stamped type are most common; the latter is characterized by curvilinear motifs. Table 4 shows its vertical occurrence in the units that penetrated the swamp deposits and its association with the various features.

Table 3. Ceramic Series by Provenience at 31 WK 33.

Provenience	Burke	Smyth	Pisgah	Cowan's Ford	Dan River	Yadkin / Uwharrie	Unid. Soapstone	Unid. Grit/Sand	Unid. NVT	Other	Totals
0-15cm below plow zone	1579	153	10	18	64	62	184	70	56	8	2204
	71.6%	6.9%	0.5%	0.8%	2.9%	2.8%	8.3%	3.2%	2.5%	0.4%	
15-30cm below plow zone	454	84	0	4	32	51	75	23	11	2	736
	61.7%	11.4%	0.0%	0.5%	4.3%	6.9%	10.2%	3.1%	1.5%	0.3%	
30-45cm below plow zone	30	9	1	2	2	39	8	23	2	2	118
	25.4%	7.6%	0.8%	1.7%	1.7%	33.1%	6.8%	19.5%	1.7%	1.7%	
45-60cm below plow zone	1	0	2	0	0	5	0	4	0	0	12
	8.3%	0.0%	16.7%	0.0%	0.0%	41.7%	0.0%	33.3%	0.0%	0.0%	
Feature 36-5 (burial)	0	0	0	0	0	20	0	0	0	0	20
	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	
Feature 52-4 (burial)	2	34	2	0	0	0	5	12	0	1	56
	3.6%	60.7%	3.6%	0.0%	0.0%	0.0%	8.9%	21.4%	0.0%	1.8%	
Feature 65-6 (burial)	8	1	0	0	0	0	2	0	0	0	11
	72.7%	9.1%	0.0%	0.0%	0.0%	0.0%	18.2%	0.0%	0.0%	0.0%	
Feature 27-2 (cooking pit)	27	9	0	0	2	0	6	3	0	0	47
	57.4%	19.1%	0.0%	0.0%	4.3%	0.0%	12.8%	6.4%	0.0%	0.0%	
Feature 41-2 (cooking pit)	0	0	0	0	0	19	1	0	0	0	20
	0.0%	0.0%	0.0%	0.0%	0.0%	95.0%	5.0%	0.0%	0.0%	0.0%	
Feature 47-2 (cooking pit)	42	5	0	0	3	3	0	0	0	0	53
	79.2%	9.4%	0.0%	0.0%	5.7%	5.7%	0.0%	0.0%	0.0%	0.0%	
Feature 58-2 (cooking pit)	1	34	0	0	0	0	0	5	0	0	40
	2.5%	85.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	
Feature 60-3 (cooking pit)	228	32	2	1	4	9	29	5	0	8	318
	71.7%	10.1%	0.6%	0.3%	1.3%	2.8%	9.1%	1.6%	0.0%	2.5%	
Feature 67-2 (cooking pit)	6	7	0	0	0	4	3	2	0	0	22
	27.3%	31.8%	0.0%	0.0%	0.0%	18.2%	13.6%	9.1%	0.0%	0.0%	
Feature 31-2 (other pit)	1	3	0	1	0	0	1	2	0	0	8
	12.5%	37.5%	0.0%	12.5%	0.0%	0.0%	12.5%	25.0%	0.0%	0.0%	

Table 3 continued.

Provenience	Burke	Smyth	Pisgah	Cowan's Ford	Dan River	Yadkin / Uwharrie	Unid. Soapstone	Unid. Grit/Sand	Unid. NVT	Other	Totals
Feature 31-3 (other pit)	54	9	0	0	2	0	9	2	0	0	76
	71.1%	11.8%	0.0%	0.0%	2.6%	0.0%	11.8%	2.6%	0.0%	0.0%	
Feature 31-4 (other pit)	3	0	0	0	0	0	0	0	0	0	3
	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Feature 33-2 (other pit)	2	1	0	0	0	0	0	0	0	0	3
	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Feature 42-2 (other pit)	4	0	0	0	1	5	0	6	0	0	16
	25.0%	0.0%	0.0%	0.0%	6.3%	31.3%	0.0%	37.5%	0.0%	0.0%	
Feature 47-3 (other pit)	4	0	0	0	0	0	0	0	0	0	4
	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Feature 47-4 (other pit)	2	3	0	0	0	0	1	0	0	0	6
	33.3%	50.0%	0.0%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	
Feature 50-2 (other pit)	6	0	0	0	0	1	0	0	0	0	7
	85.7%	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	
Feature 51-4 (other pit)	1	0	0	0	0	11	0	0	0	0	12
	8.3%	0.0%	0.0%	0.0%	0.0%	91.7%	0.0%	0.0%	0.0%	0.0%	

Notes:

- The categories “Unidentified Soapstone”, “Unidentified Grit/Sand” and “Unidentified NVT” (No Visible Temper) almost always are comprised of very small potsherds or sherds with the exterior surface missing.
- If soapstone temper is used as a proxy for late prehistoric sherds, the decreasing frequency of that tempering agent with depth is in keeping with the typological analysis noted below involving Burke and the Woodland (Yadkin and Uwharrie) pottery.
- Assignment of sherds to the category “Smyth” was conservative in regard to plain specimens. The types “Smyth Plain” and “Burke Plain” can be identical, and in cases where there was ambivalence the specimens were assigned to Burke. Smyth, as recognized at the T. Jones site, consists only of soapstone-tempered sherds with net impressions or a brushed exterior, the latter called “scraped” in Holland’s (1970) type description.
- The “Other” category was used a few times for plain, cord-marked, or brushed sherds with a very sandy paste. These specimens correspond to the middle Woodland Connestee series (Keel 1976).

Cowans Ford Series. Moore and others recognize a ware similar to Burke in regard to surface treatments but tempered with sand or finely crushed quartz. More commonly found in the middle Catawba Valley (Moore 1999:406), it is considered coeval with Burke and its distribution at T. Jones supports that view.

Pisgah Series. A few examples of mostly grit-tempered, rectilinear-stamped sherds were recovered. These conform to the Pisgah series (Dickens 1976), also a late prehistoric ware, more commonly associated with sites in the Appalachian summit region but occasionally found in the western piedmont. For example, Pisgah ceramics are abundant at the McDowell site, in the upper Catawba Valley (Moore 2002:66), where some Pisgah vessels apparently were tempered with crushed soapstone (Moore 2002:720). In those instances the determinant typological attribute is deemed to be the surface treatment (rectilinear stamping) and rim treatment, with temper allowed to vary. Pisgah ceramics date between AD 1000 and 1450 (Eastman 1994a:34).

Smyth Series. Originally recognized in southwestern Virginia, this type is now known to occur more commonly at sites in North Carolina and more specifically in the upper Yadkin Valley. At the Porter site, for example, Smyth wares dominate the ceramic assemblage. The series is characterized by thoroughly crushed, even pulverized soapstone as a tempering agent combined with surface treatments (namely, net-impressing, brushing, cord or fabric impressing, or plain) typical of late Woodland pottery. At the Porter site (Woodall 1999) the associated artifacts and one radiocarbon date place the Smyth series as late as AD 1500–1600, contemporary with the Burke series. This relationship was supported by the radiocarbon dates from T. Jones, reported below, although the association of Smyth and Pisgah pottery in feature 58-2 suggests that Smyth begins earlier than Burke, and an estimate would place that beginning ca. AD 1300. In the original type description of Smyth pottery Holland (1970) does not include cord or fabric impressing as surface treatments. These alternatives, however, were present at the Porter site (Woodall 1999) and occur at T. Jones. They, along with net-impressing, form a triad of surface treatments that characterize the Woodland ceramics of the Yadkin Valley from at least AD 1000 to the historic period. Because of the consistent association of these treatments in late Woodland sites, it makes sense to include them in the Smyth series, at least for the Yadkin Valley sites.

Dan River Series. This is the pottery series most commonly found in late Woodland sites of the central and western North Carolina piedmont. From about the Porter site location downstream for at least 100km, ceramic inventories dated between AD 1200–1500 are dominated by Dan River net-impressed, plain, and (less common) cord-marked, brushed, and fabric-impressed (Woodall 1990). The paste contains medium to fine sand, and interior surfaces generally are well smoothed. Surface decoration is rare, and usually is confined to the rim where incisions or punctations occur in simple patterns.

Yadkin Series. In the piedmont the Yadkin series (Coe 1964) is the most common indicator of early Woodland sites, although such sites with integrity and radiocarbon dates are few (Kirchen 2001:15). In consequence, this expression of Woodland culture is poorly known, but dated sites in North and South Carolina fall after 400 BC. The end of the early Woodland, marked by the appearance of the (closely related) Uwharrie ceramic series, is even more poorly known than its beginning. A date of AD 600 is approximate, little more than a guess based on a single radiocarbon date (Eastman 1994a:27). Yadkin pottery has fabric or cord-impressed exteriors, well-smoothed interiors, and is tempered with various kinds of crushed rock, often quartz. Variants of this early ceramic tradition drape across the interior Southeast and, despite the plethora of regional designations (Watts Bar, Kellogg, Dunlap, Yadkin, Swannanoa) give a degree of unity to the early Woodland that largely disappears in the centuries, and diverse pottery traditions, that follow.

Uwharrie Series. The typological successor to the Yadkin series, Uwharrie pottery (Coe and Lewis 1952) continues the tradition of grit temper and textile-impressed surfaces. The grit usually is coarsely crushed quartz or quartzite; vessels are thick-walled with poorly mixed paste that reveals laminations and voids. Cord marking becomes popular and fabric-impressing declines in frequency until about AD 1000, when net-impressing becomes the dominant form of surface treatment. These large jars, probably used mainly for storage rather than direct-heat cooking, continue to be produced until late in prehistory, even after the dominant ceramic is the Dan River series (Coe 1995:156; Woodall 1990:76–88). Because Yadkin and Uwharrie pottery represent a single ceramic tradition, and because of the difficulty in distinguishing the two when dealing with the rather small sherd sample from T. Jones, they are grouped together in Table 3.

Table 4. Burke vs. Yadkin/Uwharrie Pottery Distribution (samples from EU's 28, 30, 53, and 54 at 31 WK 33).

Excavation Depth	Burke Series	Yadkin/Uwharrie Series
0–15cm below plow zone	412	15
15–30cm below plow zone	223	27
30–45cm below plow zone	24	39
45–60cm below plow zone	1	5

Comments on the Ceramics. Examination of the horizontal and vertical distribution of the T. Jones pottery reveals some interesting trends. These trends contribute to the behavioral models presented later in this report, but some implications can be noted here. One observation, not at all original (cf. Moore 2002:93–96), is the late prehistoric use of soapstone as a tempering agent. Smyth and Burke wares, both soapstone-tempered, date from AD 1400–1600 and appear to be largely contemporary in the upper Yadkin Valley, although as stated the T. Jones site association of Pisgah and Smyth in Feature 58-2 indicates an earlier beginning for Smyth, perhaps as much as 100 years. At the regional level, there are sites where Burke is very rare but Smyth is common, such as at the Porter site downstream of T. Jones (Woodall 1999). Alternatively, the Berry site in the upper Catawba drainage contains almost no Smyth pottery, although Burke wares are abundant (Moore 1999:104). It seems that processes affecting the distribution of soapstone temper may be distinct from those influencing choices of surface treatment. This de-coupling of soapstone temper from more visible ceramic attributes useful for social signaling (Wobst 1977) allows different explanatory models to be constructed for the distribution of these attributes.

In regard to intrasite distribution of the pottery, there does appear to be stratigraphic separation between the late soapstone-tempered wares and the sand- and grit-tempered Yadkin and Uwharrie sherds. In Table 3, this is indicated by the decreasing percentage with depth of Burke and a concomitant increase in the frequency Yadkin or Uwharrie wares. But Table 3 is constructed by collapsing data from all the excavation units. By looking at only certain units, the picture is more striking (Table 4). The deepest excavations were carried out in units 28, 30, 53, and 54. Those squares were positioned on the edge of the swamp deposits, and refuse discarded into that wet soil escaped the deflation and erosion that destroyed higher portions of the site.

Disregarding the lowest material, where the sample is too small for confidence, Burke decreases with depth from 65% to 55% to 22%. Yadkin and Uwharrie increase from 2% to 7% to 36%.

It is probable that the early occupation of the site represented by the Woodland ceramics was smaller than the late prehistoric component. The heaviest concentration of Yadkin and Uwharrie pottery, whether from features or sub-plow zone strata, is in a linear array roughly between features 60-3 and 51-4. Furthermore, it seems noteworthy that Yadkin and Uwharrie pottery is abundant only in features that lie outside the palisade (or probably outside in the case of 51-4). By AD 1400, when the later occupation probably began, the area for occupation had shifted to the northeast at least two meters. This may have to do with the actions of Elk Creek aggrading its bed while flowing sluggishly past the village.

Pipes

No complete pipes were recovered, but 41 fragments were found, all of fired clay (Table 5). Most of the fragments are too small to indicate the shape of the complete artifact, but in two instances elbow pipes are represented. Of the total, 13 were recovered from the plow zone, and pipe fragments occurred in only two features. The remainder was found in the sub-plow zone deposits, a distribution pattern that is puzzling. Of course the sample is small, but it should be noted that at the T. Jones site at least the distribution of the pipe fragments is not the same as the Burke series ceramic distribution. All the pipe fragments are tempered with very fine sand, or have no visible temper, suggesting that the pipes were produced through a distinct set of procedural modes. The only decoration observed was one or two simple incised lines encircling the rim of the bowl.

Discs

Seven complete and six broken clay discs were recorded (Figure 10*a*–*m*). All appear to be manufactured on potsherds by grinding. In other words, they were not purposefully modeled and fired as discs. Of

Table 5. Pipe Fragment Distribution, 31 WK 33.

Context	Count
Plow zone	13
0–15cm below plow zone	11
15–30cm below plow zone	5
Feature 31-4	1
Feature 60-3	11*

*Five of these fragments are miniscule pieces. It is highly likely that fewer than 11 pipes are represented by this sum.

the measurable specimens, diameters are between 1.7cm and 4.2cm**.** The provenience of these artifacts is provocative. Of the 13 total, five were recovered from either large cooking pits or "other pits", and none came from burial features. In contrast, only 8 % of the potsherds were found in the (non-burial) features. Thus, almost half the discs came from particular feature contexts that, it will be argued, are involved in ritual consumption. The sample is small, but it lends some support to the suggestion the discs were used in gaming or other activities not strictly technological in nature.

Spindle Whorl

A fragment of a large disc, drilled through its center, was found in Feature 67-2 (Figure 10*q*). Made on a net-impressed potsherd, the complete piece would have measured 9.3cm in diameter. It is classified as a spindle whorl because of its size (compared to the other ceramic discs) and the center hole. Although no spun fibers were found at the site, their presence is attested by the cord, net, and fabric impressions on the pottery.

Effigy

A rim sherd of a small soapstone-tempered plain bowl, decorated with punctuations around the lip, has an adorno depicting an animal, or perhaps a bird (Figure 11u). Dickens illustrates a very similar effigy, recovered from the Warren Wilson site (1976:Plate 47). The T. Jones example was in the swamp deposits stratum, 0–15cm below the plow zone.

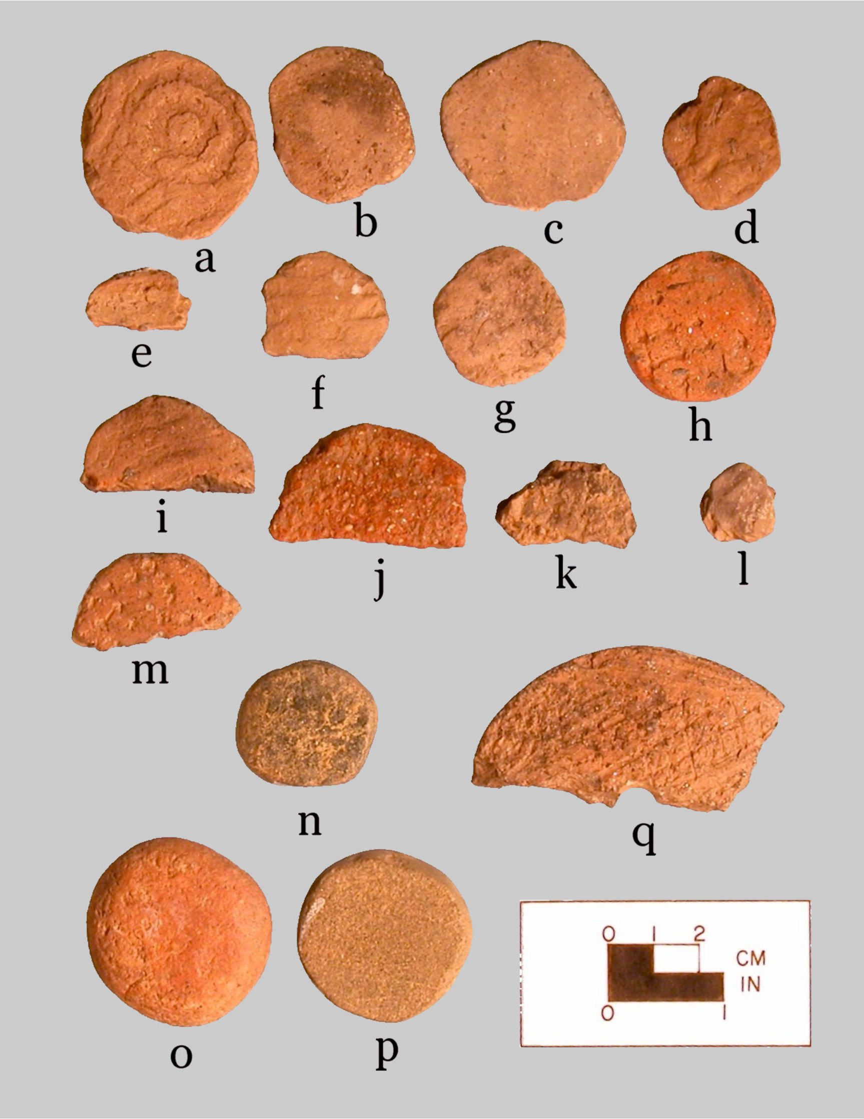

Figure 10. Artifacts from 31 WK 33: *a–m*, ceramic disks and disk fragments; *n–p*, stone disks; *q*, spindle whorl fragment.

Clay Beads

Two fired clay beads were found, both in EU53, one in the plow zone and one in the upper 15cm of the swamp deposit. The two are practically identical, slightly flattened spheres 60mm x 70mm, with the hole through the short axis (Figure 11*t*). The hole was not drilled, but modeled by leaving a fibrous strand in place during the firing. Similar items are reported from numerous late prehistoric contexts in the South Appalachian region (Dickens 1976:146–150).

Lithic Artifact Description and Analysis

One of the interesting characteristics of the T. Jones site is the impoverished lithic inventory. With the exception of a few retouched flakes (most of which seem to be retouched by use) and seven miscellaneous shaped pieces (see below), tools are restricted to projectile points, most characteristically small triangular specimens. Debitage also is present, of course, and like the tools it consists of three major classes of material: felsite, chert, and quartz. *Felsite* includes various sorts of metavolcanic stone such as argillite and especially rhyolites, all originating either in the Carolina Slate Belt far to the east 200km or more, or in southwestern Virginia in the Mount Rogers area, some 60km to the north. Chert also is nonlocal in its origin and was obtained in amounts roughly equal to the felsite. Most of the chert is a dark lustrous material identified as Knox chert, found in the Ridge and Valley region of eastern Tennessee and southwestern Virginia. Also present is chalcedony, a pale gray stone that probably came from the same general area as the Knox chert. All of these materials exhibit excellent conchoidal fracture and were used for tool production at the site. Of less utility for tools, at least formal tools requiring symmetry, is the local white quartz and quartzite. Because of the coarse crystalline structure of the quartzite and the irregular fracturing properties of both quartz and quartzite, it is impossible to confidently separate debitage or even retouched flakes from pieces broken by heat or natural forces. Much of the broken quartz/quartzite was discarded so in the various tabulations that follow a conservative approach was maintained, counting only pieces of quartz or quartzite that exhibited a striking platform, a bulb of percussion, or multiple flake scars that likely were intentionally produced. Even so, I suspect that the quartz and quartzite is over-represented in the sample. One result is an inflation of the debitage count for quartz and quartzite, although only 57 tools of that material were identified. If quartz and quartzite are eliminated from the sample, the percentages of stone types in the debitage and tool categories are essentially the same. Thus, it seems that formal tools were made of either felsite or chert, with little preference shown. The local stone may have had its greatest use in the production of ad hoc tools, including flakes used as tools with no recognizable retouch.

There are some weak but suggestive patterns found in the distribution of the materials. Sorted by provenience and raw material, the excavation units and features on the southeastern part of the site contain a higher frequency of felsite, and lower amount of chert, than the northwestern sector (felsite: 43% vs. 39%, chert 6% vs. 13%). The ceramics from the southeastern sector, including some of the features, suggest that the earlier components may be better represented there (e.g., Feature 58-2). The amount of chert entering the site may have increased through time, reaching its greatest intensity during the terminal occupation of ca. AD 1500. The deeper excavation units provide no support for this perceived trend, but the samples are very small. A third approach is to compare debitage from features of the different components, but again no convincing pattern can be found. The distribution of debitage by raw material and provenience is shown in Table 6.

Projectile Points

The most common tool at T. Jones was the triangular projectile point (Figure11*a–g, j–n*), of which 113 were complete enough for length/width/thickness measurement. Some of the points are carefully made with bifacial retouch to form isosceles or equilateral triangles, but others exhibit much less workmanship. For the latter group, a small flake was given only enough retouch to create a triangular shape. No special effort was made to eliminate the natural curve of the flake, to thin the striking platform, or even to produce symmetry in the converging sides. Such minimal-retouch points have been found before in the region, at Warren Wilson (Dickens 1976:135), and downstream on the Yadkin at the Porter site (Woodall 1999:61).

Another characteristic of the T. Jones triangles is their small size. Although triangular points typify the late Woodland sites of the Carolina piedmont, they show a trend toward decreasing size through time, as noted by various investigators (e.g., Coe 1964:45–49). Within the Yadkin Valley, there also is a trend through space, with the larger, more carefully made points common in the Great Bend region, and both size and extent of workmanship decreasing as one approaches the headwaters.

Table 6. Debitage by Raw Material and Provenience, 31 WK 33.

