

North Carolina Archaeology



North Carolina Archaeology

Volume 67

October 2018

CONTENTS

Shanties, Log Houses, Lean-Tos, and the People Who Occupied Them: The 1865 Overflow Barracks Area West of Battery A at Brunswick Town/Fort Anderson State Historic Site <i>Thomas E. Beaman, Jr., Vincent H. Melomo, and Jim McKee</i>	1
Anatomy of a Tar Kiln <i>Joseph M. Herbert, Linda F. Carnes-McNaughton, William J. Feltz, Michelle Hagstrom Parsons, and Jonathan Schleier</i>	48
Optically Stimulated Luminescence Dates on Early Woodland Period Pottery in Northwestern North Carolina <i>Thomas R. Whyte</i>	77
An Unusual Burial Treatment?: Two Stone-Lined Graves from Guilford County, North Carolina <i>Shawn M. Patch, Lauren Minford, and Scott Halvorsen</i>	87
About the Authors	97

North Carolina Archaeology

(formerly *Southern Indian Studies*)

Published jointly
by
The North Carolina Archaeological Society, Inc.
and
The Research Laboratories of Archaeology
University of North Carolina
Chapel Hill, NC 27599-3120

R. P. Stephen Davis, Jr., Editor

Officers of the North Carolina Archaeological Society

President: Hannah Smith, 327 W. Trinity Ave., Apt. C, Durham, NC 27701.
Vice President: Shane C. Peterson, Archaeology Group, Environmental Analysis Unit, North Carolina Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27610-1598.
Secretary: Linda Carnes-McNaughton, Directorate of Public Works (IMBG-PWE-DR CARNES), 2175 Reilly Road Stop A, Fort Bragg, NC 28310-5000.
Treasurer: Mary Beth Fitts, N.C. Office of State Archaeology, Historic Resources, 4619 Mail Services Center, Raleigh, NC 27699-4619.
Editor: R. P. Stephen Davis, Jr., Research Laboratories of Archaeology, CB 3120, Alumni Building, University of North Carolina, Chapel Hill, NC 27599-3120.
Associate Editor (Newsletter): Heather A. Lapham, Research Laboratories of Archaeology, CB 3120, Alumni Building, University of North Carolina, Chapel Hill, NC 27599-3120.
At-Large Members:
Catie Bailey, 2117 Lovdal Dr. Raleigh, NC 27613.
Danny Bell, 903 Greenwood Road, Chapel Hill, NC 27514.
January Costa, 1323 Gaston Day School Road, Gastonia, NC 28056.
David Cranford, N.C. Office of State Archaeology, Historic Resources, 4619 Mail Services Center, Raleigh, NC 27699-4619.
Jim Daniel, 3037 Riverside Drive, Lexington, NC 27292.
John Krizmanich, 107 Alder Lane, Moyock, NC 27958.
Angela McArdle, 130 Manning Square, Southern Pines, NC 28387.

Information for Subscribers

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

Information for Authors

North Carolina Archaeology publishes articles on the archaeology of North Carolina and neighboring states. One copy of each manuscript, with accompanying tables, figures, and bibliography, should be submitted to the Editor. Manuscripts should be double spaced with ample margins throughout. Style should conform to guidelines *American Antiquity* (see <http://www.saa.org/AbouttheSociety/Publications/StyleGuide/tabid/984/Default.aspx>). The Editor can assist those wishing to submit a manuscript but who are unfamiliar with *American Antiquity* style.

SHANTIES, LOG HOUSES, LEAN-TOS, AND THE PEOPLE WHO OCCUPIED THEM: THE 1865 OVERFLOW BARRACKS AREA WEST OF BATTERY A AT BRUNSWICK TOWN/FORT ANDERSON STATE HISTORIC SITE

by

**Thomas E. Beaman, Jr., Vincent H. Melomo,
and Jim McKee**

Abstract

Recent archaeological investigations at Brunswick Town / Fort Anderson State Historic Site focused on the barracks area behind Battery A. While most previous investigations of the fort focused on the design and physical features such as gun emplacements, these investigations focused more on gathering information on the lives of the soldiers stationed at Fort Anderson, including the style of barracks used. Personal evidence of the soldiers was limited; however, evidence recovered indicated the study area was most likely used temporarily between January and February 1865 for overflow Confederate barracks of various vernacular constructions when Fort Fisher, Fort Caswell, and other defensive positions in the Lower Cape Fear were abandoned. It is also possible this area was temporarily reoccupied by African-American refugees between mid-1865 and mid-1866.

Fort Anderson is a Civil War-era fortification comprised of a complex of defensive earthen mounds with gun emplacements. Located in southeastern North Carolina on the western bank of the Cape Fear River approximately 12 miles from its mouth, the fort was built in 1862 on the ruins of the once thriving colonial-era port town of Brunswick (Figure 1). Fort Anderson served as part of the Confederate coastal defenses designed to protect the water and western land approaches to the city of Wilmington and its active blockade runner trade from Federal (Union) forces. From February 17–19, 1865, a continued bombardment from a flotilla of Federal warships and the continued advancement of the easternmost flank from Sherman’s Army drove the Confederate soldiers from the fort towards Wilmington. By June of 1865, with the Civil War concluded, Fort Anderson was finally and fully abandoned. Reincorporated into Orton Plantation, the earthen fortifications stood undisturbed as a silent sentinel for almost a century—a quiet, physical reminder of a divided past.

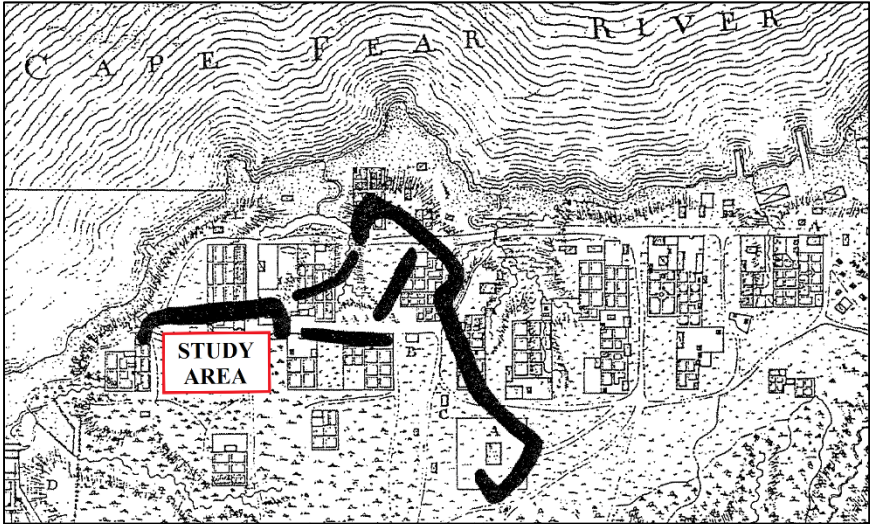


Figure 1. A portion of the April 1769 map of Brunswick Town by Claude Joseph Sauthier combined with the earthworks of Fort Anderson. The study area of the archaeological investigations to the west of Battery A is indicated.

Beginning in August of 1958, as site manager and archaeologist, Stanley South identified over 60 Colonial-period architectural features and oversaw intermittent excavation of 23 Colonial-period structures. Despite this primary excavation focus on the Colonial era, South did record the location of the earthworks and above-ground features related to Fort Anderson that he observed, including a number of brick and ballast stone barracks chimney bases in an undeveloped portion of the modern historic site property behind Battery A. However, advanced archaeological exploration of such features was limited to a single Civil War-era barracks chimney base, identified by South as feature N18, located in an area designated for public access between the Visitor Center/Museum and the original parking lot. While other potential features of Fort Anderson were considered for exploration during the centennial commemoration of the Civil War, South chose to focus his excavation efforts on the development of Fort Fisher, another contemporary fort along the Cape Fear River, into a State Historic Site.