Provenience	Quartz and Quartzite	Felsite	Chert and Chalcedony	Other	Totals
Plow zone	875	678	613	5	2171
	40.3%	31.2%	28.2%	0.2%	
0-15cm below plow zone	313	126	22	3	464
	67.5%	27.2%	4.7%	0.6%	
15-30cm below plow zone	64	38	51	0	153
	41.8%	24.8%	33.3%	0.0%	
30-45cm below plow zone	20	23	13	0	56
	35.7%	41.1%	23.2%	0.0%	
45-60cm below plow zone	1	8	4	0	13
	7.7%	61.5%	30.8%	0.0%	
Feature 36-5 (burial)	7	2	1	0	10
	70.0%	20.0%	10.0%	0.0%	
Feature 52-4 (burial)	12	10	27	0	49
	24.5%	20.4%	55.1%	0.0%	
Feature 65-6 (burial)	4	12	9	0	25
	16.0%	48.0%	36.0%	0.0%	
Feature 27-2 (cooking pit)	58	56	20	0	134
	43.3%	41.8%	14.9%	0.0%	
Feature 41-2 (cooking pit)	49	13	19	0	81
	60.5%	16.0%	23.5%	0.0%	
Feature 47-2 (cooking pit)	39	63	17	0	119
	32.8%	52.9%	14.3%	0.0%	
Feature 58-2 (cooking pit)	12	15	16	0	43
	27.9%	34.9%	37.2%	0.0%	
Feature 60-3 (cooking pit)	237	108	79	1	425
	55.8%	25.4%	18.6%	0.2%	
Feature 67-2 (cooking pit)	14	29	45	0	88
	15.9%	33.0%	51.1%	0.0%	
Feature 31-2 (other pit)	5	1	5	0	11
	45.5%	9.1%	45.5%	0.0%	

Table 6 continued.

Provenience	Quartz and Quartzite	Felsite	Chert and Chalcedony	Other	Totals
Feature 31-3 (other pit)	33	20	27	0	80
	41.3%	25.0%	33.8%	0.0%	
Feature 31-4 (other pit)	10	6	4	0	20
	50.0%	30.0%	20.0%	0.0%	
Feature 42-2 (other pit)	16	15	11	0	42
	38.1%	35.7%	26.2%	0.0%	
Feature 47-3 (other pit)	2	5	1	0	8
	25.0%	62.5%	12.5%	0.0%	
Feature 47-4 (other pit)	1	10	2	0	13
	7.7%	76.9%	15.4%	0.0%	
Feature 50-2 (other pit)	6	5	3	0	14
	42.9%	35.7%	21.4%	0.0%	
Feature 51-4 (other pit)	4	3	0	0	7
	57.1%	42.9%	0.0%	0.0%	
Totals	1782	1246	989	9	4026

Notes:

- The “Other” category consists of six jasper flakes and three flakes of unidentified material.
- For this table, flakes, chips, blades, and other forms of debitage were combined. Cores are very rare in the assemblage.

This trend is illustrated in Table 7 using late Woodland triangular point samples from the Donnaha Hardy, Porter, and T. Jones sites.

The spatial pattern may have to do with the availability of raw material, or more precisely, the availability and use of the Knox chert. Primary and secondary flakes (i.e., flakes with some cortex adhering) comprised 39% of the chert debitage compared to 27% of the felsite debitage, which suggests that the chert was more commonly received as small nodules with a high surface-to-volume ratio. These small nodules, difficult to reduce (large pieces of chert debitage were extremely rare),

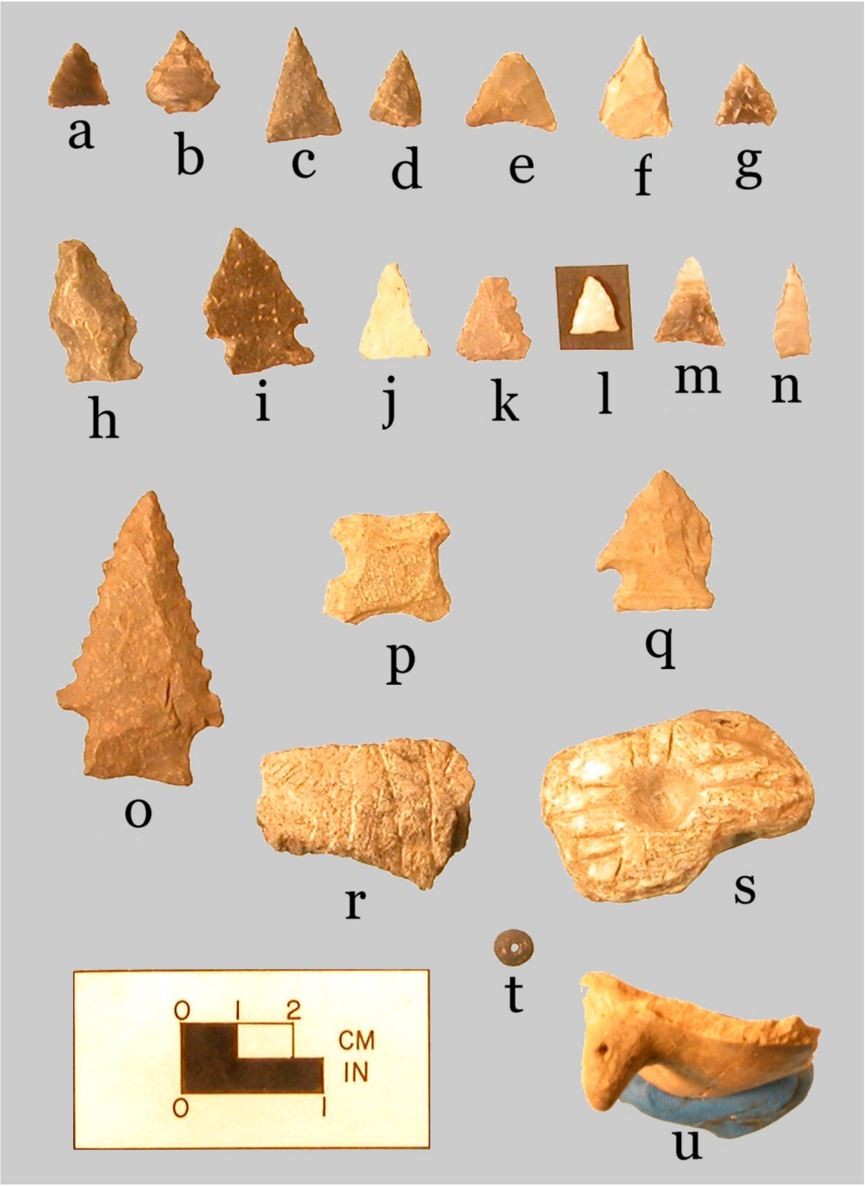

Figure 11. Artifacts from 31 WK 33: *a–g*, *j–n*, Woodland triangular points; *h*, Woodland stemmed point; *i, q,* corner-notched points, probably Woodland; *o*, Kirk point; *p*, unidentified biface; *r–s*, worked soapstone; *t*, ceramic bead; *u*, ceramic effigy adorno.

Table 7. Late Prehistoric Projectile Point Size at Yadkin Valley Sites.

Site	Mean Length	Mean Width	N
Donnaha, 31 YD 9	2.41cm	1.66cm	225
Hardy, 31 SR 50	2.25cm	1.56cm	52
Porter, 31 WK 6	2.33cm	1.56cm	119
T. Jones, 31 WK 33	2.00cm	1.46cm	54

may have yielded such small flakes that only small projectile points could be made. Knox chert occurred at the Porter site in about the same frequency as T. Jones, so that the diminution of point size in the Yadkin Valley may be indexing the varying use of Knox chert rather than simply the distances to the felsite and the chert quarries. At the T. Jones site those distances are roughly the same. Comparing the dimensions of felsite and chert points from T. Jones provides support for this view, although sample size becomes a consideration. Felsite points have an average length of 2.04cm and an average width of 1.4cm (n=36); chert points average 1.64cm in length and 1.29cm in width (n=13). The provenience of the recovered triangular projectile points, sorted by raw material type, is presented in Table 8.

Several projectile points found were not the familiar Woodland triangular forms. These include a small, crudely made stemmed point (Figure 11*h*), probably belonging to the early Woodland occupation that produced the Yadkin pottery. These points have been given a variety of type names, but generally are associated with the early ceramic assemblages of the Piedmont and mountain sites (Oliver 1981). Two other specimens (Figure 11*i, q*) are small corner-notched points that superficially resemble the early Archaic Palmer (Coe 1964:67). The T. Jones examples, however, are not patinated, the workmanship is shoddy, and the bases and notches are not ground in the Palmer style. Points of this sort were present at the Porter site, included as grave goods with the lavishly furnished burial 7-6. At Porter, these appeared to be counterfeit Archaic points, made during the late Woodland (Woodall 1999). The two examples from T. Jones likewise seem to be of relatively recent vintage. All three of these are from the plow zone.

Three true Archaic points were present, including a Guilford point and a Kirk point (Coe 1964) from the plow zone, and a Kirk point from Feature 58-2 (Figure 11*o*). It is not uncommon to find a few Archaic

Table 8. Projectile Point Provenience and Raw Material, 31 WK 33.

Provenience	Quartz and Quartzite	Felsite	Chert and Chalcedony	Other	Totals
Plow zone	20	77	41	0	138
	14.5%	55.8%	29.7%	0.0%	
0-15cm below plow zone	1	5	10	0	16
	6.3%	31.3%	62.5%	0.0%	
15-30cm below plow zone	1	2	3	0	6
	16.7%	33.3%	50.0%	0.0%	
Feature 52-4 (burial)	0	1	0	0	1
	0.0%	100.0%	0.0%	0.0%	
Feature 27-2 (cooking pit)	0	3	1	0	4
	0.0%	75.0%	25.0%	0.0%	
Feature 47-2 (cooking pit)	0	1	1	0	2
	0.0%	50.0%	50.0%	0.0%	
Feature 58-2 (cooking pit)	0	3	1	0	4
	0.0%	75.0%	25.0%	0.0%	
Feature 60-3 (cooking pit)	2	4	8	0	14
	14.3%	28.6%	57.1%	0.0%	
Feature 67-2 (cooking pit)	0	0	1	0	1
	0.0%	0.0%	100.0%	0.0%	
Feature 31-3 (other pit)	0	1	0	0	1
	0.0%	100.0%	0.0%	0.0%	
Feature 47-4 (other pit)	0	1	0	0	1
	0.0%	100.0%	0.0%	0.0%	
Totals	24	97	66	0	188

Note: Omitted proveniences contained no projectile points.

points in floodplain Woodland sites, probably the result of short-term occupation of the region and the subsequent incorporation of the points into the later Woodland assemblage as a result of plowing and deflation. The presence, however, of the Kirk point, delicately serrated and unbroken, in the cooking pit is noteworthy. It almost certainly was deliberately placed there, or was in use during the Woodland occupation and was lost or discarded when the pit was refilled. The use of Archaic points in a ceremonial context during the late Woodland of the region has been noted before (Moore 1999:370; Woodall 1990:50–52).

Miscellaneous Flaked Stone

A unique item is the basal portion of an Archaic projectile point, snapped just above the side notches and retouched across the break. The resultant reel-shape shows no use wear; its function is problematic (Figure 11*p*). Seven implements were found that had been retouched, but could not be placed into any formal or functional categories. All occurred either in the plow zone or in the 15cm of deposits below the plow zone. Included are five flakes with edge retouch, a side-retouched bladelet, and a small crude ovate biface.

Ground Stone Discs

While ceramic discs were rather common at the T. Jones site, only three stone discs were found, all in the plow zone. One of these is quite thick (50mm) and not entirely symmetrical, but unmistakably worked around its edge (Figure 10*n*). The second is a flattened quartzite river pebble, a "natural disc", that shows abrasion around its circumference (Figure 10o). The third also is heavily abraded on its circumference, but shows minimal polish on its flat surfaces (Figure 10*p*).

Other Ground Stone

One piece of a soapstone vessel was found deep in the swamp deposits, 30–45cm below the plow zone. It is well smoothed on its interior and decorated on the exterior with an engraved ladder design (Figure 11*r*). Another soapstone item was recovered 15–30cm below plow zone. It is irregular in outline but has a deep indentation carved on one surface, surrounded by sets of engraved lines radiating from the pit (Figure 11*s*). Finally, an angular piece of soapstone from Feature 41-2 has been highly polished on all unbroken surfaces; on those surfaces are numerous minute scratches, as if the stone has been scored dozens of times by a keen cutting implement.

Conclusions

The T. Jones site contains two components, an older Yadkin-Uwharrie occupation that dates to the early and middle Woodland, and a late prehistoric Lamar occupation. The latter falls within Moore's Burke Phase (1999:280), the regional expression of Lamar, or southern Appalachian Mississippian (ca. AD 1400–1600). Despite the overall ceramic affinities of T. Jones to Lamar, there are some profound differences between T. Jones and the Burke Phase type site, the Berry site, in the upper Catawba River drainage. Also, T. Jones differs markedly from probable 16th-century sites upstream on the Yadkin, such as the W. Davenport Jones site and the Nelson Mound and Triangle (Thomas 1894:333–342). Finally, differences between T. Jones and the slightly later Porter site 40km downstream are noteworthy as well. This section will explore these differences and suggest social and ecological processes that likely generated them. The primary focus is on the later component at T. Jones.

For the interpretation that follows it is important to recognize the temporal relationship between the various sites, and of course the inferred behaviors that created them. The Berry site, the W. Davenport Jones site, the Nelson Mound and Triangle, and the Porter site all probably date to AD 1500–1600. This was an extraordinary century in the southern Appalachians, and indeed in the Mississippian region generally. Whole provinces were abandoned (e.g., the lower Savannah River Valley [Anderson 1990:208]), while new areas, including perhaps the upper Catawba River Valley, experienced the emergence of chiefdoms (Beck and Moore 2002:197–198). The interregional exchange of prestige goods collapsed (Peebles 1987:32), major ritual centers lost population and a central role as sacred centers (King 2001; Steponaitis 1991:202), and new, previously empty areas, were settled (Elliot 1990:121–123). A summary of those tumultuous times is provided by Bense (1994:239–251). European contact usually is cited as the cause of these changes, including the introduction of epidemic disease by the Spanish (Dobyns 1983) and the disruption of traditional exchange systems (Schoeninger et al. 2000). There is, however, evidence that these societies were undergoing structural change prior to the Spanish arrival, due to demographic changes ultimately rooted in maize horticulture (Anderson 1990; Johnson and Lehmann 1996; Kealhofer and Baker 1996:212; Peebles 1987), and possibly aggravated by the climatic change that began the Little Ice Age (Galloway

2002:230; Whyte 2003). While it is widely appreciated that the period from about AD 1400 to 1600 saw rapid cultural changes in the Southeast, it is more difficult to specify the nature of those changes, particularly the social effects, at the local level. Here I wish to present some possible explanations, some models, which fit the archeological data at hand. Future work in the upper Yadkin Valley will measure the validity of these explanations.

At the time T. Jones was occupied the Woodland groups living downstream were enduring lives of unremitting sameness. Since the introduction of beans and a concomitant rise in population ca. AD 1200, little discernable change occurred in those sites. A mix of wild and domestic foods, undifferentiated burials as flexed interments in simple oval pits with few or no grave goods, and a continuation of fabric/net/cord-impressed ceramic traditions were typical, all practices that began 1,000 years earlier. The Mississippian societies of the Appalachian uplands had little impact on those folk until ca. AD 1500, when there appear a few traits marking a mountain origin. These include the distinctive Knox chert, which first occurred in appreciable amounts at the Porter site ca. AD 1500, along with ritually charged items interred with a single burial interpreted as belonging to the elite of an upland chiefdom (Woodall 1999). At about the same time in the upper valley the bizarre burial rituals reported for the Nelson Triangle and the W. Davenport Jones site took place, and in the Catawba Valley, only 30km to the southwest, the Berry site mound was built, probably as the center of a small chiefdom (Moore 2002). In the southwest corner of Virginia, Mississippian cultures already had penetrated the indigenous Woodland societies and transformed them into chiefdoms or satellite communities of chiefdoms (Egloff 1992:213; Jeffries 2001:220).

At present it is not possible to determine how, or even if, sites such as T. Jones were integrated into the political world of the south Appalachian chiefdoms. A recognized problem in archeology is determining whether a particular site was autonomous or part of a larger socio-economic unit, a chiefdom. In some cases even the seat of a chiefdom, the most important settlement in terms of the existing political system, is indistinguishable from its contemporaries (Rountree and Turner 1998; Welch 2001:233). These difficulties are especially prominent when the site in question lies on the fringes of the region dominated by chiefdoms, and this is the case with T. Jones. To the north, south, and west at the time in question, the South Appalachian

Mississippian chiefdoms had formed (and probably fallen apart and re-formed), so that the Spanish recognized their presence when they visited the upper Catawba Valley in the mid-16th century. But whether a chiefdom ever existed in the upper Yadkin Valley is not at all clear. The Spanish never visited there; from the Berry site in the upper Catawba Valley, the town of Joara to the Spanish, their attention was directed to the west and southwest, not to the north. No historic record of Native American cultures is present for the upper Yadkin Valley. Despite claims to the contrary (Beck and Moore 2002:199–200; Moore 2002), no mounds of any sort, burial or substructure, have been documented in the upper Yadkin Valley. But even if the sites in the Yadkin Valley were not part of chiefdoms, the occupants certainly knew of, and interacted with, such systems on their periphery. Artifacts found by Rogan in the 1882 Smithsonian investigations are recognizable as prestige goods well known from Mississippian chiefdoms, including Citico gorgets, chunky stones, and spatulate celts. Some of these also were found at the Porter site, downstream of T. Jones (Woodall 1999). The interest now focuses on that interaction: what form did it take, and why did it occur when it did?

The influx of South Appalachian Mississippian traits into the upper Yadkin Valley occurred late in prehistory. As described above, all the Lamar-related sites date to AD 1400 or later, and the appearance of prestige goods associated with southeastern chiefdoms occurs after AD 1500. A similar late appearance of Mississippian traits is noted for the Catawba Valley (Moore 2002:140–145). The penetration of Lamar ceramic attributes into the central Piedmont Woodland traditions farther to the east also occurred in the protohistoric period, probably not before AD 1500 (for a summary see Moore 2002:164). A lack of archeological data makes it difficult to characterize the cultures present in the upper Yadkin Valley before AD 1400, but the few data available suggest that the Woodland systems of the Piedmont were present there. The earlier component at T. Jones supports that view, as do the small excavated samples from 31 WK 18, 31 WK 52, and several other tested sites a short distance downstream in the Wilkesboro Reservoir area (Keel and Broyles 1963). A typical late Woodland Dan River assemblage was found on the Reddies River, 22km northeast of the T. Jones site (Bamann and Lautzenheiser 2002). So, in essence, the South Appalachian Mississippian culture seems to penetrate and replace the older, resident Woodland pattern of the upper Yadkin Valley between AD 1400 and 1600. There is no reason to expect a wholesale population replacement, or even a substantial population influx. But clearly ceramic styles, burial traditions, and even leisure activities (if the interpretation of the discs is correct) are adopted in a region that, for 500 years, had been largely immune to whatever blandishments the mountain chiefdoms offered.

By AD 1400 the Little Ice Age had begun, although the coldest few years occurred around AD 1500 (Fagan 2000). Even though the Little Ice Age is well known and clearly registered at the global and continental level, it is very difficult to understand its effect at the local level, particularly in the southern Appalachians. For the AD 1400–1600 period the paleoecological record for the mountains is spotty. Arguments that the cooling had no effect on key species (such as oaks [Watts 1979]) important to humans are countered with evidence that severe forest disequilibria would have been produced (Campbell and McAndrews 1993). We can, however, make some inferences based on known settlement patterns and the likely effect of a temperature decline. During the Pisgah phase, the Appalachian expression of the Mississippian ca. AD 1000 to 1400, settlements in the North Carolina Blue Ridge area were focused on the valley floors due to an increased dependence on domesticates at that time (Purrington 1983:145). Crops grown in that setting are especially vulnerable to late frosts in the spring, although at the present, as during the medieval warm period preceding the Little Ice Age, the risk is small. By AD 1400, however, the decreasing temperature would have increased the stress on populations in river valleys at higher elevations. The North Carolina mountain communities are especially vulnerable to climatic deterioration of this sort due to thermal belts, said to be more pronounced here than anywhere in the eastern United States (Kichline 1941:1044). Thermal belts result from inversions or cold air “sinks”, when the cooler air settles in the mountain valley floors and creates a belt of warmer air along the surrounding mountain slopes. The phenomenon is so common today that sections of the Blue Ridge and Brushy Mountains are well known for their orchard crops, flourishing in thermal belts that protect them in most years from the late frosts of spring.

As the effects of the Little Ice Age began to be experienced by Lamar communities in the northwestern portions of North Carolina, many sites were abandoned, and populations shifted south and west (Dickens 1978:135; Purrington 1983:150). Whyte (2003) notes that there are no residential sites in the valleys of northwest North Carolina above 2,500 ft after AD 1450, and he attributes this to the abandonment of the region during the Little Ice Age. Apparently some mountain communities sent people to the east, into the lower reaches of the Blue Ridge, to associate with resident Woodland populations (Egloff 1992:214). These population movements likely were comprised of families, even individuals, who shifted their residence in accord with more abundant foods and more tranquil social environments. This infiltration of Lamar people into the late Woodland communities of the upper Yadkin accounts for the shifting styles of pottery, the new burial practices, and the popularity of whatever contest was involved in the use of the ceramic or stone discs. An extension of Mississippian social relations may have been involved as well. The emergence of a nearby chiefdom in the upper Catawba Valley (Moore 2002) and the extension of social ranking as far east as the Porter site (Woodall 1999) marked novel arrangements within these transformed polities. The climatic change opened new opportunities for individuals, or perhaps corporate groups such as lineages, to aggrandize themselves by manipulating the older Woodland social patterns.