In 2008, the recognition of the forthcoming sesquicentennial of the Civil War and a review of currently available archaeological literature of the period brought to the forefront a recognized gap in the archaeological knowledge of Fort Anderson. While the previous investigations had largely focused on the above-ground physical features, virtually no

SHANTIES, LOG HOUSES, LEAN-TOS

attention had been given to the lives of the soldiers who occupied the fort. Through a cooperative partnership between William Peace University, Brunswick Town/Fort Anderson State Historic Site, and the Coe Foundation for Archaeological Research, archaeological field schools in 2009 and 2011 focused their explorations on the remnants of Civil War-era barracks, which was the area thought to have the most potential to reveal the details of soldiers' lives at Fort Anderson. The location chosen for investigations was the same area in which South had previously identified the remnants of barracks' chimney bases on the surface, which is also shown as a small area of barracks on a February 1865 map of Fort Anderson by Federal Captain and Chief Engineer William J. Twining (Figure 2). The overall goal in the exploration of this area was to provide interpretive information about the lives of the soldiers at Fort Anderson that could be integrated into visitor tours, exhibited temporarily during the years of the Civil War sesquicentennial commemoration, and eventually integrated into the permanent exhibits at the museum in the Visitor Center. Specific attention was given to discovering the style of housing of the barracks, who occupied the barracks area, and the material life of the soldiers stationed at Fort Anderson. This study details the seasons of investigation and presents our final interpretations of the barracks area behind Battery A.

A Brief History of Fort Anderson

The history of Fort Anderson is intricately tied to the histories of and battles for Fort Fisher and Wilmington, as well as the Cape Fear River. Those contributing to an understanding of this history are numerous (e.g., Barrett 1963 Moore 1999, and Carbone 2001). The most authoritative histories of Fort Anderson were written by Chris E. Fonvielle, Jr. (1997, 1999, 2015), former Professor of History at the University of North Carolina at Wilmington, from whom this brief history is largely drawn.

While Brunswick was never resurrected as a significant port on the Cape Fear, its neighbor to the north, Wilmington, became a key part of the war effort for the Confederacy. Several rail lines converged on Wilmington, allowing resources to move from there throughout the Confederacy to points north, west, and south. Although the Union Navy attempted to cut off all the southern ports, Confederate ships known as "blockade runners" had considerable success eluding the Union gunboats and bringing supplies up the Cape Fear River. By the end of 1864, Wilmington was the only Confederate port still open to blockade runners (Fonvielle 1999:2–3, 2015:9–10). Keeping supplies flowing into