Those older Woodland patterns were not entirely alien to Lamar people, because some contact between the western Piedmont and the mountains had been occurring for at least 100 years. The Smyth ceramic series, with its soapstone temper, has a spatial distribution that links the western Piedmont and its Woodland settlements with communities in the mountains of southwest Virginia. Whyte (2003) even argues that the cultures in the mountains of northwestern North Carolina show more Woodland than Mississippian traits in the period AD 900–1450, and Cable (1997:350) points out some similarities in social structure between the two areas. The lower strata at T. Jones contained cherts derived from the Ridge and Valley province, and a smattering of that material is seen on late Woodland sites downstream (Bamann and Lautzenheiser 2002; Woodall 1990), although it is very scarce until ca. AD 1400. At the T. Jones site we also found evidence of a Big Man social pattern well before the appearance of Lamar traits (e.g., Feature 41-2), but such evidence is not present below the Porter site. Such features, however, are found in pre-Lamar or Woodland sites in the adjacent mountains and in the Mississippian sites that follow (Robinson 1996; Ward and Davis 1999:163). These pits are far too large to have been used by a single family, but rather they appear to mark the presence of feasting behavior, a rather consistent strategy of Big Men seeking to enhance their status (Hayden 1993:243–249). The presence of Big Men usually means there is a higher incidence of conflict, provoked by the same status-enhancing competitive behaviors (Hayden 1993:251), and warfare certainly was endemic by the time of the Pardo expedition (Worth 1994:18). This may explain the palisade at T. Jones, if it was a palisade. Alternatively, it may mark a section of the site set aside for special, ritual activities (Goldstein 1980). In either case, it indicates a social process focused on competition, a form of conflict that serves to set apart one segment of the population. The Woodland social system was, in a sense, preadapted to undergo Mississippianization (Little 1999:45).

As Lamar people began to infiltrate the upper Yadkin Valley in the 15th century, it would have been possible to subvert the existing Big Man system using prestige and utilitarian goods obtained via long-standing social ties with other Mississippian polities in the southern Appalachians. The prestige goods common to Mississippian cultures are well represented in the 16th-century burials found by Rogan in the upper Yadkin Valley (Thomas 1894). The incidence of Knox chert, filling a chronic need in the region, increases proportionate to the incidence of complicated stamped pottery. An enhanced demand for such goods via competitive feasting drives intensification of overall production (Spielmann 2002), in turn allowing for the increase in regional population noted by Beck and Moore (2002:198). So the Big Man system may have been present before and after the Lamar conversion, but there are Big Men, and then there are Big Men. More ready access to highly desired goods by Big Men enmeshed in the Lamar social world would have greatly extended their influence compared to their Woodland social counterparts. The differential access of high-quality raw materials is illustrated at the Ward Site, in the Watauga Valley 40km northwest of T. Jones. Here, Knox chert dominates the lithic assemblage of the Pisgah component, with rhyolite not present at all (Ayers 1984).

Previously, I have suggested that strategic marriage by high-ranking females from Lamar chiefdoms was one social strategy used to expand a chief's domain into the western Piedmont, with its resident Woodland population (Woodall 1999). Such a strategy is known from ethnohistorical sources (King 1999:119; Milanich 1998:254; Spencer 1987:376), and T. Jones also could be interpreted as a satellite of a chiefdom, perhaps one centered in the upper Catawba Valley. Other kinds of articulation between Lamar and the Woodland communities are possible, however, particularly when persons with social ambitions infiltrated Woodland societies. The initial entrance into those societies could have been through preexisting kin ties, trading partners, or other common mechanisms of intergroup relations. Once resident, however, a person with close ties with Lamar polities would be able to draw on that social capital to acquire the prestige goods and mundane but scarce commodities already mentioned. As followers acquired their own social persona through a resident Big Man, emulation of that Big Man's own cultural behaviors would serve to increase even such ordinary behavior variants as pottery production, and it is of course that change that so clearly marks a site as Lamar for the archeologist. In the discourse of evolutionary archaeology, the ceramic style was piggybacking or hitchhiking on the adaptive, and hence emulative, repertoire of social actions by the Big Man (Jones et al. 1995:24–28). In addition, the use of a common ceramic stylistic vernacular could only enhance the social relations between T. Jones and the Lamar chiefdoms, or their satellites, on its periphery.

As a new climatic regime displaced populations in the mountains of northwest North Carolina, it created a demographic and ecological shock wave that imposed new stresses on polities of the mountain valleys to the south. Perhaps our immigrant Lamar individuals, or groups, were drawn from various locales within the southern Appalachians, but judging by the introduced ceramic style the general region likely was in the mountains southwest of the upper Yadkin Valley. It is there that the pottery style (i.e., the Lamar-related Qualla series [Keel 1976]) most similar to the Burke Series has its major expression in the 15th through 18th centuries. In summary, environmental shifts in the 15th century stimulated these increased contacts with Piedmont Woodland cultures, creating a novel social environment where individuals could find new opportunities for social, political, and economic activities that brought them, and ultimately the upper Yadkin region, into the cultural arena of the late Mississippian.

Notes

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ANALYSIS AND REGIONAL CONSIDERATION OF 31CH758, A UWHARRIE PHASE CAMPSITE IN THE NORTH CAROLINA PIEDMONT

by

Susan E. Bamann and Dawn M. Bradley

Abstract

In 2008, Coastal Carolina Research, Inc., completed an archaeological data recovery at 31CH758, an early Late Woodland Uwharrie phase (AD 800–1200) site in Chatham County, North Carolina. This single-component site lies within a narrow floodplain terrace above the Rocky River (Cape Fear river basin) and presents an excellent example of preservation due to rapid accumulation of alluvial suspension deposits. Identification and site recovery were part of historic preservation planning for the proposed Town of Siler City Rocky River Lower Reservoir expansion project. In addition to documentation of a small, seasonal campsite including a relatively undisturbed refuse scatter and in situ ceramic concentrations, the project resulted in detailed documentation of the Uwharrie ceramic assemblage and facilitated regional comparison of Uwharrie components. As a result, we must ask additional questions regarding Uwharrie settlement patterns in the early part of the phase and the relationship of small and dispersed Uwharrie components to Uwharrie village habitations of the Yadkin River drainage. These villages include substantial middens, refuse pits, hearths, post mold patterns from structures, and the presence of human burials. The ultimate area of inquiry regards the evolution of settlement patterns toward more consolidated villages involving increased reliance on swidden agriculture, such as is embodied by the Piedmont Village Tradition discussed in Ward and Davis (1999).

In 2008, Coastal Carolina Research, Inc. (CCR) completed an archaeological data recovery at 31CH758, an early Late Woodland Uwharrie phase (A.D. 800–1200) site in Chatham County, North Carolina (Figure 1). CCR initially identified the site during an archaeological survey for the Town of Siler City Rocky River Lower Reservoir expansion project (Brady et al. 2001) and conducted all work related to the site for the Town of Siler City and the environmental consulting firm Dr. J. H. Carter III & Associates, Inc. An evaluation phase included hand-excavated test units, mechanical trenching, and a geoarchaeological assessment (Bamann and Lautzenheiser 2002). These

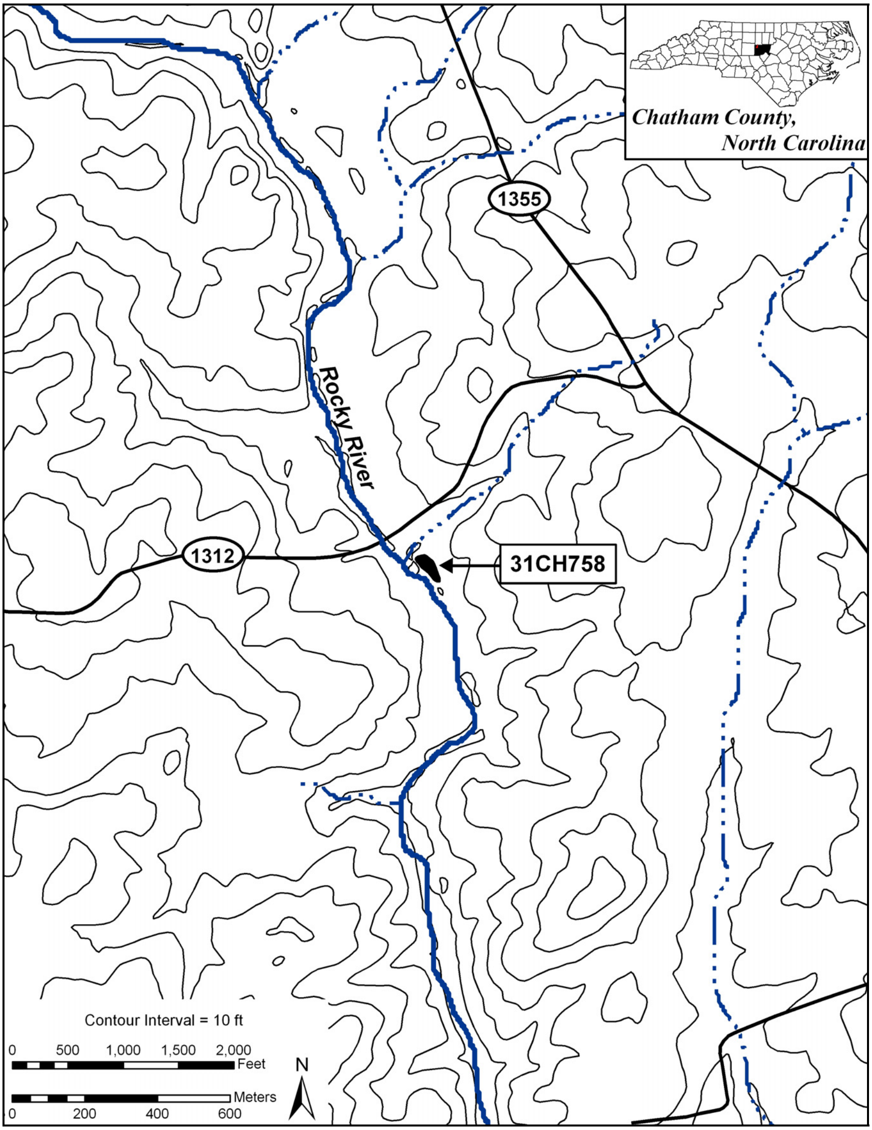

Figure 1. Location of site 31CH758.

investigations revealed an intact cultural component within a buried paleosol. This buried component suggested the potential to address significant research questions on early Late Woodland settlement in the Piedmont region and became the basis for the site's National Register of Historic Places eligibility. As the site could not be avoided by the reservoir expansion, the buried component was the focus of the data recovery research design.

The Uwharrie phase represents the beginning of the developmental continuum that archaeologists refer to as the Piedmont Village Tradition, and sites of the phase are widely distributed in the North Carolina Piedmont (Coe 1952; Ward and Davis 1999). Unfortunately, few Uwharrie components have had extensive work and reporting, and some are part of larger sites with later, more thoroughly documented components. For example, the Uwharrie site along the Uwharrie River in Montgomery County has had little excavation though it is considered the type site for the phase. Excavations at the Hunting Creek site in Davie County yielded extensive Uwharrie phase features, but aside from a brief summary report (Oliver and Davis 1992) and a brief overview (Russ 2002), it has not been formally reported (Ward and Davis 1999). The Uwharrie phase is also present in the lower portion of a midden at the Donnaha site in Yadkin County, but the main occupation relates to the later Dan River phase (Woodall 1984). Existing evidence indicates that many Uwharrie hamlet or village sites occur in close proximity to a major waterway and include the presence of large middens and other features such as refuse pits, hearths, post molds, and human burials.

Sites following the Uwharrie phase, representing the latter parts of the Piedmont Village Tradition, are characterized by larger, more consolidated villages related to increased reliance on swidden agriculture and continued hunting and gathering (Ward and Davis 1999). The Late Woodland Dan River phase (A.D. 1000–1450) reflects localization and the development of large nucleated villages in the northern Piedmont (Ward and Davis 1999). In the central Piedmont, this is partly reflected at Haw River phase (A.D. 1000–1400) sites along the Haw and Eno Rivers.

Research at 31CH758 focused on the potential for information on the Piedmont developmental continuum and specifically sought to gather information on site function and the role of the site in the regional settlement system as currently understood through extant literature. The data recovery excavations focused on the area with potential to contain intact portions of the buried paleosol. Excavation strategies were appropriate for recovery of any information on a former living surface, activity areas, structures, and subsistence data. Analysis and interpretation of artifacts considered previously noted trends in established series and types, and collection of detailed attribute information was designed to facilitate current and future interassemblage comparison.

Site Context and Dating

The site lies within a narrow floodplain terrace above the Rocky River (Figures 2 and 3). The river is the major waterway in northwestern Chatham County, drains into the Deep River, and is part of the Cape Fear River basin. Rocks of the Carolina Slate Belt underlie the local area; the slate belt includes areas yielding metavolcanic materials that were desirable for stone tool manufacture (Daniel 1998) and appear in the site lithic assemblage.

After recovery of a small number of sub-plow-zone artifacts during the initial identification of the site, CCR and geoarchaeological consultant Keith Seramur conducted deep testing to determine the context of the material and the potential for significant intact deposits. The deep testing, discussed in detail in Bamann and Lautzenheiser (2002) and Seramur (2002), revealed the buried paleosol (with artifacts) below stacked plow zones (Figures 4 and 5). This paleosol area appeared to be restricted to a low rise in the northwestern portion of the site. Test unit excavation within the paleosol revealed a rock cluster feature (Feature 3) and numerous artifacts with some refits between lithics. This was consistent with the geoarchaeological analysis, which suggested site burial in a low energy environment (suspension deposits) favoring preservation of context. Preservation of the site was probably related to rapid historic floodplain development during periods of erosive agricultural practices (Trimble 1974) in the Piedmont region.

The data recovery excavations, reported in detail in Bradley and Bamann (2008), documented a maximum paleosol thickness of approximately 20 to 25 cm on the associated low rise. A radiocarbon date was obtained for a carbonized thick-walled hickory nutshell fragment from the lower portion of the paleosol at a depth corresponding with a nearby, intact ceramic concentration (Feature 7). This yielded a 2-

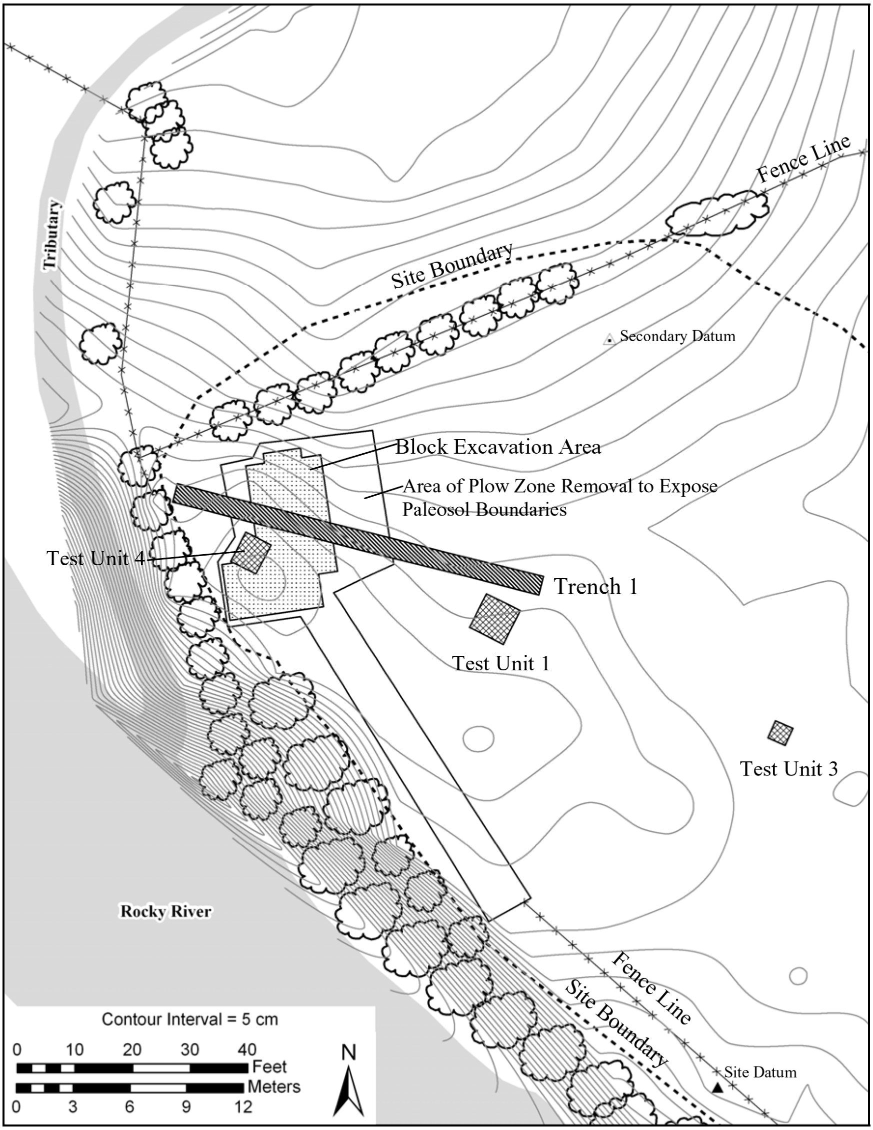

Figure 2. Map of site 31CH758 excavations.

Figure 3. General view of the site, showing the slight rise at northern end (facing northwest).

sigma calibrated result of Cal A.D. 880–1020 (1100 ± 40 BP; Beta-246370). This correlates well with the early Late Woodland period designation for the Uwharrie phase (AD 800–1200) and suggests a component dating to the early part of the phase. None of the artifacts recovered from the paleosol, as discussed below, present evidence for an earlier or later component within the paleosol.

Excavation Results

The stacked plow zones were mechanically removed from an approximately 100 m^2 area in order to expose a portion of the paleosol for unit excavation and to estimate its southern extent (see Figure 2). Following this, the maximum area of the intact paleosol was estimated as approximately 109 m^2. A 24-m^2 excavation block, later expanded to 39 m^2 (Figure 6), was established; this covered approximately 35 percent of the paleosol area, including the highest point within the overall site and the area adjacent to Feature 3, the previously recorded fire-cracked rock feature.

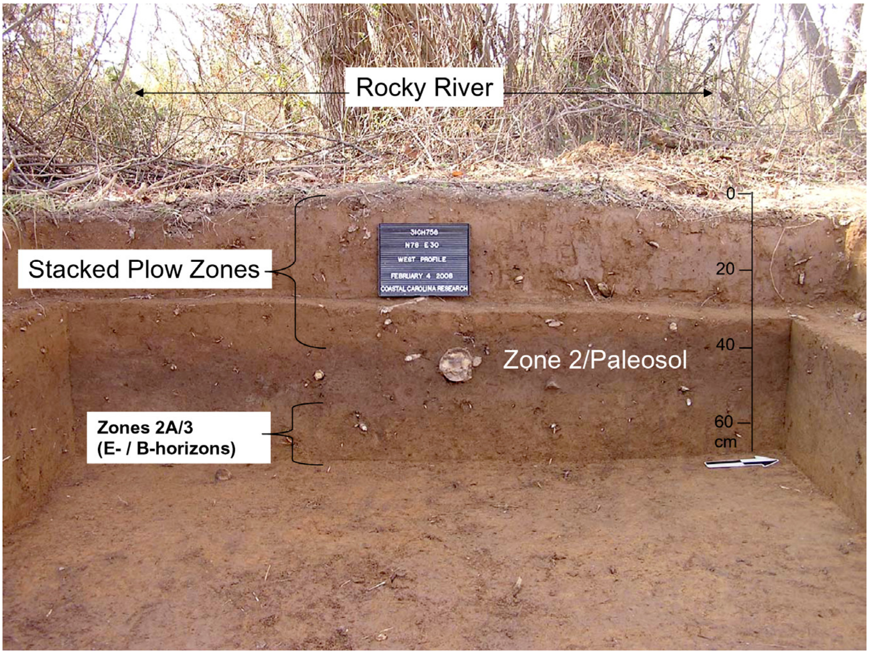

Figure 4. Photograph of west wall of excavation block at unit N78E30.

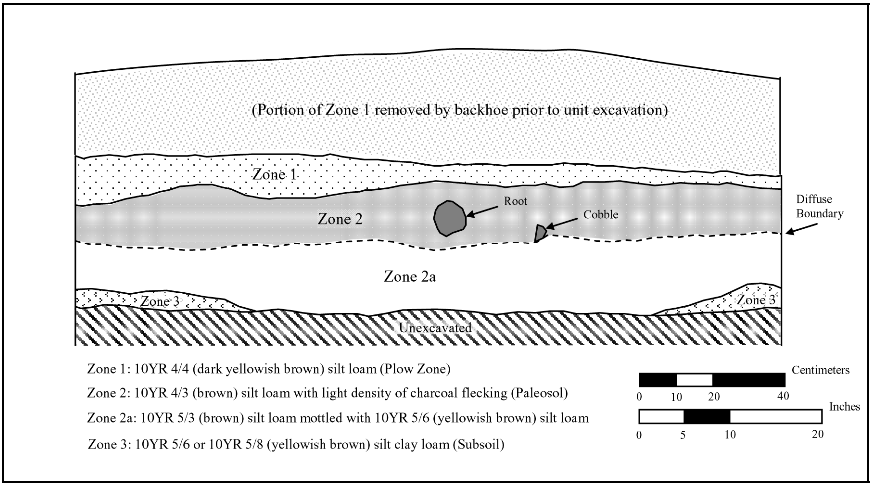

Figure 5. Profile of west wall, unit N78E30.