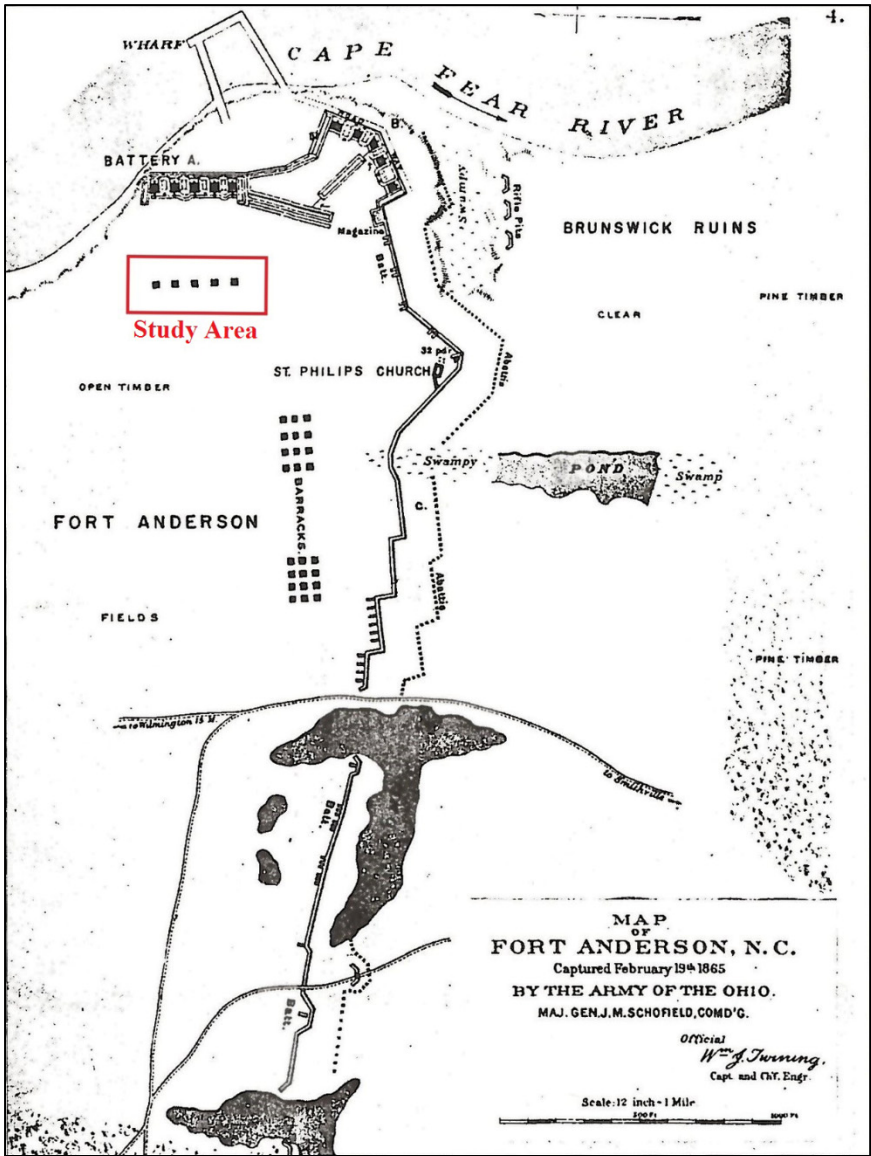


Figure 2. Federal Captain and Chief Engineer William J. Twining's map of Fort Anderson following its capture by the United States in February 1865. The study area of the archaeological investigations is indicated.

SHANTIES, LOG HOUSES, LEAN-TOS

Wilmington became essential for the survival of the Confederacy, and taking the Cape Fear became key to the Union strategy for victory.

The primary defense of the Cape Fear River, and thus the port of Wilmington, was established at Fort Fisher on the north side of New Inlet. Fort Fisher was the largest Confederate earthwork fort and successfully kept supplies flowing into Wilmington until it fell in early 1865, thus contributing to the end of the Civil War. In addition to the defenses at Fort Fisher, many other smaller batteries and forts were constructed along the ocean front and up the Cape Fear River to protect the river, land, and rail approaches to Wilmington (Fonvielle 1999:4, 2015:11–13). Fort Anderson was the largest and strongest of these. Sitting on a bluff above the river, the fort was intended to protect Wilmington from advances by ships along the river and advances by troops coming from the west. Located 15 miles south of the city, Fort Anderson was the last significant Confederate defense on the west bank before Wilmington.

The construction of Fort Anderson commenced in March of 1862. Using the labor of as many as 300 soldiers and enslaved African-American laborers, an artillery battery was constructed along the river (referred to as Batteries “A” and “B” on the Twining map) as well as a nearly mile long, six-foot high earthen defense that ran westward to Orton Pond (referred to as Battery “C” on Twining’s map). The earthworks were originally called Fort St. Philip for the Anglican Church left standing from the ruins of Brunswick Town. The fort was renamed Fort Anderson in July 1863 to honor Brigadier General George Burgwyn Anderson, who died in 1862 from wounds inflicted during the battle of Sharpsburg (Fonvielle 1999:9, 15; 2015:26–29, 48).

According to Fonvielle (1999:21; 2015:51–52) “scarce documentation” exists of the soldiers’ daily lives, and the records that do exist suggest “diseases, desolation and dull duty.” A good distance from any town, city, or even residence apart from Orton Plantation, soldiers stationed at Fort Anderson complained of boredom and isolation. The inactivity provided its own opportunity, in that in their down time the soldiers were able to hunt in the neighboring woods, fish in the river and Orton Pond, and explore the remains of Brunswick Town (Fonvielle 1999:21; 2015:52–54). Fort Anderson also served two special roles, both as a camp of muster and a quarantine station, that helped to break up the routine. As a muster camp, young men regularly arrived from the surrounding counties to enlist at Fort Anderson to serve the Confederacy. As a quarantine station, the soldiers at the fort were required to check

every blockade runner heading toward Wilmington for its proper papers, illegal cargo, and evidence of contagious disease (Fonvielle 1999:23; 2015:55). An archaeological investigation of the Fort Anderson barracks could help to provide a unique glimpse into the lives of these garrisoned soldiers, both the routines of their lives and the novel ways in which they passed their time.