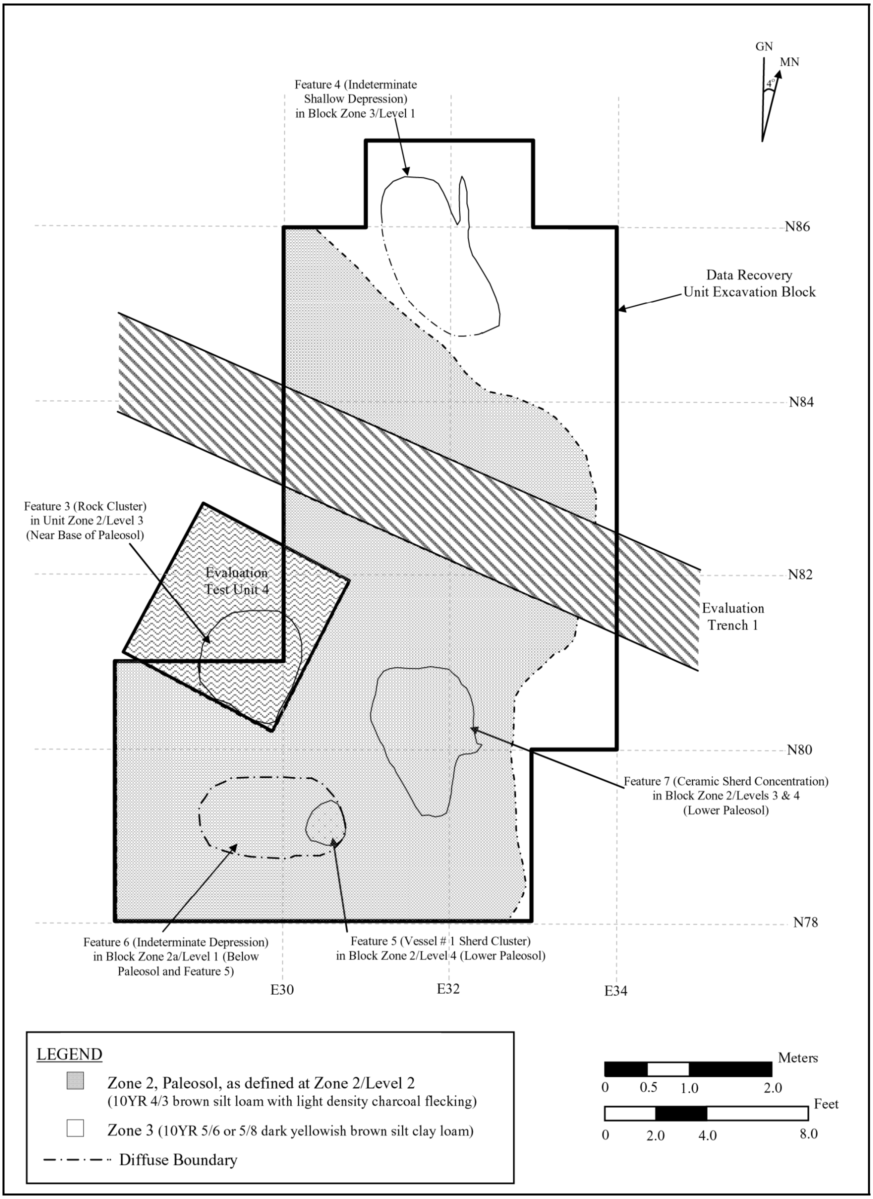

Figure 6. Data recovery unit excavation block with paleosol and features.

Table 1. Distribution of Lithic and Ceramic Artifacts by Arbitrary Level Within the Paleosol.*

	Ceramic Artifacts		Lithic Artifacts	
5-cm Level Within the Paleosol (Zone 2)	**#**	**%**	**#**	**%**
1**	54	16.51%	1,042	14.06%
2	74	22.63%	1,444	19.48%
3	84	25.69%	2,395	32.32%
4	97	29.66%	1,771	23.90%
5***	18	5.50%	759	10.24%
Total	327	100.00%	7,411	100.00%

*excludes artifacts in feature contexts; ** Level 1 includes some areas with intrusive plow zone deposits; ***the paleosol was only deep enough in four of the southernmost units to reach Level 5.

Block excavation proceeded with great care using 5-cm levels, 1-x-1-m horizontal provenience control, conventional screening, and systematic soil sampling for flotation and fine screening. Piece plotting was used to document any significant artifact concentrations that might reflect a specific activity area. For artifacts in the paleosol, approximately 70 percent of the lithics and over 90 percent of the ceramics were recovered from the southern half of the excavation block where the paleosol was thickest. Two ceramic concentration features were in the southern portion of the block in the lower portion of the paleosol, and general artifact density was somewhat higher in the lower paleosol levels (Levels 3 and 4; Table 1). The feature and artifact distribution data may reflect a former living surface or series of living surfaces within the lower portion of the paleosol. Since bioturbation is a factor resulting in movement of material within the paleosol, the occupation zone can only be called relatively intact in that larger artifacts (i.e., large sherds) are in place but smaller artifacts have experienced minor upward or downward displacement.

The exposed paleosol did not yield direct evidence of hearths, structures, or pit features. The fire-cracked and unmodified rock cluster feature recorded in the lower paleosol (Feature 3) provides indirect evidence of one or more hearths. The two ceramic concentrations were the only other cultural features identified in the paleosol. The first, Feature 5, was encountered in Level 4 of the paleosol and involved a cluster of 19 sherds with associated unmodified cobbles, a fire-cracked

Figure 7. Reconstructed portion of Vessel #1 (Uwharrie series).

rock fragment, lithic debitage, wood charcoal, and hickory nutshell fragments. The 19 sherds represent a portion of a single Uwharrie series vessel (Vessel #1; Figure 7), possibly one broken in use and pushed into a small trash pile. The second cultural feature, Feature 7, was encountered approximately one meter northeast of Feature 5 in Levels 3 and 4 of the paleosol. The ceramic concentration had a maximum dimension of 200 cm, and its matrix yielded 186 sherds, 270 pieces of lithic debitage, unmodified cobbles, a fire-cracked rock fragment, hickory nutshell fragments, a blackberry or raspberry seed, and wood charcoal. Eighty-one of the sherds recovered from the feature represent the Uwharrie vessel identified in Feature 5 (Vessel #1). Fifty-three additional sherds represent six separate identified vessels (with some mending sections), of which five were assigned to the Uwharrie series and one was classified as indeterminate. The presence of multiple vessels, the lithic material, and the archaeobotanical remains suggested a small refuse disposal area related to a former living surface in the lower paleosol.

Artifacts

Lithics

A collection of over 9,000 lithic artifacts resulted from the data recovery (Table 2); the majority of these artifacts originated in nonfeature contexts within the intact paleosol. The lithic raw materials are similar in range and proportion to other Uwharrie components in the Piedmont region (McManus 1985; Newkirk 1978; Oliver and Davis 1992; Ward and Davis 1993; Woodall 1984). Rhyolite and other metavolcanic stone are the dominant raw materials, which attest to the significance and quality of metavolcanic material in the surrounding Carolina Slate Belt. Chert items, which include points, bifaces, and debitage, amount to less than five percent of the lithic assemblage. The chert varies in quality and color, and includes brown, dark gray/black, gray, light gray, and nearly white specimens. Some of the chert appears consistent in appearance with samples from a documented chert quarry site in adjacent Lee County (Lautzenheiser et al. 1996).

The projectile point assemblage from the data recovery includes a variety of Woodland period triangular forms (n=56), an indeterminate lanceolate fragment (n=1), indeterminate corner-notched fragments (n=2), a possible Late Archaic eared triangle (Justice 1987) (n=1), a Late Archaic Savannah River Stemmed (Coe 1964) point (n=1), an indeterminate triangular form with a bi-lobed base (n=1), and various indeterminate fragments (n=37) (Figures 8 and 9). Combining material recovered from the previous phases of investigation at 31CH758, and adjusting the resulting count for refits between fragments, the total sample of points equals 109. The combined sample includes, in addition to those classes mentioned above, a possible Middle Archaic Morrow Mountain II Stemmed (Coe 1964) base fragment. The only Archaic diagnostic artifact recovered from a sub-plow-zone context is a possible Late Archaic eared triangle, but this occurs in a context with Woodland ceramics and triangular projectile points and does not constitute evidence for an intact Archaic component.

The majority of the projectile point assemblage is comprised of Small and Large Triangular points similar to those documented at other sites in the region with Uwharrie phase components. Small Triangular correlates include Caraway Triangular (Coe 1964) for the North Carolina Piedmont, the Roanoke type for northeastern North Carolina (South

Table 2. Summary of Lithic Artifacts in the Data Recovery Assemblage.

Lithic Artifact Type	#	%
Core	23	0.25%
Early Stage Biface	7	0.08%
Middle Stage Biface	6	0.06%
Late Stage Biface	3	0.03%
Indeterminate Biface	3	0.03%
Biface Fragment	13	0.14%
Projectile Point/Point Fragment	105	1.13%
Drill/Possible Drill	6	0.06%
Endscraper	1	0.01%
Scraper	2	0.02%
Graver/Perforator	1	0.01%
Chopper	2	0.02%
Indeterminate Implement	2	0.02%
Retouched Flake	21	0.23%
Utilized Flake	18	0.19%
Decortication Flake	355	3.81%
Core Fragment/Core Rejuvenation Flake	35	0.38%
Bifacial Thinning Flake	439	4.71%
Interior Flake	5,385	57.82%
Pressure/Retouch Flake	715	7.68%
Flake Fragment	200	2.15%
Shatter	1,591	17.08%
Possible Hammerstone	1	0.01%
Possible Abrader	1	0.01%
Anvil/Nutting Stone	2	0.02%
Fire-Cracked Rock/Possible Fire-Cracked Rock	20	0.21%
Hematite Nodule	1	0.01%
Unmodified Cobble (possible manuport)	8	0.09%
Unmodified Pebble (possible manuport)	24	0.26%
Unmodified Block (possible manuport)	3	0.03%
Unmodified Tabular Rock (possible manuport)	1	0.01%
Indeterminate Fractured Piece	258	2.77%
Miscellaneous Spall	62	0.67%
Total	9,314	100.00%

2005), Pisgah Triangular for the Appalachian Summit region of North Carolina (Purrington 1983), and the Madison type for the Appalachian Summit and eastern North America in general (Justice 1987; Purrington 1983; Ritchie 1961). Large Triangular correlates include Yadkin Large

Figure 8. Selected Small and Large Triangular projectile points and possible drill (top row, second from left).

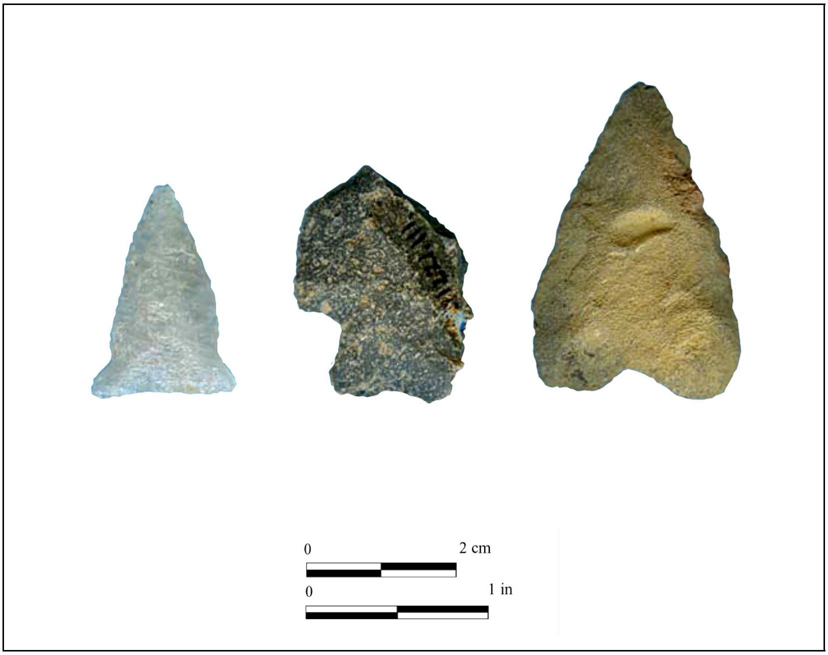

Figure 9. Additional selected projectile points. *Left to Right*: Indeterminate Eared Triangle, Indeterminate Corner-Notched, and Indeterminate Triangular with Bi-Lobed Base.

Triangular for the North Carolina Piedmont (Coe 1964), Roanoke Large Triangular for northeastern North Carolina (Coe 1964), and Garden Creek Triangular for the Appalachian Summit region (Keel 1976). Tables 3 and 4 show measurements and attributes for Small and Large Triangular points in the 31CH758 assemblage.

The Uwharrie Triangular type, though considered an intermediate or medium form, may be a closer correlate for the sample classified as Large Triangular at 31CH758. The current sample has a mean length of 37 mm, and basal width measurements are low compared to figures for the Large Triangular correlates. Unfortunately, published descriptions for the early Late Woodland Uwharrie type are limited. Coe (1952) describes Uwharrie points as narrow, as having a maximum length between 25 and 38 mm, and as typically having slightly concave sides and bases. Woodall (1984) describes a sample of Uwharrie points from the Donnaha site, specifying a length range of 9 to 42 mm (average length 26 mm) and noting that the points are narrow and bases and sides

Table 3. Summary of Small and Large Triangular Projectile Point Measurements for Combined Sample from All Phases of Investigation.*

Point Type	Measurement Type with Size of Relevant Subsample	Range (mm)	Mean (mm)	Length-to-Width Ratio
Small Triangular	Length (n=7 of 25)	17 – 30	25	–
	Width (n=23 of 25)	14 – 23	18	–
	Thickness (n=24 of 25)	3 – 5	4	–
	Length-to-Width Ratio (n=7 of 25)	–	–	1.34
Large Triangular	Length (n=13 of 36)	33 – 45	37	–
	Width (n=33 of 36)	17 – 28	22	–
	Thickness (n=36 of 36)	3 – 11	5	–
	Length-to-Width Ratio (n=13 of 36)	–	–	1.73

*various measurement types involve a smaller subsample due to the presence of incomplete specimens (i.e., with broken tip or corner).

Table 4. Summary of Side and Basal Curvature for Small and Large Triangular Projectile Points in the Combined Sample from All Phases of Investigation.

Side Curvature / Base Curvature	Small Triangular	Large Triangular	Total
Straight / Straight	10	18	28
Straight / Slightly Incurvate	6	3	9
Straight / Incurvate	1	5	6
Straight / Slightly Excurvate	1	–	1
Slightly Incurvate / Straight	1	3	4
Slightly Incurvate / Slightly Incurvate	3	2	5
Incurvate / Straight	1	1	2
Slightly Excurvate / Straight	–	1	1
Slightly Excurvate / Slightly Incurvate	1	1	2
Excurvate / Indeterminate	–	1	1
Indeterminate / Straight	1	1	2
Total	25	36	61

are most often straight. Davis and Daniel (1990) describe the type as intermediate in size with a straight to slightly incurvate base. The Uwharrie metrics have significant overlap with Large and Small Triangular correlates, and given this overlap, it is difficult to isolate the distinctive qualities of the Uwharrie type. Furthermore, available descriptions of side and basal curvature are contradictory.

Specific attributes of these points show numerous contrasts with points recovered from roughly contemporary sites, indicating that variation in triangular projectile point types may have significance beyond temporal trends. For example, small triangular points from the Parker site in the Yadkin drainage, which has a predominantly Uwharrie ceramic assemblage, tend to have concave bases, and nearly 85 percent have serrated edges while over 85 percent lack bilateral symmetry (Newkirk 1978). This contrasts with the 31CH758 assemblage, which is dominated by symmetrical forms with nonserrated edges and straight bases.

Refits and fracture types reflected in specific projectile points suggest that the points were either broken and discarded during manufacture on site or were trampled on site after discard or loss. The presence of refits also suggests that the depositional context is relatively intact. In general, the lithic assemblage reflects a limited range of tool types (see Table 2) and appears consistent with a small, seasonal habitation or campsite related to subsistence procurement. Specific patterns of tool types that might suggest specific site seasonality are lacking. The low frequency of fire-cracked rock or possible fire-cracked rock suggests a less intensive occupation or series of occupations.

Ceramics

A total of 568 Native American ceramic artifacts were collected during the data recovery, with 36 percent (n=205) attributed to the two ceramic concentration features within the paleosol (Table 5). A maximum of 84 vessels is estimated for this assemblage; mending and crossmending of several vessels was possible, and the small sherds considered insufficient for analysis are unlikely to represent a large number of additional vessels. Many of the sherds are relatively large compared to most plow zone assemblages, with a maximum dimension between 5 and 10 cm. The moderately large sherds, in conjunction with the intact sherd concentrations in the paleosol contexts, reflect the high

Table 5. Summary of the Data Recovery Native American Ceramic Assemblage.

Series/Object	# of Sherds/ Objects	%	Resulting # After Vessel Mending/ Grouping*	%
Uwharrie Series Sherds	325	57.22%	70	23.49%
Possible Uwharrie Series Sherds	1	0.18%	1	0.34%
Indeterminate Series Sherds (typically tempered with sand or sand with a few coarser particles; sandier texture)	28	4.93%	13	4.36%
Vessel Sherds with Maximum Dimension Under 2 cm or Insufficient Intact Surfaces for Analysis	209	36.80%	209	70.13%
Miscellaneous Unfired or Partially Fired Clay Fragments	5	0.88%	5	1.68%
Total	568	100.00%	298	100.00%

*involves sherds that were mended within and between contexts, as well as sherds that were grouped with a vessel based on distinctive characteristics.

integrity of the sub-plow-zone context at the site. Common characteristics in the overall assemblage include pebble- and granule-sized crushed quartz temper, a slightly sandy to sandy paste texture, thick walls, plain and knotted-net-impressed exterior surfaces, and plain and scraped interiors.

The ceramic assemblage is dominated by the Uwharrie series as initially defined by Coe (1952) and subsequently described by researchers such as Eastman (1999) and Russ (2002). Some sherds were classified as indeterminate. They lack typical Uwharrie temper/paste characteristics and surface treatments, and they do not appear consistent with earlier, later, or contemporary series identified in the region. These

Table 6. Tabulation of Temper and Surface Treatment for Uwharrie Series/Possible Uwharrie Series Ceramics from the Data Recovery.*

Temper	Cord Marked	Knotted Net Impressed / possible Net Impressed	Fabric Impressed	Scraped	Plain/ Smoothed	Indeter-minate	Indeter-minate (Eroded)	Total	Percent
Very Coarse-Sized (1-2 mm) Crushed Quartz	–	–	–	–	1	–	1	2	2.82
Granule-Sized (2-4 mm) Crushed Quartz	1	7	3	2	19	6	6	44	61.97
Pebble-Sized (4 mm+) Crushed Quartz	1	4	–	1	12	4	2	24	33.80
Granule-Sized Subangular Quartz	–	–	–	–	1	–	–	1	1.41
Total	2	11	3	3	33	10	9	71	
Percent	2.82	15.49	4.23	4.23	46.48	14.08	12.68		100.00

*based on adjusted count after vessel mending/grouping.

indeterminate sherds were found in the same context as the Uwharrie series sherds and do not suggest an earlier or later component to the site. Instead, these likely reflect one or more minor traditions within the overall Uwharrie ceramic tradition represented at the site.

For vessels of the Uwharrie series, temper ranges from crushed (angular) quartz with the size of very coarse sand to pebble-sized crushed quartz (Table 6). Only one sherd has subangular quartz. The most prevalent temper type is granule-sized crushed quartz, which occurs in approximately 62 percent of the sample. In general, the crushed quartz particles occur at medium to high densities, typically comprising up to 25 percent of the paste and frequently protruding through the vessel walls. The texture of the paste ranges from very sandy to smooth depending on the amount of incidental sand, with slightly sandy to sandy paste most typical.

The dominant surface treatment in the Uwharrie assemblage is plain/lightly smoothed (see Table 6). This is followed by indeterminate (due to either limited sherd size or surface erosion) and net impressed. The net-impressed surfaces suggest use of coarse knotted net with no more than two knot elements per centimeter. A small number of sherds/vessels are cord marked or fabric impressed. Of the three fabric-impressed vessels, one involves a wicker (weft-faced) fabric, one shows use of a complex twined fabric with a spaced weft, and one involves an indeterminate non-wicker fabric. Overscraping or oversmoothing occurs among net-impressed vessels, and several sherds were simply scraped but may represent regions of a vessel where the original surface treatment was completely obliterated. No distinction is made between fine forms of scraping and brushing.

Interior surface treatment in the Uwharrie series material includes plain, smoothed, heavy smoothing over large temper particles, scraped, and indeterminate/eroded. The dominant treatments are plain (n=29 or approximately 41 percent) and scraped (n=26 or approximately 37 percent). Scraped interiors occur in conjunction with all types of exterior surface treatment, and they accompany all examples of scraped exteriors. None of the interiors have carbonized encrustations from cooking and lack other indications of use such as abrasion or pitting. Portions of the interiors and exteriors of six separate Uwharrie vessels have an unintentional finely crackled appearance. This appears to represent the differential shrinkage and swelling of the outermost layer of smoothed clay.

Although a number of Uwharrie vessels could be partially reconstructed, only one (Vessel #1; see Figure 7) includes a large enough mended portion to partially identify the vessel form. This vessel can be generally described as a globular jar and has a slightly restricted orifice (or slightly inverted rim profile) with an estimated diameter of 22 cm. It appears generally consistent with some previous Uwharrie vessel descriptions. However, no basal sherds were identified and a complete description of the form is not possible.

Other vessel rim sherds in the Uwharrie assemblage have slightly inverted, slightly everted, or straight profiles, and they suggest that simple jars and bowls were being used at the site. Vessel lips are undecorated and rounded. Rim decorations include one example of

Figure 10. Rim portions of Vessel #3 (Uwharrie series).

horizontal incised lines (Figure 10) and two examples of appliquéd fillet strips with notching (Figure 11; see Figure 7).

Regional Context and Discussion

Table 7 presents information on a number of reported sites with significant components defined by Uwharrie series ceramic assemblages. These sites are located in the northwestern, central, and southern Piedmont areas of North Carolina and fall within three of the major North Carolina drainage basins: the Cape Fear, the Neuse, and the Yadkin (Figure 12). Site 31CH758, along the Rocky River, is one of only three well-documented Uwharrie phase components in the Cape Fear drainage. One of the others is 31GF376 along the Deep River, which was also recorded by CCR as part of a compliance project (Lautzenheiser et al. 1999) The third is the Payne site, which is also along the Deep River (Mountjoy 1989). The majority of the well-documented Uwharrie components are located in the Yadkin drainage. These include the Uwharrie site (this has minimal reporting on a state site form but is the type site for the phase), the Trading Ford site (Howell and Dearborn 1953), the Parker site (Newkirk 1978), the Hunting Creek

Figure 11. Rim and body portions of Vessel #6 (Uwharrie series).

site (Oliver and Davis 1992; Russ 2002), the Forbush Creek site (McManus 1985), and the Donnaha site (Woodall 1984). Whereas the Cape Fear drainage sites include two small limited-activity habitations (31CH758 and 31GF376) and one village site (the Payne site), all of the Yadkin drainage sites reflect substantial hamlet or village occupations. The Hogue site (Ward and Davis 1993), located in the Neuse drainage, includes Uwharrie ceramics as the major diagnostic ceramic series but is characterized as a substantial early Haw River phase occupation.

The more intensively occupied hamlet or village sites share a number of common characteristics including close proximity to a major waterway (on floodplain, terrace, or levee) and the presence of preserved middens, refuse pits, hearths, post mold patterns related to structures, and human burials. Common characteristics of almost all of the components shown in Table 7 include: the presence of net-impressed, cord-marked, fabric-impressed, or plain Uwharrie ceramics; the presence of triangular projectile points in small and large size categories; and the dominance of metavolcanic stone types as lithic raw materials (rhyolites, tuffs, “felsite”, etc). Some of the sites have additional components represented by earlier and later ceramic series, and some of the other site

Table 7. Summary of Northwestern, Central, and Southern North Carolina Piedmont Sites with Uwharrie Components.