Fort Anderson saw little conflict until the fall of Fort Fisher in January of 1865. With the fall of Fort Fisher, Fort Anderson became the last major defense of the city of Wilmington, upon which the Northern armies had set their sights. The immediate effect of the fall of Fort Fisher on Fort Anderson was the addition of new troops, perhaps up to 2,000, who had evacuated the established fortifications and defensive positions down river as part of the Cape Fear defenses (Fonvielle 1999:31). Life at Fort Anderson was exceptionally challenging as the soldiers waited for an inevitable Union attack, camping in and around the fort in unusually cold and wet weather. The barracks, having been built early in the war, were far too few to house the new troops. Since provisions were in short supply, the soldiers resorted to hunting wild game and even domestic sheep and cattle in the woods around the fort. They also began impressing cattle, sheep, pigs, chickens, and goats from local civilians (Fonvielle 1999:35; 2015:83). The deteriorating conditions at the fort led to despair, illness, and even desertion.

Federal military leaders planned to use their naval forces to bombard Fort Anderson while the Army launched a ground assault directly on the fort or by outflanking the Confederate defenses by going around Orton Pond. Twenty ships and about 6,000 troops were assembled to take Fort Anderson. Despite several rounds of limited artillery fire, on February 17th the *Montauk* began a decisive attack which would unleash about 3,000 rounds of shells and shots over the next two days. While the fort was being bombarded from the river on the 17th, Federal Major General Jacob D. Cox advanced up the river and pushed to within two miles of Fort Anderson.

On the morning of February 18th the bombardment of the fort continued and Cox pushed the Confederate troops back to the earthworks. The 2,300 Confederate troops stationed at the fort were bolstered by the troops retreating from the fall of Fort Fisher; however, these were still no match for the 6,000 Union soldiers preparing to invade. On February 19th, 1865, the soldiers of Fort Anderson evacuated before dawn. Although the bulk of the Federal troops moved north to Wilmington, a small unit remained to secure the site. With the

SHANTIES, LOG HOUSES, LEAN-TOS

abandonment of Fort Anderson by Confederate forces, within days Wilmington was captured, effectively cutting off General Lee's lifeline and ensuring Sherman's successful march through the Carolinas.

Toward the close and immediately following the war, the fort would come to be inhabited again for a short period by a civilian population. In their march through the South, Sherman's army of 60,000 Union soldiers acquired something they did not necessarily anticipate: formerly enslaved African-American refugees that followed Sherman's army out of bondage to a promised land of freedom. Upon reaching and leaving Columbia, South Carolina, the massive following contained as many as 25,000 refugees, plus 2,500 wagons and ambulances (Howard 2009:2). Described as "trains of refugees loaded in all sorts of vehicles and out-landish crafts; family coaches full of ladies of polite society, rheumatic old carriages and army wagons, contain poor whites, men, women, and children; country carts, farm wagons, and nondescript riggings black with old aunties, gray negroes, and little pickaninnies, and stacks of household goods and apparel that they were lugging away were crammed in, and were sticking out of every place" (Ballou quoted in Howard 2009:2-3).

Upon reaching Fayetteville, the majority of the refugees headed down the Cape Fear region. While many settled in abandoned plantations along the way, approximately 10,000 reached Wilmington. Since the city of Wilmington did not welcome them, many were resettled in the surrounding areas. Between 500 and 2,500 refugees were resettled in and around Fort Fisher, Smithville (Southport), Smith's Island, Fort Anderson, and many of the plantations of the Lower Cape Fear (Howard 2009:7). The Federal army passed orders that allowed and encouraged the refugees at Fort Anderson to "plant their own crops, maintain arms if they had them, and be allowed to act as pickets and guards of their own camps" (Howard 2009:6). After mid-1866, activity at Fort Anderson was limited to the occasional search for iron artifacts, which the former African-American refugees sought to sell to scrap dealers as a means to supplement their survival (*The Daily Journal* [Wilmington, North Carolina] February 22, 1870, pg. 3; *Wilmington Journal* [Wilmington, North Carolina], March 11, 1870, pg. 4). By 1867, as reported in the June 5th edition of *The Weekly Observer* newspaper in Raleigh, "at Orton, Kendall, and Lilliput, the three plantations next above Fort Anderson, there were encamped some 15,000 of those Negro refugees...." Following this short period of African-American refugee settlement, Fort Anderson was abandoned until the