Site	Drainage Basin & River	Major Component(s)	Site Type	Feature Types
31CH758 (Bradley and Bamann 2008)	Cape Fear (Rocky River)	Uwharrie	seasonal camp or activity area	Uwharrie sherd cluster and concentration
31GF376 (Lautzenheiser et al. 1999)	Cape Fear (Deep River)	Middle Archaic; Uwharrie	camp or activity area	Uwharrie sherd clusters; cobble cluster
Payne (Mountjoy 1989)	Cape Fear (Deep River)	Uwharrie, Pee Dee	village	midden, storage pits, trash pit, smoking pits, human burials
Hogue East and West (Ward and Davis 1993)	Neuse (Eno River)	early Haw River	substantial occupation by small but dispersed population	basin-shaped pits, refuse pits, post molds, human burials
Uwharrie (state site form 31MG14)	Yadkin (Uwharrie River)	Uwharrie	village	fire pit, human burials
Trading Ford (Howell and Dearborn 1953)	Yadkin (Yadkin River)	Uwharrie(?)	village	"fire beds"/pits refuse/shell pits, post molds, human burial
Parker (Newkirk 1978)	Yadkin (Yadkin River)	Uwharrie	intensive occupation	burned house floor, trash pits, post molds, human burials
Hunting Creek (Oliver and Davis 1992; Russ 2002)	Yadkin (near Yadkin River)	Uwharrie	village or hamlet	midden, trash pits, hearths, post molds, human burials
Forbush Creek (McManus 1985)	Yadkin (Yadkin River)	Uwharrie	village or hamlet(?)	midden, refuse / storage pits, hearths, human burials
Donnaha (Woodall 1984)	Yadkin (Yadkin River)	Middle to Late Archaic, Uwharrie, Dan River	village	midden, trash /storage pits, hearths, post molds, human burials

Table 7 continued.

Ceramics	Woodland Projectile Points	Lithic Raw Materials	Comments (Including Generally Accepted Absolute Dates with Uwharrie Associations)
Uwharrie (plain, net, fabric, cord)	small and large triangular	rhyolite, other metavolcanic, chert, quartz, quartzite	2 sigma cal date in level with sherd conc. with Uwharrie series A.D. 880-1020 (Beta 246370)
Uwharrie (fabric, net, cord, plain) Dan River Caraway	Caraway, Pee Dee Pentagonal, Uwharrie Triangular, Yadkin Large Triangular	mostly rhyolite and tuff	Corrected Oxidizable Carbon Ratio (OCR) dates for zone with Uwharrie material range from A.D. 993±28 to 1161±23
Uwharrie (plain) Pee Dee	present	not discussed in detail	2 sigma cal dates ass. with Uwharrie and Pee Dee sherds A.D. 1018-1292 (Beta 18412) (Eastman 1994)
Uwharrie, (net, cord, brushed, plain) Jenrette Fredricks	small triangular	metavolcanic stone, quartz	2 sigma cal date ass. with Uwharrie ceramics A.D. 987-1280 (Beta 20380) (Eastman 1994)
Uwharrie	present	not discussed in detail	has never been formally excavated
sand or grit tempered (fabric, cord, plain)	small triangular	not discussed in detail	Joffre Coe identified a sample of the ceramics as Uwharrie
majority Uwharrie (cord, roughened, brushed, fabric)	small triangular, pentagonal	felsite (includes rhyolite, tuffs, etc.)	2 sigma cal date ass. with Uwharrie ceramics A.D. 892-1257 (TX-2818) (Newkirk 1978; Eastman 1994; Russ 2002)
Uwharrie (cord, fabric, net, plain, scraped) Dan River	small triangular	metavolcanic stone and quartz	2 sigma cal dates A.D. 990-1225 (Beta-103463), A.D. 1055-1285 (Beta-103465) (Russ 2002)
Yadkin, Uwharrie (cord, net)	small triangular, Pee Dee Pentagonal	rhyolite, chert, quartz, other metavolcanic	
Yadkin, Uwharrie (net, fabric) , Dan River	Caraway, Uwharrie Triangular, Pee Dee Triangular, Yadkin Large Triangular	felsite (includes rhyolite, tuffs, etc.)	Uwharrie ceramics dominate lower portion of midden

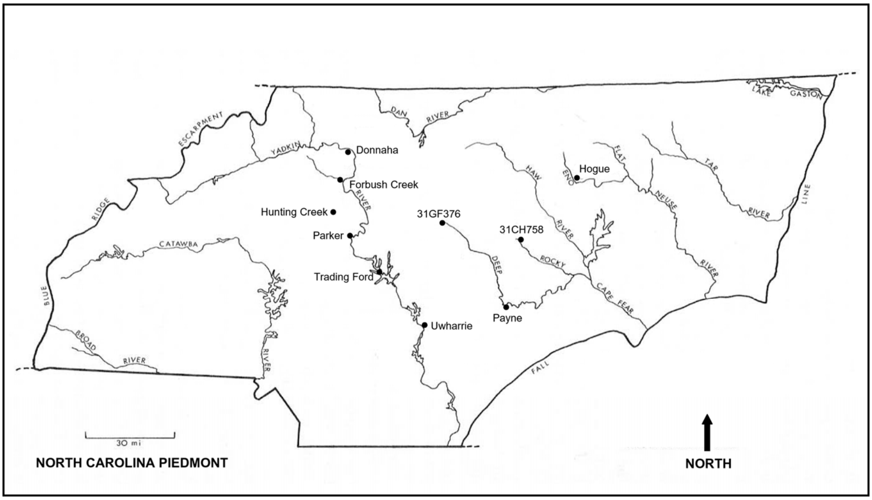

Figure 12. Locations of northwestern, central, and southern North Carolina piedmont sites with Uwharrie components. Adapted from Ward (1983).

characteristics are difficult to isolate by component. This makes some comparisons difficult but highlights the importance of a single component site such as 31CH758 for characterizing the Uwharrie phase. The broad pattern of use of metavolcanic materials at most of the sites, however, attests to the importance of metavolcanic quarry sources of the Carolina Slate Belt for Uwharrie phase people throughout the Piedmont.

A discussion of differences between the Uwharrie components is useful in addressing and advancing questions regarding regional trends within the greater Piedmont Uwharrie phase and the Piedmont Village Tradition. Russ (2002) has suggested that Uwharrie ceramic vessel assemblages of the Yadkin drainage have a tendency for nearly equal proportions of cord-marked and net-impressed exterior surfaces. For the Dan River drainage (including sites of the north-central Piedmont not discussed in Table 7), she concludes that net-impressed surfaces are dominant. In contrast, the assemblage from 31CH758 has minimal representation of cord marking and is dominated by plain or smooth exterior surfaces. Furthermore, the other small component from the Cape Fear drainage, 31GF376, has a Uwharrie vessel assemblage with nearly 50 percent of the surfaces fabric impressed and nearly equal proportions of cord-marked and net-impressed exterior surfaces (Lautzenheiser et al. 1999). Whether the relatively small samples from these two sites are representative of contrasting regional developments within the Uwharrie phase (as opposed to temporal trends) is impossible to infer given this limited comparative review. However, the differences suggest a possible direction for future research. Differences in specific characteristics of triangular projectile points, noted during the analysis and comparison of Small and Large Triangular point attributes in the 31CH758 assemblage, may also reveal regional differences.

The most obvious contrast amongst the sites with Uwharrie components presented in Table 7 lies in the distribution of known village or hamlet sites. For the Cape Fear and Neuse drainages, a review of available sources indicates that the only Uwharrie-related components listed as substantial occupations are the Payne site (Mountjoy 1989), which is principally affiliated with the contemporaneous Pee Dee culture of the southern Piedmont (A.D. 950–1500; Ward and Davis 1999), and the Hogue site (Ward and Davis 1993), which is considered an early Haw River phase site. For the Yadkin drainage, all of the known Uwharrie components appear to be village or hamlet sites. The exception to this would be the Donnaha site (Woodall 1984), where the nature of the settlement at the time of the Uwharrie occupations is not clear. The lack of more than one Uwharrie village site in the Cape Fear area may be a product of past site destruction, inadequate professional or amateur survey coverage, or lack of official reporting. Yet, despite limited systematic survey of the Yadkin drainage, a number of Uwharrie villages have been noted and investigated there.

This contrast in site types in the Cape Fear, Yadkin, and Neuse drainages becomes more interesting when available absolute dates are considered. Accepted and corrected dates (radiocarbon and Oxidizable Carbon Ratio) from 31CH758 and 31GF376, and the Hogue, Parker, Hunting Creek, and Payne sites range from A.D. 880–1292 (see Table 7). Figure 13 shows the maximum absolute date range for each of the six sites based on the individual dates listed in Table 7. The possible date ranges for the Yadkin drainage sites with more intensive occupations are similar and extend past A.D. 1200, as do the ranges for other sites classified as villages or substantial occupations. The possible date ranges for the two small sites in the Cape Fear drainage (31CH758 and 31GF376) are shorter and suggest occupations ending prior to A.D. 1000 and A.D. 1200, respectively. Given the lack of extensive data for substantial Uwharrie occupations in the Cape Fear drainage area, it is tempting to view the data as evidence of a broader area of Uwharrie site

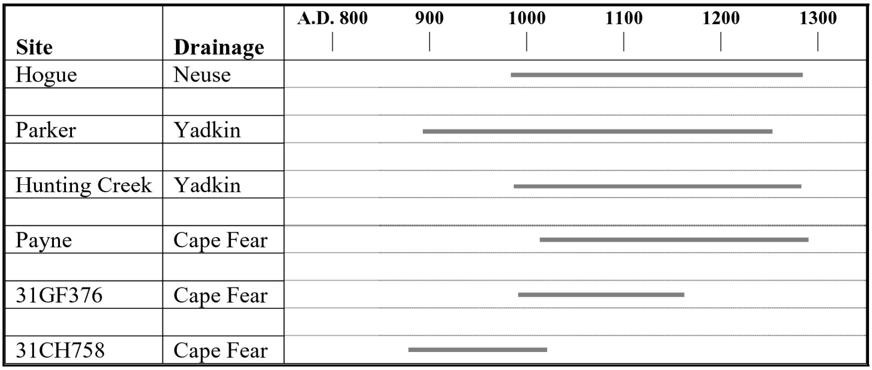

Figure 13. Representation of absolute date ranges associated with Uwharrie phase sites included in Table 7.

distribution earlier in the phase followed by a contraction towards the Yadkin drainage as far as the development of substantial village and hamlet occupations within the Uwharrie phase is concerned. The data at least suggest a direction for future research designs concerned with the development of subregional traditions and the development of precontact village life within the North Carolina Piedmont.

Notes

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THE TWO DOGS SITE (31PR92): A MIDDLE ARCHAIC AND WOODLAND PERIOD LITHIC QUARRY IN PERSON COUNTY, NORTH CAROLINA

by

Scott K. Seibel

Abstract

Archaeological investigations in Person County, North Carolina, revealed a prehistoric lithic quarry site utilized during the Middle Archaic and Woodland periods. The data recovery research design followed a multi-disciplinary approach for the data collection and used statistical sampling and Geographic Information System analysis to identify patterns of artifact use across the site. The Fort Bragg lithic sourcing study conducted by the Research Laboratories of Archaeology at the University of North Carolina in Chapel Hill and the Fort Bragg Cultural Resource Management Program was used as a baseline for the petrographic and geochemical characterization of the lithic raw materials. The investigations found temporally and spatially distinct evidence of two different forms of lithic production systems at the site. Additionally, the geochemical analysis revealed that the site falls within patterns observed during the Fort Bragg study. This project has yielded data with implications for the study of prehistoric lithic procurement, settlement patterning, and mobility in North Carolina and southern Virginia.

Although dozens of prehistoric lithic quarries have been identified in the Carolina Slate Belt, relatively few have been subjected to intensive archaeological investigation. Additionally, the majority of the recorded quarry sites in North Carolina are located in the Uwharries region in the center of the state, with relatively few recorded in the northern reaches of the Slate Belt in North Carolina and even fewer in the southern part of the belt within Virginia. The relative lack of data from quarry sites in the northern North Carolina Slate Belt has implications for the study of prehistoric lithic procurement in North Carolina and Virginia, specifically in regards to our understanding of prehistoric settlement patterning and mobility and the sourcing of lithic artifacts.

The archaeological investigations at the Two Dogs Site (31PR92), a Middle Archaic and Woodland period lithic quarry in Person County,

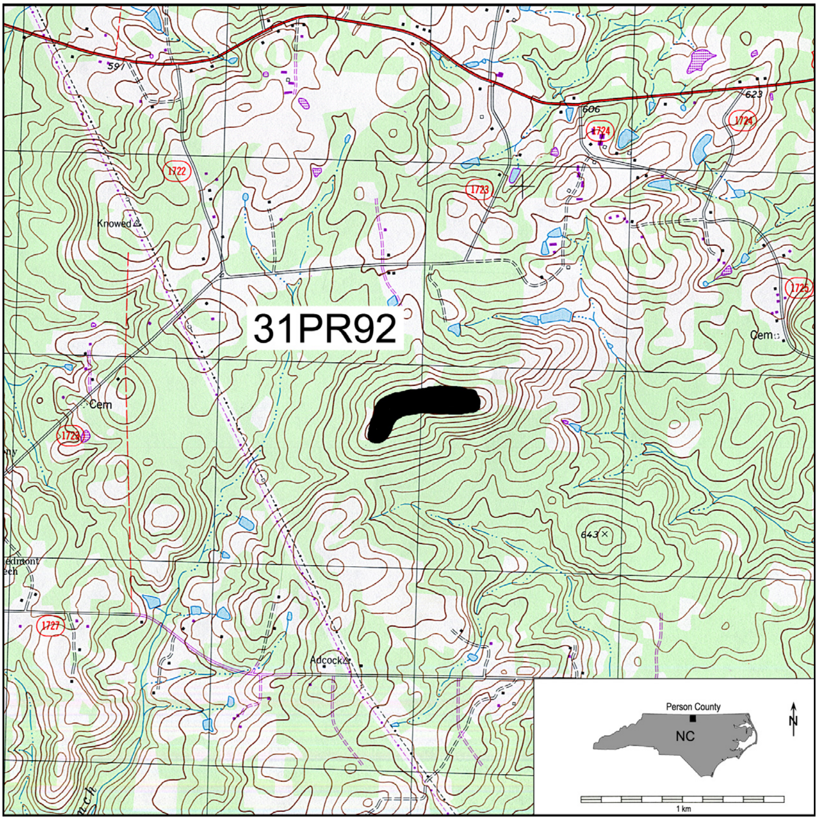

Figure 1. Location of Two Dogs Site (31PR92).

North Carolina (Figure 1), afforded the author the opportunity to design a multi-disciplinary approach to data recovery that could help expand our knowledge of prehistoric lithic procurement in the northern Carolina Slate Belt and that could be integrated with a larger-scale research program, specifically the Fort Bragg lithic sourcing study (Steponaitis et al. 2006).

The archaeological investigation of the site was framed by four main research goals. The first was to determine how the site formed and what methods were used by prehistoric peoples to reach the lithic source material. The second was to identify the type of lithic material present at the site and to characterize its chemical and isotopic signature for integration with the Fort Bragg lithic sourcing study. The third goal was to determine how lithic procurement activities at the site varied through time and space. Lastly, it was hoped that the investigations at the site would help inform our understanding of lithic procurement and settlement patterning in the Middle Archaic and Woodland periods in North Carolina and southern Virginia.

Previous Investigations

Perhaps the best known groups of prehistoric lithic quarries in North Carolina are those found in the Uwharrie Mountains, specifically in the area around Morrow Mountain. This area of the state has been a focus of archaeological investigations for over 60 years at sites such as Doerschuk, Lowder's Ferry, and, most famously, Hardaway. The primacy of this area as it pertains to lithic procurement studies was emphasized in 1999, when the Uwharrie Lithics Conference, which sought to synthesize the state of lithic research in North Carolina, was held in Badin and Asheboro, North Carolina. The proceedings of the conference can be found at http://www.archaeology.ncdcr.gov/uwharrie/framesmain.html.

The majority of lithic quarry sites recorded in the Carolina Slate Belt in North Carolina are in Montgomery County, which contained 78 of the 137 recorded prehistoric quarries in the region, according to a list compiled for the Fort Bragg lithic sourcing study (Steponaitis et al. 2006:137–142). Counties in the northern portion of the Carolina Slate Belt, including Alamance, Chatham, Durham, Orange, and Person, contained only 15 recorded quarry sites. This disparity highlights how little is known about prehistoric lithic procurement in this area of the state.

Summary of Previous Investigations at Quarry Sites

While there are nearly 150 prehistoric lithic quarries recorded in the Carolina Slate Belt in North Carolina, and likely many times more that have not been documented, most of these sites have not been the focus of intensive archaeological investigations. Rather than cover all of the different lithic quarry investigations that have occurred in North Carolina, this summary covers some sites that were utilized during the Middle Archaic and/or Woodland periods.

Initial work in the 1970s and early 1980s at Three Hat Mountain (31DV51), a metavolcanic quarry in Davidson County, found that the quarry was utilized throughout the Archaic and into the Early Woodland periods, but was most intensely used during the Late Archaic (Mountjoy and Abbott 1982). Raw materials appeared to have been either collected directly from the ground surface or quarried from drainage heads, and reduction at the site appeared to be focused on the production of preforms and quarry blades, suggestive of a sequential production strategy. Lea Abbott's later work at Three Hat Mountain yielded evidence of a shift in lithic procurement strategies during the Early to Middle Archaic periods from a focus on high-quality lithic resources to a wider array of lithic types and qualities (Abbott 1987). He also suggested that lithic procurement around the Carolina Slate Belt followed a strategy of embeddedness, where lithic sources were accessed by prehistoric people as part of other resource procurement activities rather than being the main focus of procurement.

Davis's study of 31RD37, a rhyolite quarry in Randolph County, identified different activity areas within the site associated with different cultural periods (Davis 1994). In one portion of the site, activities geared towards the manufacture of completed, formal, bifacial tools were associated with Early Archaic projectile points and interpreted as representing a terminal production strategy. Other portions of the site that showed an emphasis on the production of bifacial preforms and bifacial cores, representative of a sequential production strategy, were associated with Middle Archaic projectile points.

Investigations at 31DH614, a metarhyolite tuff quarry and lithic reduction site in Durham County, determined that the site was first used during the Middle Archaic period, sporadically during the Late Archaic and Early to Middle Woodland periods, and most intensively during the Late Prehistoric/Contact period (Eastman et al. 1995). The raw lithic material is exposed in the bed of the river that bisects the site, from where it was mined and reduced on the banks. Three main activity areas were identified at the site, two of which focused on early-stage core reduction and one that focused on later-stage lithic reduction and biface manufacture. The main product of the site was flake blanks, with the production of bifacial quarry blanks and preforms a minor activity. It was interpreted that the production of flake blanks corresponded to the main use of the site during the Late Prehistoric period.

Although they were not extensive, the Phase II investigations at 31PR110/110**, a metadacite quarry southwest of 31PR92, yielded useful comparative data (Jorgenson et al. 2002). Other than debitage, the main artifact types recovered from the site were cores and early-stage bifaces; no spent tools or late-stage bifaces were recovered. The investigation concluded that the quarry was used for the acquisition of lithic raw materials for the production of quarry blanks to be transported off-site and was part of a sequential production system. Although no diagnostic artifacts were recovered, it was hypothesized that the site was initially used during the Middle Archaic period.

Lithic Sourcing Studies

Petrographic and geochemical characterizations have become very useful tools of archaeologists in the United States over the past 20 years, particularly in the American Southwest (Jones et al. 1997). The ability to link lithic artifacts to raw material sources gives archaeologists a much better understanding of how prehistoric people utilized the landscape by allowing more detailed studies of mobility and settlement patterning by helping researchers identify foraging territories or assess lithic procurement costs (Andrefsky 1994; Jones et al. 2003).

While lithic sourcing studies have been conducted in North Carolina in the past (Bondar 2001; Daniel and Butler 1991, 1996), the Fort Bragg lithic sourcing project is the most comprehensive sourcing study to date in North Carolina (Steponaitis et al. 2006). Conducted by the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill and the Fort Bragg Cultural Resources Management Program in Fayetteville, North Carolina, the study identified appreciable differences in the types and signatures of metavolcanic stone within the Carolina Slate Belt through the use of petrography and geochemical and isotopic analysis.

Two regional groups were identified, conforming to the Uwharrie and Virgilina suites of the Carolina Slate Belt. Within those two regional groupings, a number of quarry zones were found to have generally distinct characteristics. While the overall sample size for the study was low, it represents a baseline with a firm foundation from which future studies can build. As more quarries are identified and analyzed following the methodology used in the Fort Bragg study, the ability of archaeologists in the state to source artifacts will become stronger. Perhaps the most important finding of the study was that a single method alone was not sufficient for the characterization of a quarry; rather, a synthetic approach that considers and weighs all lines of evidence is needed (Steponaitis et al. 2006:107).

Methodology

The Two Dogs Site (31PR92) is a Middle Archaic and Woodland dacite quarry located in Person County, North Carolina. A 2001 archaeological survey by Environmental Services, Inc. (ESI), of an upland ridge located along the boundary of the Tar River and Neuse River basins encountered extensive deposits of lithic material covering an area over 69,000 m^2 (Seibel et al. 2001). As a result of the initial investigation, the site was recommended eligible for listing in the *National Register of Historic Places* under Criterion D. In anticipation of adverse affects from the expansion of the landfill facility, a research design for the archaeological mitigation of the site was prepared (Seibel and Smith 2004), and data recovery excavations took place at the site in the winter of 2004–2005, conducted by the author, Terri Russ, Karl Anderson, and Geoff Lipscomb (Seibel 2006).

Field Excavations

A sampling strategy was developed for the data recovery investigations as opposed to large block excavations, mainly based on the extremely large number of artifacts that are recovered from quarry sites and the general uniformity of the artifactual material, with the premise that given a statistically significant number of data points, one can characterize the overall content of an archaeological site. The initial stage of investigations consisted of the excavation of 225 50-x-50-cm test units using a stratified random sample (see Figure 2).

In order to better track the location of the test units, the site was split into five arbitrary areas (designated A–E) from west to east based on the density of artifacts recovered during the survey phase of investigations (see Figure 2). The stratified random sample of points corresponding to test unit locations based on the percentage of the site covered by each area was generated in ESRI ArcMap. To prevent areas within the site from being too heavily tested, no test unit was located within five meters of another test unit or a previously excavated shovel test. Each point was assigned an easting and northing coordinate tied to an arbitrary datum of 1000 E 1000 N placed in the approximate center of the site, as well as a unique number (e.g., A15). Each point was then located in the field

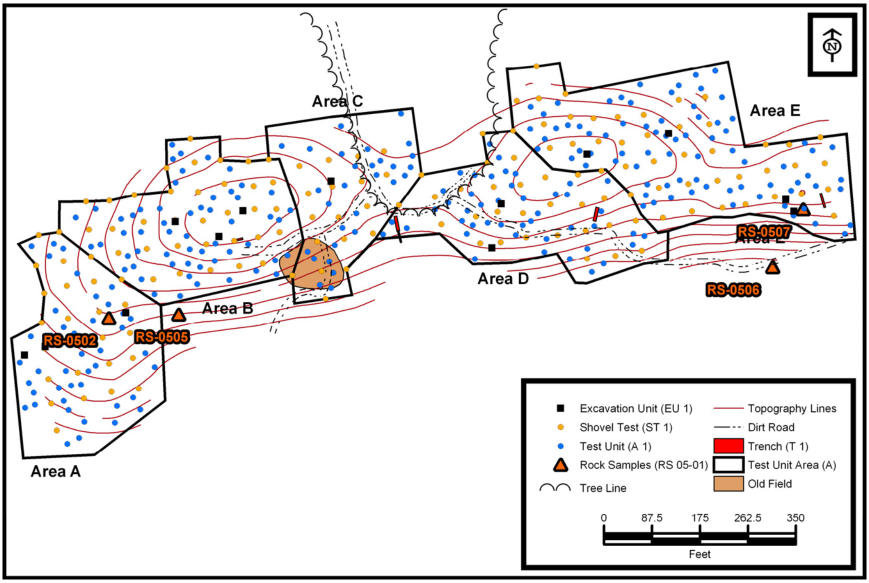

Figure 2. Plan of Two Dogs Site.

using a Trimble ProXR GPS unit and marked with a flag bearing its coordinates and unique number.

Data recovered during the excavation of the 225 test units were combined with the data collected from the 149 shovel tests dug by ESI in 2001 (Seibel et al. 2001; see Figure 2) to better identify activity areas, cultural features, and spatial and temporal variation across the site. Using this information, 13 1-x-1-m excavation units were placed across the site in those areas deemed most likely to yield significant data (see Figure 2). Data used to make the determinations included gross artifact density, spatial patterning of diagnostic artifacts or tool types, and variations in flake size and lithic material.

Geomorphic, Petrological, and Geochemical Analyses

In addition to the excavation of the test and excavation units, five backhoe trenches were excavated to provide data for a geomorphological assessment of the site by Keith Seramur of Appalachian State University (see Figure 2). The geomorphic study conducted by Keith Seramur included taking multiple soil profiles, conducting particle size analysis, and conducting an analysis of artifact size distributions by depth. Four lithic samples from on-site outcrops (RS-0502, 0505, 0506, and 0507) and two from lithic artifacts composed of off-site material (RS-0508 and 0509) were collected for petrological, thin-section analysis by Edward "Skip" Stoddard of North Carolina State University and geochemical analysis using fusion inductively coupled plasma spectrometry (FUS-IMS) and fusion mass spectrometry (FUS-MS) by Drew Coleman of the University of North Carolina at Chapel Hill (see Figure 2).

Artifact Analysis

Four main classes of cores were identified at the site: bifacial, amorphous, unidirectional, and tested. Bifacial cores are defined as cores that exhibit flaking on two sides and a single striking platform that circumscribes the core as a single edge. Amorphous cores are defined as cores that exhibit multiple striking platforms. Unidirectional cores are defined as cores that exhibit a single striking platform and parallel flake scars. Tested cores are defined as cores that exhibit one or a few flake scars but no signs of reduction.

Bifacial tools and projectile points were analyzed using a five-stage bifacial reduction scheme (modified from Goode n.d. [in Johnson 1995 and Black et al. 1997]). In this scheme, a core is a homogeneous lithic material that has had flakes removed from its surface in preparation of tool production (Andrefsky 2000:12). The core may be reduced in a unifacial or bifacial manner to yield a tool or may be used to produce flake blanks that will then be reduced in either a unifacial or bifacial manner to yield a tool. When following a manufacturing trajectory using flake blanks, the flake blank occupies Stage 0 of the reduction process, as flakes removed from a core for additional modification are often indistinguishable from flakes removed for core/biface reduction/thinning. It also standardizes the reduction trajectories of both bifacial blank and flake blank reduction.

In a bifacial core manufacturing trajectory, Stages 1 and 2 of bifacial reduction are the beginning and intermediary manufacturing stages that can be identified according to characteristics such as edge sinuosity, degree of shaping, and presence/absence of cortex. A Stage 1 biface represents an edged biface, while a Stage 2 biface can be considered a thinned biface or a quarry blank. A Stage 3 biface can be considered a preform, and Stage 4 is the final manufacturing stage evidenced by final shaping and thinning of the biface. Stage 5 represents resharpening and/or remodification of the tool.

None of the pieces of lithic debitage recovered had any identifiable cortex; thus, it was not possible to use cortex coverage as a variable in the analysis. Instead, the lithic debitage was sorted for gross analysis by raw material and then into five size categories: >100 mm, 50–100 mm, 25–50 mm, 10–25 mm, and <10 millimeters. The first three size classes were also grouped into 0–25 mm, 25–50 mm, and 0–50 mm size classes.

Artifact Density Distributions

In order to identify spatial patterning of activities across the site, the results of the artifact analysis were entered into a MS Excel database for GIS and statistical analyses. Statistical analysis of artifact classes using Spearman's correlation matrix and/or other appropriate methods were compiled, and GIS plots were developed showing artifact densities and the spatial patterning of certain artifact types.

The qualitative distribution analysis was based on the creation of density plots for each artifact class. The density surfaces were created from the known artifact densities at each shovel test, test unit, and excavation unit location using an inverse distance weighted (IDW) raster interpolation technique. In order to make the data from the shovel tests, test units, and excavation units comparable, the data first had to be normalized. It was decided to normalize the data based on artifact density per square meter rather than per cubic meter due to the shallow nature of the deposits. Shovel tests were normalized based on the ideal 30-cm diameter, test units were normalized based on their dimensions of 50-x-50-cm, and excavation units were 1-x-1-m, the analysis standard.

Results of the Investigations

Site Formation Processes

Soil at the site was found to consist of a loam to clay loam with an organic-rich A-horizon over E- and Bt-horizons. Although the United States Department of Agriculture soil survey suggested that the soils were well-drained, it was found instead that the soils were poorly drained and that water would perch on top of the Bt-horizon and saturate the overlying A- and E-horizons. Soil depths were variable across the ridge, ranging from 20–50 cm thick above the Bt-horizon and averaging about 35 cm thick. While large boulders were observed outcropping in different portions of the site, there was no evidence that they had been utilized for obtaining raw material, nor were any pits dug to access stone identified at the site.

The particle size analysis found that sand and gravel increased in frequency from the A- to the E-horizon, but that the Bt-horizon was dominated by silt and clay with less than five percent gravel. Large artifacts were found to be concentrated in the upper portions of the soil profiles, with smaller artifacts increasing in frequency by depth.

Based on these analyses and observations of numerous tree falls across the ridge and small springs along the steep ridge slopes, it was determined that pedoturbation (the disturbance of soils by physical, non-biological, agents) was the main geomorphic process at work at the site. The shallow soil and poor drainage make the ridge particularly susceptible to tree fall events during periods of rain and high winds, an action known as "windthrow" (Wood and Johnson 1978). As trees are blown over, larger clasts are pulled up in their roots. Additionally, sheet wash across the site during rain events serves to remove clay, silt, and fine sand from the ridge, better exposing the larger clasts on the ground surface.

Although tree fall would contribute to vertical mixing of the archaeological deposits, the formation processes also helped preserve the horizontal context at the site. The larger artifacts accumulated at the surface with smaller artifacts being buried. These large artifacts are not easily eroded or moved from their horizontal position. In contrast, the smaller artifacts that could be transported down slope by sheet wash have been buried, limiting their horizontal movement.

Petrographic Analysis

The site is located at the northern end of the Carolina Slate Belt within the Hyco Formation, which is mapped as consisting of intermediate and felsic volcanic rocks. The petrographic analysis conducted by Skip Stoddard found that the four samples of local stone at the quarry were slightly metamorphosed felsic rocks exhibiting a variety of textual types. Coarse tuff-breccia and agglomerate featuring blocks of felsic volcanic rocks in a fine-grained, epidotized matrix were found in some locations of the site, while other portions of the site yielded plagioclase-phyric felsic volcanic rocks, mainly crystal tuff. The presence of breccia attests to an explosive volcanic origin for at least some of the bedrock source material. The two samples taken from off-site samples artifacts (RS-0508 and 0509) were interpreted as felsic volcanic siltstones.

Stoddard's study and first-hand experience by Drew Coleman and him found that the source lithic material at the site was very hard and difficult to flake. Even with a steel rock hammer, it was difficult to remove samples of stone from outcropping boulders. However, once broken, the stone held a very sharp edge.

Geochemical Analysis

Drew Coleman performed geochemical analysis on the six rock samples that were also subjected to petrographic analysis. Four of the samples were taken from local material (RS-0502, 0505, 0506, and 0507), while two of the samples were taken from artifacts that had been brought from off-site locations (RS-0508 and 0509). The analysis measured the concentrations of 45 elements, 11 compounds, and three isotopes. Coleman's analysis was conducted to mirror his work for the Fort Bragg lithic sourcing study.

As can be seen in Tables 1, 2, and 3, the four samples local to 31PR92 clustered tightly together for the $(^{143}Nd/^{144}Nd)_{meas}$ / $(^{147}Sm/^{144}Nd_{meas})$ ratio, the (La/Lu) / $(^{143}Nd/^{144}Nd)_{age}$ ratio, and the (Ta/Yb) / $(^{143}Nd/^{144}Nd)_{age}$ ratio (herein referred to as the Sm ratio, the La/Lu ration, and the Ta/Yb ratio, respectively). Additionally, when the off-site RS-0508 sample is included, the five samples were all within the ranges for Person County identified in the Fort Bragg lithic sourcing study for the Sm and the La/Lu ratios (Steponaitis et al. 2006). Sample RS-0509, however, was a significant outlier for two of the plots (Sm ratio and La/Lu ratio).

Figure 3 is an example of the graphical plots of the isotope ratios. As it shows, the four local samples had very similar chemical signatures, while the two off-site samples were much different. In the Fort Bragg study, two different linear trends were identified for the isotope ratios, roughly corresponding to geography and geologic suites (Uwharries vs. Virgilina). This figure also demonstrates this geologic discontinuity

Table 1. Lanthanum (La) and Lutetium (Lu) Concentrations and Ratio for Two Dog Site Samples.

Sample	La (ppm)	Lu (ppm)	La/Lu Ratio
RS-0502	28.7	0.39	73.6
RS-0505	32.9	0.402	81.8
RS-0506	26	0.337	77.2
RS-0507	27.2	0.354	76.8
RS-0508	37.8	0.742	50.9
RS-0509	21	0.648	32.4

Table 2. Tantalum (Ta) to Ytterbium (Yb) Concentrations and Ratio for Two Dog Site Samples.

Sample	Ta (ppm)	Yb(ppm)	Ta/Yb Ratio
RS-0502	0.39	2.43	0.16
RS-0505	0.4	2.57	0.16
RS-0506	0.4	2.21	0.18
RS-0507	0.41	2.21	0.19
RS-0508	1.19	4.92	0.24
RS-0509	0.37	4.32	0.09

Table 3. Neodymium (Nd) and Samarium (Sm) Isotope Ratios and Age for Two Dog Site Samples.

Sample	$(^{143}Nd/^{144}Nd)_{meas}$	$(^{147}Sm/^{144}Nd)_{meas}$	e_{Nd}(0 Ma)	$(^{143}Nd/^{144}Nd)_{age}$	e_{Nd}(age)
RS-0502	0.512610	0.1177	-0.55	0.512186	5.01
RS-0505	0.512616	0.1151	-0.44	0.512201	5.31
RS-0506	0.512638	0.1191	0.01	0.512209	5.46
RS-0507	0.512631	0.1207	-0.13	0.512196	5.21
RS-0508	0.512636	0.1309	-0.03	0.512164	4.59
RS-0509	0.512734	0.1525	1.86	0.512184	4.99

Age=550 Million Years Ago

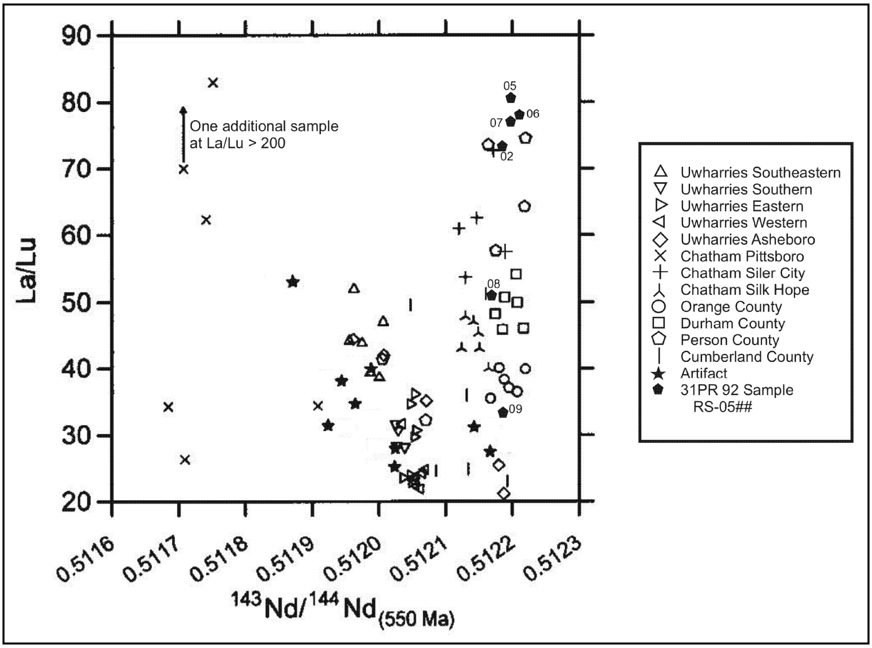

Figure 3. Neodymium (Nd) isotope ratios versus Lanthanum (La)/Lutetium (Lu) ratios for artifacts from Fort Bragg study and Two Dogs Site.

between the Uwharries group, generally south of Asheboro, and the more northerly Virgilina group.

Artifact Analysis

A total of 32,904 artifacts were recovered from subsurface contexts during all phases of work at the Two Dogs Site. The vast majority of the recovered artifacts consisted of dacite (n=32,401; 98.48 percent), with small amounts of quartz (n=421; 1.28 percent), aphyric rhyolite/ metasiltstone (n=37; 0.11 percent), and other/UID (n=43; 0.13 percent).

In total, 32,501 pieces of debitage were recovered from subsurface contexts at the site, over 99 percent of all recovered artifacts. By far, the most common of the three 50-mm size categories (0–50, 50–100, 100+) was the 0–50 mm category. As can be seen in Table 4, the 0–50 mm size category represented 90.3 percent of the total amount of recovered debitage. The other two categories, 50–100 mm and 100+ mm, represented 9.0 percent and 0.7 percent of the total, respectively. Within

Table 4. Debitage Distribution by Size Categories.

	0–25 mm	**25–50 mm**	**0–50 mm**	**50–100 mm**	**100+ mm**
Count	21,597	7,753	29,350	2,909	242
Percentage	66.5%	23.9%	90.3%	9.0%	0.7%

the 0–50 mm category, the 0–25 mm category represents 73.6 percent of the total, while the 25–50 mm category represents 26.4 percent of the total.

A total of 258 cores were recovered from subsurface contexts. Of these, 47 (18.2 percent) were bifacial cores, 183 (70.9 percent) were amorphous cores, one (0.4 percent) was a unidirectional core, and 27 (10.5 percent) were tested cores. Although amorphous cores significantly outnumbered bifacial cores in the assemblage, there did not seem to be any distinct difference between the two core types in terms of size. The average maximum dimension of bifacial cores recovered from the excavation units was 118 mm, with a standard deviation of 26 mm, while the average maximum dimension of amorphous cores was 120 mm, with a standard deviation of 30 mm.

A total of 135 bifaces and projectile points were recovered from subsurface contexts, and one was recovered from the ground surface. All of the Stage 1, 2, and 3 bifaces were manufactured from the local dacite; however, only one of the four recovered Stage 4 bifaces and only one of the four recovered projectile points were manufactured from the local dacite.

As can be seen in Figure 4, there was a linear decrease in the number of Stage 1 to Stage 2 to Stage 3 bifaces recovered, with a leveling off to Stage 4 and projectile points. Also seen in Figure 4 is the percentage of members of each biface stage that were broken. Eighty-two and 87 percent of the total number of Stage 1 and Stage 2 bifaces, respectively, were broken, while all of the Stage 3 and Stage 4 bifaces and projectile points were broken.

Only four projectile points were recovered from the site during all phases of investigation. These consist of two metasiltstone Morrow Mountain points, both broken, from ST 21 and EU 5, a broken quartz

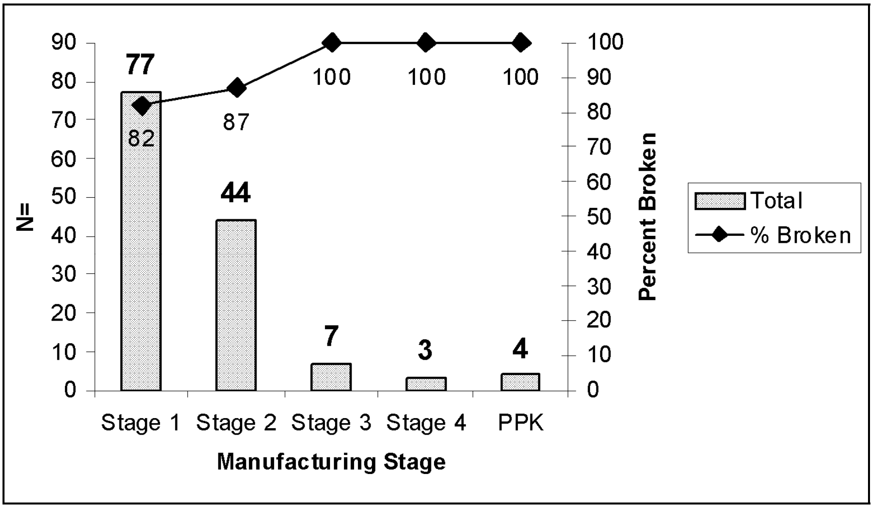

Figure 4. Numbers of bifaces recovered from subsurface contexts by manufacturing stage and percentage broken.

Halifax point from ST 29, and a broken dacite Yadkin point from E68. The location of these finds is shown on Figure 5.

Five retouched flakes, all from Area E, were recovered (see Figure 5). The flakes were all moderately sized, measuring between 50 and 65 mm along their long axes and 35 to 50 mm along their short axes. Due to the extremely large amount of debitage recovered from the site, it is likely that this artifact class was underrepresented in the analysis, though it seems significant that all five were recovered from Area E.

Three hammerstones were recovered from the site (see Figure 5). One was a nodule of metavolcanic material, the second was half of a broken bannerstone (atlatl weight) also made of metavolcanic material, and the third was a fragment of diorite groundstone.

Spearman's Correlation

A non-parametric Spearman's Correlation was run to identify possible relationships between the major artifact categories recovered from the site (Table 5). Two strong correlations and five weak correlations significant at the 0.01 level were found. The strong correlation between the 0–25 mm and 25–50 mm classes and the 25–50

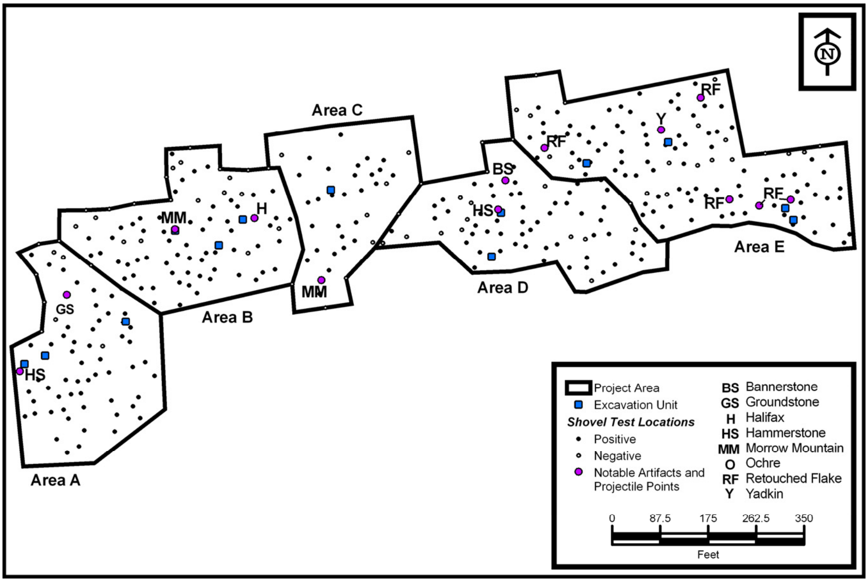

Figure 5. Notable artifacts recovered from Two Dogs Site.

Table 5. Spearman's Correlation Coefficients for Artifact Class Frequency.

Class	0–25 mm	25–50 mm	50–100 mm	100+ mm	Cores	Stage 1	Stage 2	Stage 3	Stage 4
0–25 mm	1.000	–	–	–	–	–	–	–	–
25–50 mm	**0.770**	1.000	–	–	–	–	–	–	–
50–100 mm	**0.572**	**0.727**	1.000	–	–	–	–	–	–
100+ mm	**0.387**	**0.430**	**0.478**	1.000	–	–	–	–	–
Cores	**0.341**	**0.375**	**0.372**	0.261	1.000	–	–	–	–
Stage 1	**0.341**	**0.363**	**0.306**	0.258	0.279	1.000	–	–	–
Stage 2	0.264	0.257	0.248	0.292	0.175	**0.367**	1.000	–	–
Stage 3	0.140	0.123	0.064	0.111	0.010	0.049	0.123	1.000	–
Stage 4	0.107	0.046	0.082	0.110	0.068	0.035	0.208	**0.464**	1.000

Strongly correlated (0.7+). Weakly correlated (0.3–0.699). Correlation is significant at the .01 level.