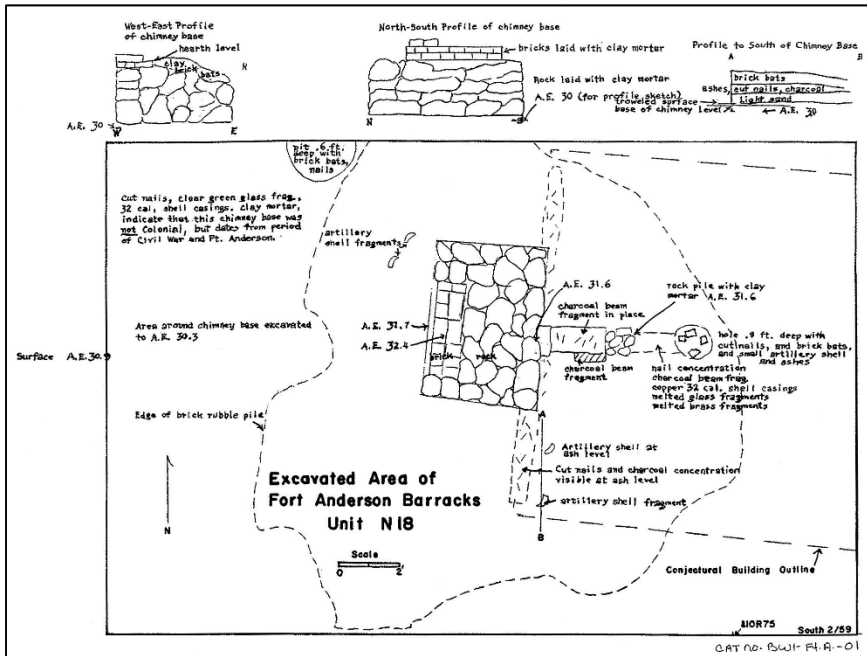


Figure 3. South's (1959) plan drawing of "Excavated Area of Fort Anderson Barracks Unit N18."

mid-20th century when the remains of the fort and the colonial town became a North Carolina State Historic Site.

Previous Archaeology of Fort Anderson

While Stanley South did record the locations of the earthworks and surface features related to Fort Anderson, advanced archaeological exploration of such features was extremely limited. In 1959, South (1959) excavated a Civil War era barracks chimney base he designated N18 in the area designated for public access between the Visitor Center/Museum and the original parking lot. South (2010:231) described the N18 barracks as "buildings of wood with chimneys made of brick and stone salvaged from the ruins of the homes of Brunswick." He contended that the mortar used in the chimneys was clay dug from a pit in front of Battery B. South's map of feature N18 after excavation is shown as Figure 3.

Two years later, South dug through a part of the Battery B earthwork to reach the buried Colonial-period foundation of the Newman-Taylor House (South 1961). As part of this excavation and

SHANTIES, LOG HOUSES, LEAN-TOS

despite a number of Colonial-era artifacts recovered in secondary context, South confirmed that the earthwork was constructed in a single episode. While other potential features of Fort Anderson were considered for exploration during the centennial commemoration of the Civil War, South chose to focus his excavation efforts on the development of Fort Fisher, the other contemporary fort along the Cape Fear River, into a State Historic Site.