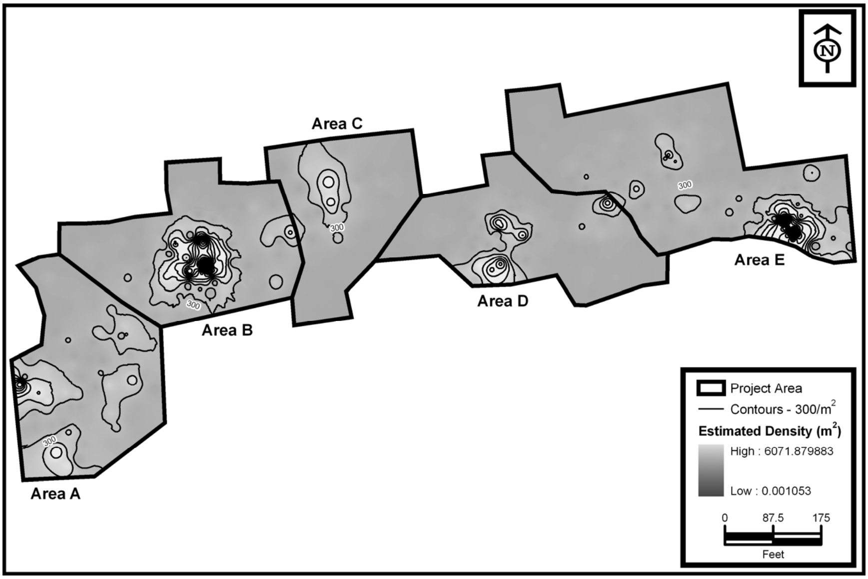

Figure 6. Density distribution of all recovered lithic artifacts.

mm and 50–100 mm classes suggests that reduction activities were partially segregated across the site. The smaller debitage class (0–25 mm), which would be generally associated with middle to late stage reduction, appears to be found in different areas than the larger debitage class (50–100 mm), which would be generally associated with early to middle stage reduction.

The weak correlation between the 0–25 mm, 25–50 mm, and 50–100 millimeter debitage classes with 100+ mm, debitage, cores, and Stage 1 bifaces is not surprising given that the majority of non-debitage artifacts recovered from the site were cores and Stage 1 bifaces and the ubiquity of debitage across the site. A total of 336 cores and Stage 1 bifaces were recovered from excavations at the site, versus a total of 54 Stage 2–4 bifaces (excluding projectile points).

Spatial Analysis

While artifacts were recovered in almost every single shovel test and test unit excavated at the site, the distribution of these artifacts across the site was far from uniform. As can be seen in Figure 6, large concentrations of artifacts were found in Areas B and E, each exceeding densities of 2,500 artifacts per m^2 and covering areas over 1,000 m^2 in size. Other concentrations in various locations of the site were found with densities ranging between 600–2,500 artifacts per m^2 and covering areas between 500–1,000 m^2. Artifacts were more common in the western half of the site compared to the eastern half.

As the vast majority of artifacts recovered were dacite, the concentrations of dacite artifacts correspond to the overall artifact concentrations. The overall density of artifacts classified as aphyric rhyolite or metasiltstone was quite low, as only 37 total artifacts were recovered from subsurface contexts. However, the majority of artifacts made of these off-site stone types were found running from the eastern edge of Area B into the southern half of Area C. Quartz was also rare (i.e., only 421 total artifacts), with most of the quartz artifacts recovered from the eastern half of Area B.

As lithic debitage comprised the vast majority of the artifact assemblage, the distribution of all debitage classes across the site mirrors the distribution of all artifact classes. Debitage 0–25 mm in size was found across the entirety of the site and in a number of concentrations that generally mirrored the concentrations of all artifact classes (Figure 7). Concentrations of debitage 25–50 mm in size (Figure 8) were found in locations similar to those of the 50–100 mm size category (Figure 9).

When the 0–25 and 25–50 mm categories were combined into a single 0–50 mm category, the concentrations roughly mirrored those of the 0–25 mm category. This is likely due to the fact that the 0–25 mm category comprised 73.6 percent of the 0–50 mm category, with the shear numbers of the 0–25 mm category masking the effect of the 25–50 mm category.

Significant variation in the location of artifact concentrations between the 0–25 mm and 50–100 mm categories were observed, most notably in Area A. While concentrations of debitage 0–25 mm in size were encountered in the west and south of Area A, concentrations of 50–100 mm-sized debitage were found in the east and south. A shift in the location of debitage concentrations was also observed in Area C, where the concentration of 50–100 mm-sized debitage was shifted to the north of the 0–25 mm-sized concentration. The debitage category of 100+ mm was recovered in much lower numbers than the other, smaller size

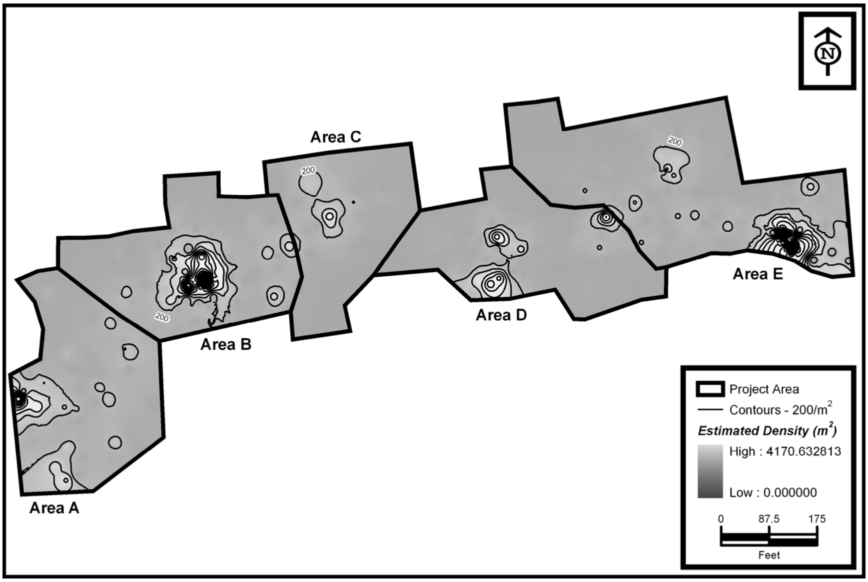

Figure 7. Density distribution of debitage 0–25 millimeters in size.

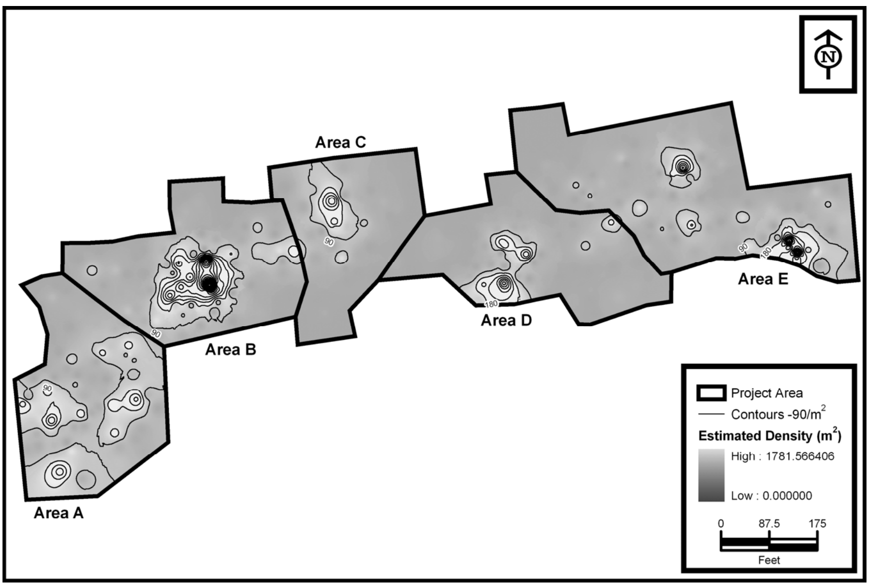

Figure 8. Density distribution of debitage 25–50 millimeters in size.

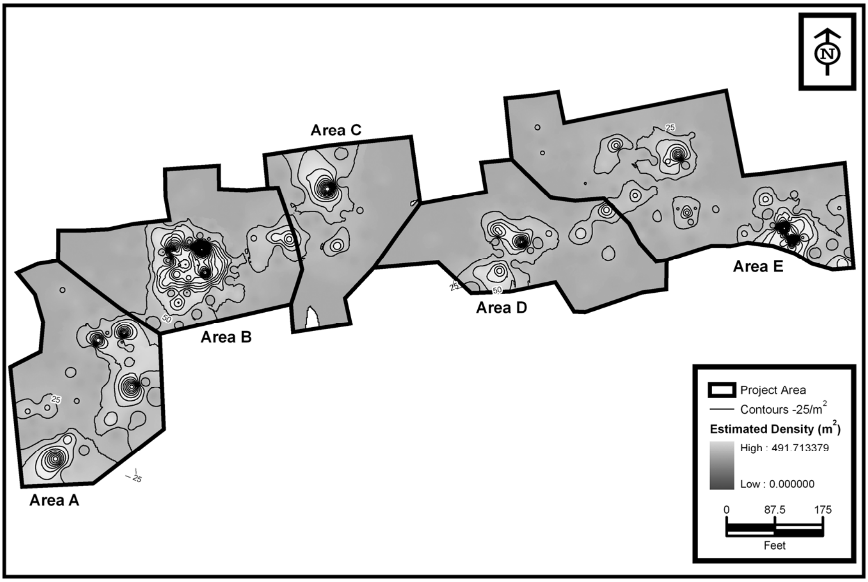

Figure 9. Density distribution of debitage 50–100 millimeters in size.

categories (Figure 10). The density plot shows similarities with 50–100 mm category distribution.

The distribution of bifacial cores (Figure 11) was typically, but not consistently, correlated to that of the total artifact distribution. In some areas of the site, notably Areas B and E, bifacial cores were recovered at densities up to nine per m^2. Amorphous cores were found most often in the eastern third of the site, and the western third of the site was almost complete devoid of amorphous cores (Figure 12). The main concentration of amorphous cores, in Area E, contained densities up to 14 cores per m^2.

Concentrations of Stage 1 bifaces were found across the site in densities up to seven per m^2 (Figure 13). These concentrations were physically correlated, but off-set to some degree, from the concentrations of 0–25 mm-sized debitage, and were closely physically correlated to concentrations of bifacial cores, although this apparent correlation did not meet the criteria for correlation in the Spearman's Correlation. Smaller concentrations of Stage 2 bifaces with densities up to four per m^2 were encountered across the whole site (Figure 14), which generally correlated with the concentrations of Stage 1 bifaces. Only seven Stage

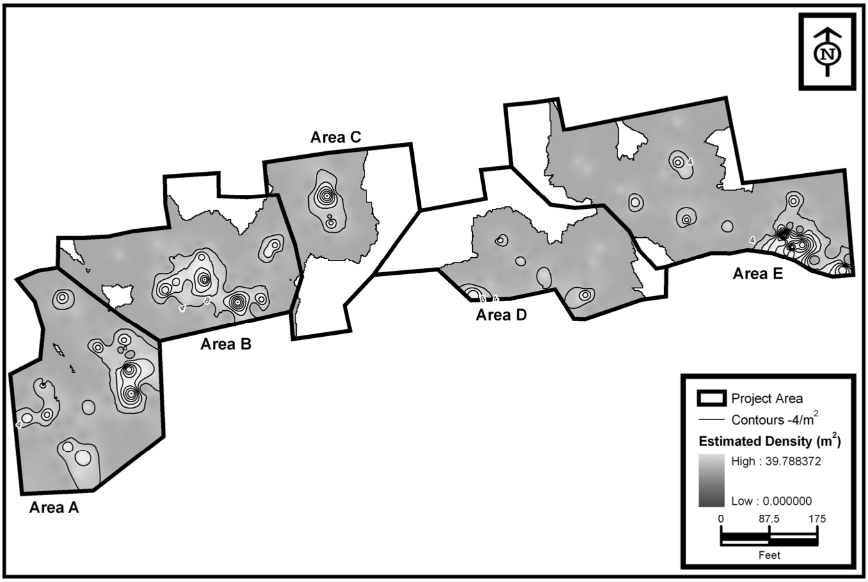

Figure 10. Density distribution of debitage 100+ millimeters in size.

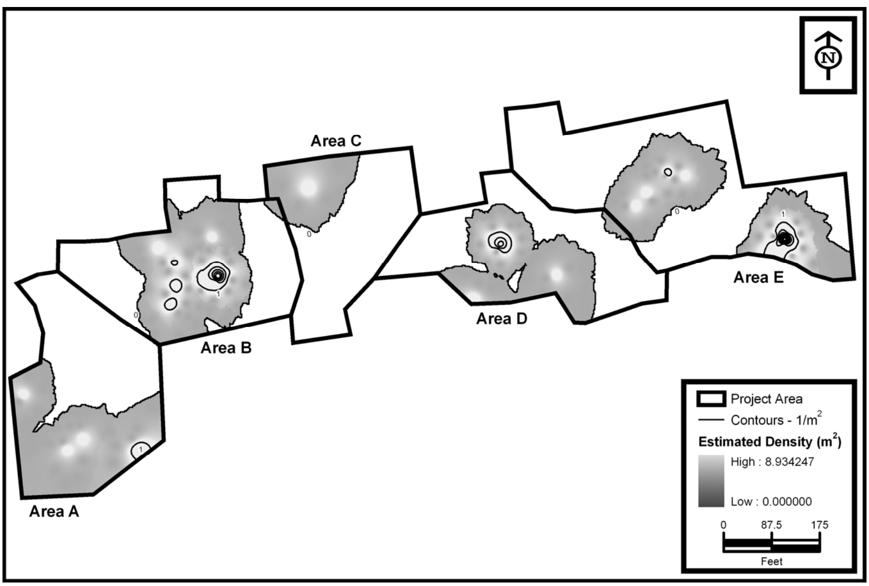

Figure 11. Density distribution of bifacial cores.

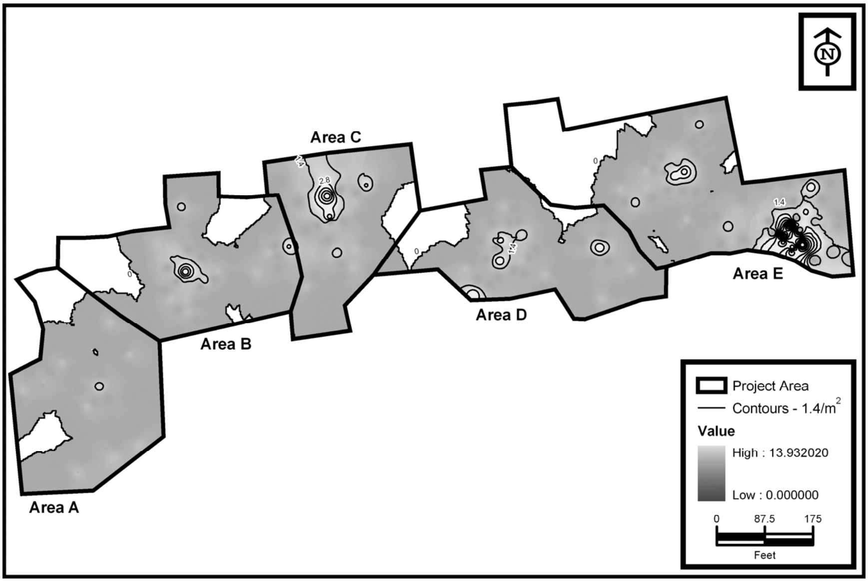

Figure 12. Density distribution of amorphous cores.

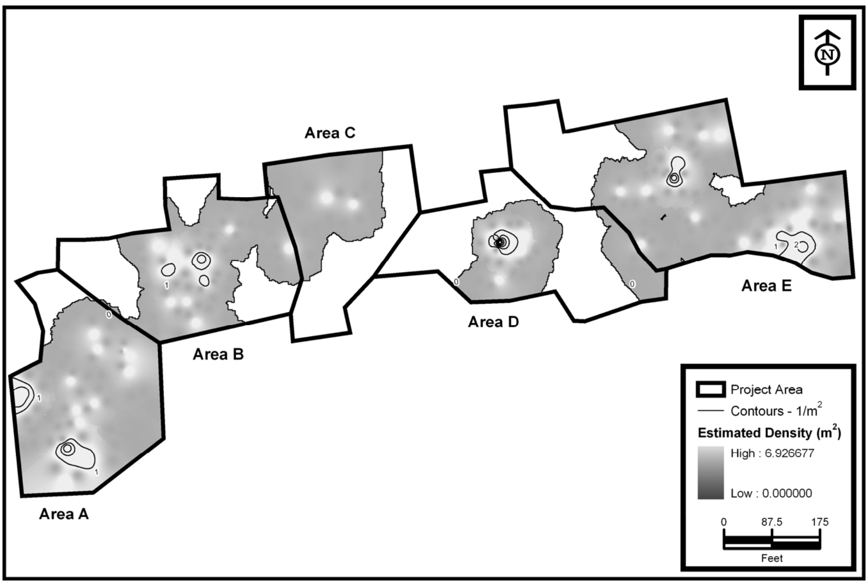

Figure 13. Density distribution of Stage 1 bifaces.

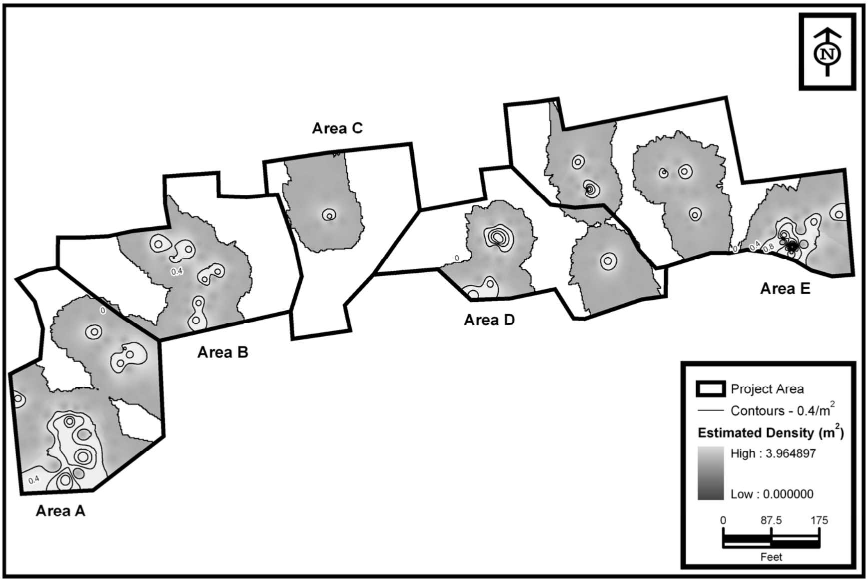

Figure 14. Density distribution of Stage 2 bifaces.

3 bifaces were recovered (Figure 15), all of which came from either Area A (n=2) or Area E (n=5), and only three Stage 4 bifaces were recovered from subsurface contexts, all in Area E (Figure 16).

A total of four projectile points were recovered from the site. The Middle Archaic Halifax and the two Morrow Mountain projectile points were all found in the western half of the site, in Areas B and C. The Woodland Yadkin projectile point was recovered from the center of Area E.

Other artifact categories recovered from the site included one bannerstone used as a hammerstone, one fragment of groundstone, one hammerstone, two pieces of ochre, and five retouched flakes. The bannerstone converted into a hammerstone was recovered in the center of Area D, and the small fragment of groundstone was recovered in the north of Area A. The hammerstone was recovered from A4 in the west of Area A. Two nodules of ochre were recovered from D26 in the center of Area D. The five retouched flakes were recovered from test units in Area E: one from the west, one from the northeast, and three from the southeast.

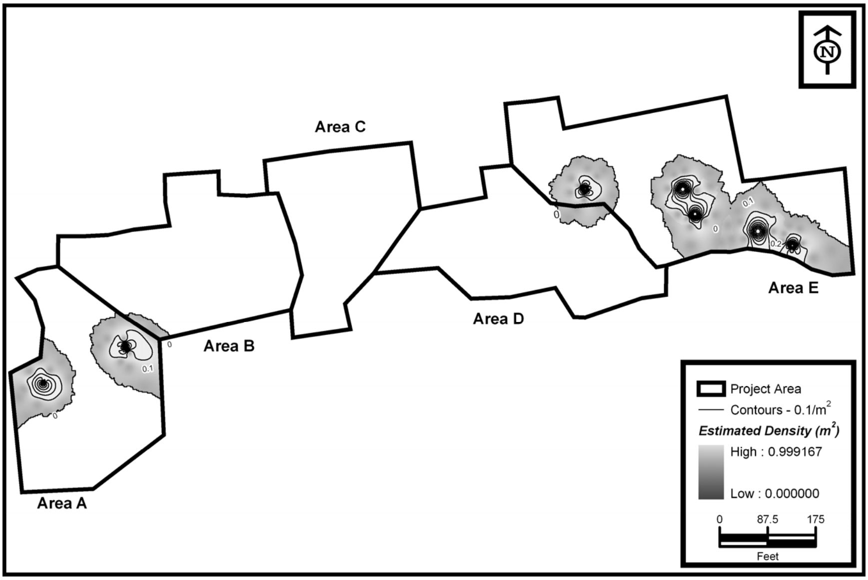

Figure 15. Density distribution of Stage 3 bifaces.

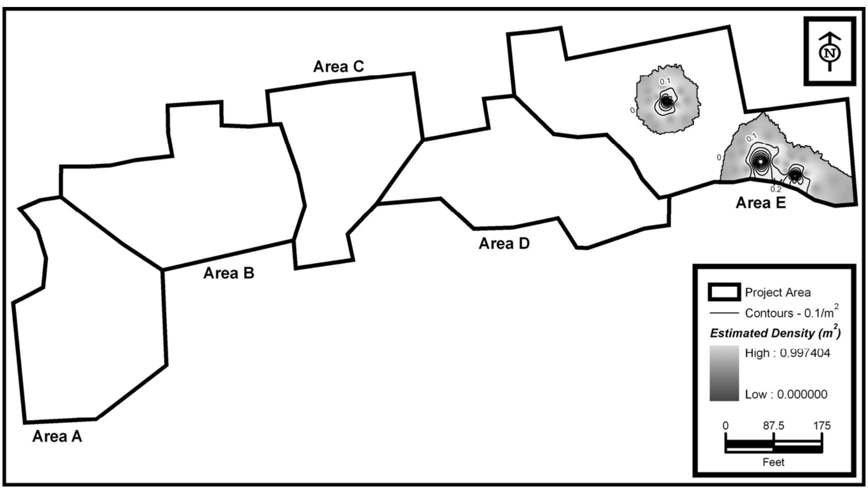

Figure 16. Density distribution of Stage 4 bifaces.

The Middle Archaic projectile points and the bannerstone fragment utilized as a hammerstone were all found in the center and western portions of the site, specifically Areas B, C, and D. Additionally, activity groupings containing only Stage 1 through Stage 3 bifaces were found from Area A to the western third of Area E (keeping in mind that only two Stage 3 bifaces were found in Area A). The concentrations of bifacial cores identified across the site generally correspond to the concentrations of Stage 1 bifaces.

Interpretation

Site Formation and Characterization

Although 31PR92 is technically a quarry site, quarrying in the literal sense of the word likely did not take place. No evidence of large seams of workable stone or pits dug to access stone were identified at the site. Instead, large cobbles of raw lithic material exposed through a combination of wind-thrown trees and sheet wash were collected directly from the ground surface for use as cores. During the investigations, cobbles were observed in great abundance along the center and southern slope of the ridge, and these would have been easily accessed by prehistoric peoples.

The petrographic analysis determined that the local source material was dacite, and the two samples of off-site artifacts were both classified as felsic volcanic siltstones (i.e., metasiltstones). While the dacite was obviously a workable material, it was found to be very hard and difficult to flake, which would not have made this stone an overly desirable material compared to the more easily worked metavolcanic materials in the Uwharries.

The accumulations of cobbles along the ground surface as a result of tree fall probably contributed to making this ridge an attractive quarry. The abundance of these cobbles along the ground surface made this lithic material readily available. Although the lithic material at this site would have been difficult to flake, this quarry may have been used because the raw material was so easily accessed.

Another factor for its use may have been its location on the dividing line between the Neuse River and Tar River drainage basins. If prehistoric groups followed a pattern of mobility generally confined within individual river basins, then the Two Dogs Site could have been used as a resource by groups of people along each river basin during the same general time frame. Also, if prehistoric groups often moved between two or more river basins, then the site may have served as a "transit" point to retool as a group or groups moved from the Neuse River basin to the Tar River basin or vice versa.

All six of the samples subjected to geochemical analysis fell within the linear trends for the Virgilina suite identified during the Fort Bragg lithic sourcing study (Steponaitis et al. 2006) that included samples from quarries in Person, Durham, Orange, and Chatham counties. Additionally, the four on-site samples correlated well with the samples from the Person County quarry (31PR115) included in the Fort Bragg study for the Sm isotope and the La/Lu trace elements, though they more closely correlated with the Orange County samples for the Ta/Yb trace elements. The two off-site samples did not match well with any of the other Virgilina suite samples, suggesting that they are from as of yet unrecorded quarry sites.

Interestingly, however, one of the off-site samples (RS-0509) plotted in close proximity to two of the Fort Bragg artifacts (FBL073 and 075), suggesting a close affinity. However, sample RS-0508 matched well with the Person and Durham county Sm and La/Lu ratios, suggesting that the sample came from the vicinity of the Two Dogs Site. For comparison, all six of the samples analyzed as part of the Fort Bragg study from the Person County quarry (31PR115) were classified as metasedimentary (Steponaitis et al. 2006).

Lithic Production Systems and Prehistoric Mobility

Four projectile points and one bannerstone fragment were recovered from the site. The two Morrow Mountain and one Halifax projectile points are diagnostic of the Middle Archaic period, while the one Yadkin projectile point is diagnostic of the Early to Middle Woodland period. The bannerstone most likely has a Middle to Late Archaic affiliation (Ward and Davis 1999), though it is possible that it was reused during the Woodland period.

An examination of lithic reduction activities and their relationships to temporally diagnostic artifacts revealed two temporally distinct patterns of lithic reduction. The Spearman's Correlation found that Stage 1 and Stage 2 bifaces and Stage 3 and Stage 4 bifaces were correlated, but Stage 2 and Stage 3 bifaces were not correlated. Additionally, 121 Stage 1 and Stage 2 bifaces were recovered, but only

10 Stage 3 and Stage 4 bifaces were recovered from subsurface contexts. This suggests that Stage 2 quarry blanks were the main product of lithic reduction activities at the site, and that the manufacture of Stage 3 and Stage 4 bifaces occurred together, but separate from the manufacture of Stage 1 and Stage 2 bifaces.

The three Middle Archaic projectile points and the bannerstone used as a hammerstone were found in the western two-thirds of the site, while the one Woodland projectile point and all of the retouched flakes were found in Area E in the eastern third of the site. Additionally, the only two activity groupings containing Stage 1 through Stage 4 bifaces were found in the eastern half of Area E, and five of the seven Stage 3 bifaces recovered from the site were from the eastern half of Area E. While amorphous cores were found scattered across the site, the only major concentration was found in the southeast corner of Area E, suggesting that amorphous cores were preferred for the production of late stage bifaces and retouched flakes.

These temporal patterns appear very distinctive. The production of quarry blanks from bifacial cores, which is indicative of a sequential production system, occurred across most of the site and appears to be correlated with the Middle Archaic and general Archaic period artifacts. In a sequential production system, reduction is taken to one stage in a particular location and then completed in other locations. The Middle Archaic system of sequential production found at 31PR92 fits within Novick's (1999) Production Trajectory 5, where curated bifacial cores, obtained at a different location, are used for the production of tools. In this case, the "different location" where bifacial cores would have been obtained is the quarry itself, while production of tools occurred at residential sites or resource procurement sites such as hunting camps.

The production of late-stage bifaces from flake blanks derived from amorphous cores, indicative of a terminal production system, as well as other activities not related to lithic production as evidenced by the Stage 4 bifaces made of non-local materials and the retouched flakes, appears to be correlated with the one recovered Woodland period artifact. In a terminal production system, all stages of production occur at a single location. The Early/Middle Woodland system of terminal production found at the site fits most closely within Novick's Production Trajectory 1, wherein any nodule of stone is reduced directly into a tool, although the late-stage tools produced at the site were more likely manufactured from flake blanks derived from amorphous cores.

The temporal affiliations of these two lithic production systems and the artifacts evidencing both agree well with the expected patterns of settlement patterning and landscape use for the time periods in question. A strong reliance on high residential mobility has been identified in the Southeast during the Middle Archaic period, coincident with the Altithermal (Anderson and Schuldenrein 1983; Claggett and Cable 1982). The Altithermal, which occurred during the Middle Holocene, likely witnessed an increase in the diversity of vegetative communities but a homogenization of the overall environment in the Piedmont (Watts et al. 1996).

In a pattern of residential mobility, resource extraction sites were typically coincident with residential sites or were within day's travel from a residential site. Residential sites were occupied for short periods of time during which the resources in the vicinity were extracted and reduced. Once resource availability dropped below some point, the residential site was relocated. Residential mobility is believed to be common in homogeneous environments, where resources are fairly evenly distributed across the landscape (Binford 1980).

Despite the lack of a large database that can be used for comparative purposes, evidence of the Middle Archaic lithic production system identified at the Two Dogs Site has been observed at other quarry sites in the Carolina Slate Belt. At Three Hat Mountain, evidence was found of a shift from use of high-quality lithic resources during the Early Archaic to a more broad-based procurement strategy accessing a wider array of lithic types and qualities (Abbott 1987). Artifacts representative of a sequential production strategy were found associated with Middle Archaic projectile points at 31RD37 (Davis 1994). Evidence of a sequential production system was encountered at 31PR110/110**, and while no diagnostic artifacts were recovered, the investigators believed that the site was used during the Middle Archaic period (Jorgenson et al. 2002).

The Early and Middle Woodland periods encompassed a broad trend toward increased sedentism as populations increased and subsistence patterns saw an increased reliance on the exploitation of riverine resources and horticulture (Smith 1986). People during this time period still practiced a general hunter-gatherer lifestyle (Ward and Davis 1999), but with settlement patterns weighted much more toward logistical mobility. In a pattern of logistical mobility, residential sites were occupied for long periods of time, and resource extraction sites were often many days travel away from the residential site. This settlement pattern was common in both heterogeneous environments, where resources were distributed across the landscape in a patchwork, and with semi-sedentary peoples (Binford 1980).

It is believed that more sedentary people did not have the uncertainty of lithic resource availability that more mobile people did (Andrefsky 1991). They either utilized lithic materials encompassing a wide range of quality, thus widening the resource base, or knew where lithic resources could be obtained and when they would collect such resources. As such, there was little need for these groups to employ a versatile, transportable technology. Instead, they would make use of expedient, informal tools manufactured and used as determined by their immediate needs. A technology emphasizing expediency is typified by the production of informal tools and the use of amorphous cores, and is seen as a marker of increased sedentism (Cobb and Webb 1994).

Conclusions and Future Directions

The Two Dogs Site is located within a suite of felsic volcanic rocks in the northern extent of the Carolina Slate Belt. The easy accessibility of the lithic material, which could be procured directly from the ground surface, made this site a desirable location for the production of stone tools, despite the fact that the raw material was hard and difficult to work. Its location along the dividing line between the Neuse River and Tar River drainage basins may also have contributed to its use as a lithic quarry and reduction site.

The geochemical analysis of lithic samples from the site fit within the linear trends for the Virgilina suite identified during the Fort Bragg lithic sourcing study (Steponaitis et al. 2006). Additionally, the off-site, metasedimentary samples also fit within the trends for the Virgilina suite, though they did not match well with any of the other Virgilina suite samples, suggesting that this material came from nearby, but likely unrecorded, quarry sites. The geochemical data collected as part of this study will help broaden the database developed as part of the Fort Bragg study.

This archaeological investigation lends further support to theories of lithic procurement and production trajectories for the Middle Archaic and Woodland periods in the Southeast. Although very few temporally diagnostic artifacts were recovered and no material suitable for radiocarbon dating was found, temporally distinct patterns of artifact distributions appeared to be present at the site. Evidence points to the site being part of a sequential production strategy during the Middle Archaic and a terminal production strategy during the Early-Middle Woodland.

This investigation shows how a data recovery program initiated within the confines of private sector cultural resource management can be integrated with a wider-reaching, academic-based research program, specifically the Fort Bragg lithic sourcing study. A multi-disciplinary research design with the ultimate goal of expanding the archaeological database and contributing new, integrative data should be the goal of all data recoveries, no matter their provenience (private sector or academia).

Given the broad scope of prehistoric settlement pattern and mobility, it is imperative that future work at lithic procurement and reduction sites be conducted within a larger research framework with the Fort Bragg lithic sourcing study as a foundation. Future work should be geared towards the identification of more prehistoric quarry sites in the Carolina Slate Belt and the increased use of petrographic and geochemical analyses to characterize the lithic raw materials. Hopefully, better resolution of related quarry groups within the Uwharrie and Virgilina suites will allow for more detailed studies of prehistoric mobility and lithic procurement. The physical and geochemical characterization methods used as part of the Fort Bragg study and for this study should be included as part of data recovery programs for other site types, such as habitation sites and non-lithic resource procurement sites. To better model and understand prehistoric settlement patterning in North Carolina, it will be necessary to collect data from the full suite of prehistoric site types.

Notes

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NORTH CAROLINA OLIVES

by

Tom Des Jean

Abstract

After several storm events in the Atlantic Ocean, historic artifacts washed up onto the beaches of Cape Lookout National Seashore. The National Park Service staff there consulted several archeologists about these objects, which were identified as Spanish olive jars. One of these jars was even sealed with a cork plug and contained remains of large seeds. This paper reports the date range and identification of these artifacts, and offers possible explanations for their occurrence at this location.

In June of 1994 Ms. Shanna Ramsey, a seasonal Interpreter working for the National Park Service at Cape Lookout National Seashore, North Carolina (Figure 1), was walking along the beach of the Atlantic Ocean, the seaward side of Cape Lookout. Earlier that week a strong "Nor'easter" had passed through the area which caused some incidents of erosion and deposition along the seashore. As she walked Ms. Ramsey discovered two ceramic jars in the tidal zone on the beach. The jars turned out to be historic eighteenth-century Spanish olive jars. Both of these jars were broken. The first jar (Jar #1) was found broken into several pieces with its cork lying among them (Figure 2). The second jar (Jar #2) was relatively whole and had only a piece of the bottom knocked out of it (Figure 3). This second vessel was still corked and inside of it were the remains of its original contents. The fragments of both vessels, their corks and contents, were taken to the Resource Management facility at Cape Lookout. Again, following the passage of Hurricane Isabel in 2003, one bottom half and two complete types of these same olive jars were found on the north central beaches here (Jars #3, #4, and #5), and an earthenware pitcher was found at the very south end of the cape (Figures 4 and 5). These vessels are all unrefined eighteenth-century Spanish earthenwares and were taken to the Cape Lookout Resources Management office where they were cleaned, logged into the National Park Service Automated National Cataloging System, and then sent to be curated at the Southeast Archeological Center at Tallahassee, Florida.

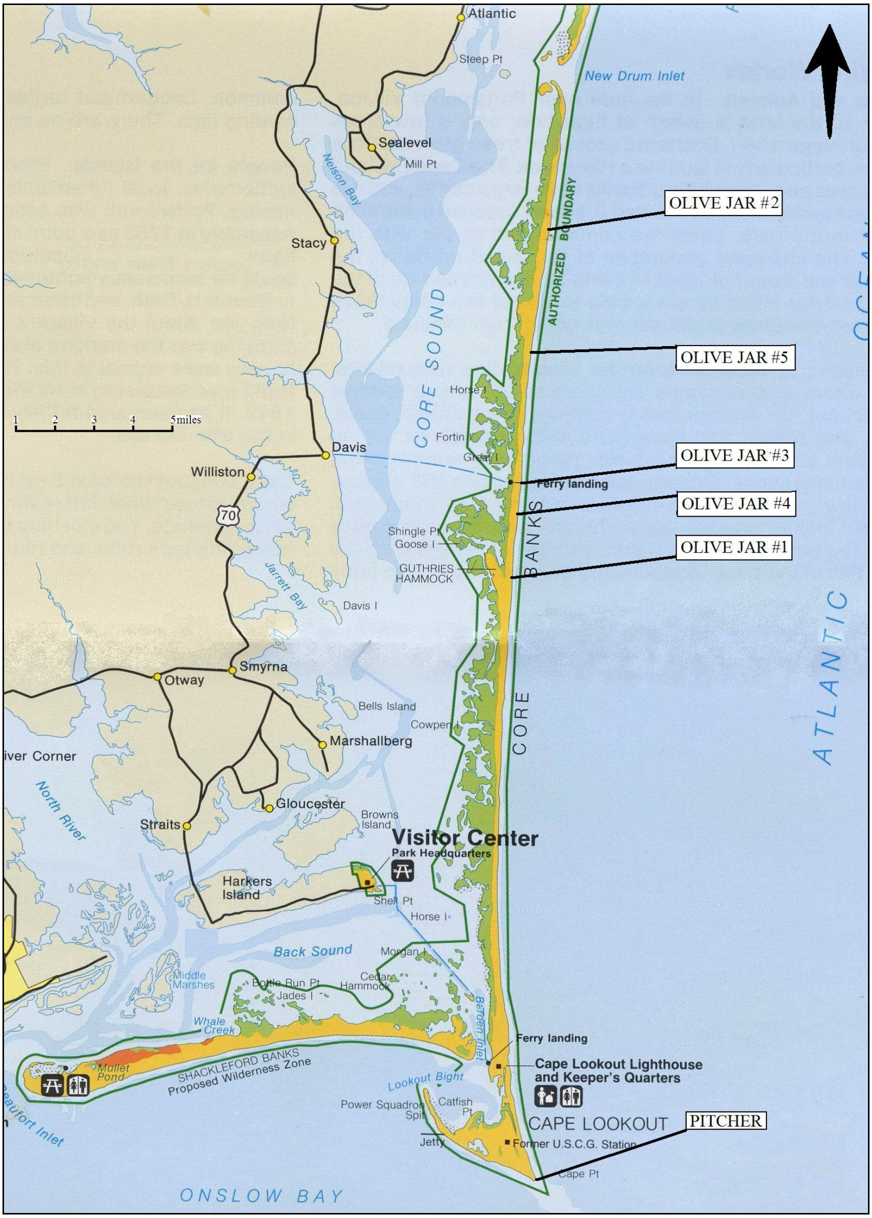

Figure 1. Cape Lookout National Seashore, North Carolina, with approximate locations of discovered Spanish olive jars and pitcher.

Figure 2. Interior view of Jar #1, a Late Style Type "D" olive jar fragment.

Figure 3. Jar #2, a Late Style "Type D" olive jar.

Figure 4. Jars #3 and #4, found in 2003 and exhibiting the "doughnut-shaped" rim and incurvate cone shape of Late Style Type "D" olive jars.

Figure 5. Jar #5, the third of the 2003 jars exhibiting the "doughnut-shaped" rim and incurvate cone shape of Late Style Type "D" olive jars.

Artifact Descriptions

All five conoidal jars are made of the same reddish colored, coarse paste. They are all wheel "thrown" and have approximately the same shape and the same dimensions. According to Spanish colonial researchers John Goggin (1960), Kathleen Deagan (1992:30–35), and others, the five un-glazed earthenware vessels that Ms. Ramsey and other National Park Service staff found are classified as Late Style Spanish olive jars that date from approximately 1780 to 1900 (Deagan 1992:28). According to Goggin's typology, for four vessel shapes identified as Late Style olive jars, the incurvate, tapering cone shape of Type D is typical for the period and for the five recovered jars (Figure 6).

These tapering, Late Style Olive Jars have thinner lips or rims than the Middle Style jars and they frequently have no necks, with the "doughnut-shaped" rim attaching directly to the body of the jar (Deagan 1992:34–35). On rare occasions, maker's marks or initials can be found below the thickened lip of Spanish olive jars. Unfortunately, in this case none of the jars showed markings of any kind. Late Style olive jars like these have been found on Spanish shipwrecks and Spanish sites all over the Western Hemisphere. These coarse earthenware containers were commonly used — "like the pine crates of our day" — to ship a variety of goods and materials (Fairbanks 1976:143).

Plugs or stoppers for olive jars used for transport were most often made of cork (Figure 6). The plugs from the two olive jars found at Cape Lookout in 1994 were also made of cork. The cork from the broken first vessel is 43 mm in diameter and 12.5 cm thick, and the cork from the second vessel is 48 mm in diameter and 21 mm thick. After recovery, the corks were kept wet so that no drying out occurred before these measurements were taken. Oftentimes the cork plug or seal was secured with pitch (James 1985:41); however, no evidence of pitch was found on the cork plugs from the 1994 Cape Lookout jars (Figure 7).

The seeds contained within the second jar were submitted to Dr. Lee Newsom, (at that time at Southern Illinois State University), who identified them as *Olea europaea*, the European olive (Figures 8 and 9). Several shipwrecks have been excavated that have produced identifiable *Olea europaea* pits in association with Spanish olive jars. These wrecks range in time from the sixteenth-century Emmanuel Point Wreck in

Figure 6. View of the top of Jar #2, showing the “in situ” cork stopper.

Figure 7. Cork stoppers from the olive jars (Jars #1 and #2) found in 1994.

Figure 8. Pits, or stones, from the European olive (*Olea europaea)*, as found on the beach and in Jar #2 following the 1994 storm.

Figure 9. Close-up photograph of the *Olea europaea* seeds.

Florida and the Western Ledge Reef Wreck in Bermuda, to the eighteenth-century Nuestra Senora de Atocha Wreck in Florida. It is evident that European olives were transported in the same manner from the time of earliest European contact into the nineteenth century. The fact that a relatively intact, “corked” olive jar and fragments from another were found close together suggests that they came from the same source. The additional discovery in 2003 of a third fragmented Late Style, Type D olive jar on the north end of Cape Lookout suggests that there may be a shipwreck site not far offshore from the National Seashore.

Following the 2003 hurricane that cast up the three additional olive jars, another coarse, reddish-buff colored, wheel-thrown vessel was found (Figure 10). This object was a pitcher with a hand-molded handle that fits the definition for Spanish utilitarian ceramics of the El Morro Ware variety (Deagan 1992:51). Additionally, the presence of a brownish, “honey-colored” interior glaze on this vessel also supports its identification as El Morro Ware. However, the date of manufacture for this type of ware is problematic. While the type has been found in late sixteenth-century contexts in the Carribbean, Deagan (1987:51) records that it occurs in St. Augustine, Florida, in contexts that date from 1600 to 1770. She further notes that it is found in much greater abundance there in eighteenth-century contexts. This suggests to several researchers that El Morro wares may have come from Puebla or Havana, Cuba, where the St. Augustine colony’s “Situado” supplies originated.

Summary

The chronological range of manufacture and use for the coarse earthenware vessels found on the Atlantic coast of Cape Lookout, North Carolina, argues for an early nineteenth-century date of deposition. Goggin’s (1960:29) original date range for these Late Style olive jars, 1780–1850, was based on limited archeological and documentary information. Deagan (1992:28), James (1985), and others have refined this date range, expanding it to 1800–1900 (Table 1).

The discovery of five Late Style olive jars spanning the nineteenth-century and the El Morro Ware pitcher, ranging in date to the late eighteenth-century, suggest that a shipwreck may lie just off of the Atlantic coast of Cape Lookout. If that is the case, this ship was probably transporting goods, including olives, to inhabitants along the

Figure 10. View of El Morro Ware pitcher (*top*), and detail of interior glaze (*bottom*).

Table 1. Summary of Spanish olive jars and pitcher found at Cape Lookout.

Description	**Date Range (after Deagan 1992)**
Jar #1 - Late Style Olive Jar, Type D	1800 to1900
Jar #2 - Late Style Olive Jar, Type D	1800 to 1900
Jar #3 - Late Style Olive Jar, Type D	1800 to 1900
Jar #4 - Late Style Olive Jar, Type D	1800 to 1900
Jar #5 - Late Style Olive Jar, Type D	1800 to 1900
El Morro Pitcher	1600 to 1770

southeastern coast of North America. On the other hand, perhaps these earthenware jars were all thrown overboard to lighten cargo in an emergency just offshore of the cape. Whatever the case, the presence of five containers, two with their corks (one sealed with its contents), and a relatively complete utilitarian pitcher argues for more than just coincidence. A coastline survey along the beach here and a sonar survey along the Atlantic Ocean just off shore of Cape Lookout may well locate the source of these artifacts, allowing preservation or salvage measures to be taken.

Notes

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