While the two projects discussed represented the only Civil War-era investigations into Fort Anderson during South's decade of exploration, he did document a number of brick and ballast stone barracks chimney bases in an undeveloped portion of the property of the modern historic site. South (2005:163–164) remembers these chimney bases in his autobiography:

In the woods back of the earthworks, we cut paths through the jungle and found another treasure from the Civil War period. There were chimney mounds there, composed of bricks salvaged from the colonial ruins and mortared together with clay dug from the marsh. We discovered rows of these chimney bases from the barracks buildings housing the Confederate soldiers manning Fort Anderson. I used my transit to map each of these important surviving remains of the fort. From that map, I found that several rows of these barracks chimneys had survived the hundred years since the fort was bombarded by artillery from the Federal forces. I mapped over 50 of these historic ruins and on the top of one, as he was pulling the tape from the transit to the pile of chimney bricks, Charlie [Smith] found a 32-pound artillery shell. These chimney bases, some still standing two feet high, were a rich archaeological treasure I was not able to excavate more fully before I left Brunswick Town and Fort Anderson. As far as I know, these chimney ruins are still in the woods waiting to be examined archaeologically.

These chimney bases as observed and recorded by South appear on his 1960 base map of the town to the west of Battery A and are represented by the circles in Figure 4. These chimney bases became the basis of investigation for the 2009 and 2011 William Peace University archaeological field schools.

Since South's departure from Brunswick Town/Fort Anderson State Historic Site in 1968, only limited excavations have been conducted at the site until recently. These were primarily associated with improvements to the site, and they have been almost entirely confined to the colonial area of the site. As seen in Figure 5, another barrack chimney ruin similar to N18 excavated by South was documented and removed by former site manager Bill Faulk in the area of the present maintenance building prior to its construction in February 1978. In

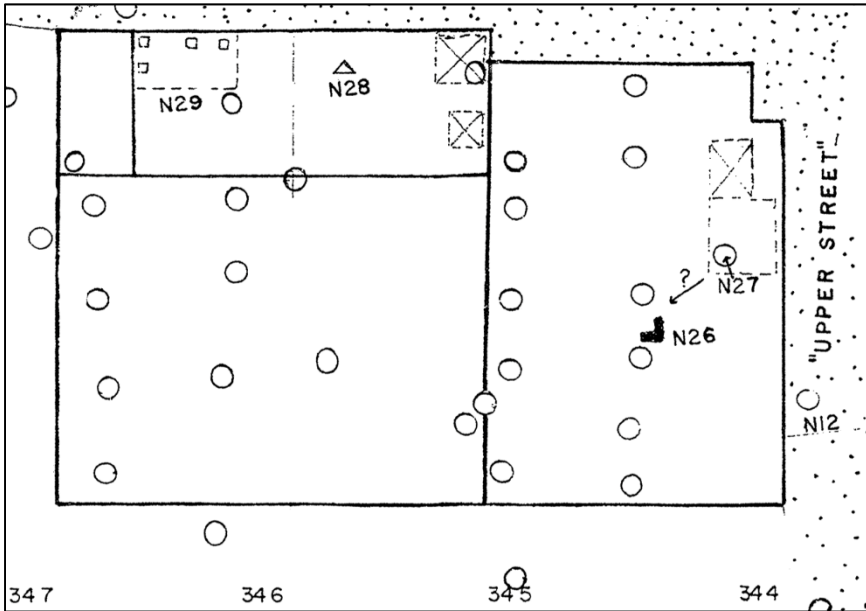


Figure 4. Excerpt of South's "Archaeological Base Map of the Site of Brunswick Town" (1960) showing study area west of Battery A. This area encompasses Colonial lot numbers 344, 345, and 346. Individual barrack chimney features are represented by circles.

1992, additional earthworks related to Fort Anderson outside the State Historic Site property were mapped as part of the survey of the neighboring Military Ocean Terminal at Sunny Point, but no subsurface investigations were conducted on these features (Louis Berger and Associates 1992).

With the approaching sesquicentennial commemoration of the American Civil War, in 2009 archaeological investigations resumed at Brunswick Town/Fort Anderson State Historic Site. From April 6–9, 2009, Assistant State Archaeologist John J. Mintz supervised over 80 volunteers, including members of the site staff and the Friends of Brunswick Town support group, in the excavation of Gun Emplacement #3 on Battery B of Fort Anderson. The objective of the investigation was to identify any structural evidence of the original gun platform that would have supported a 32-pounder seacoast cannon. Charred wooden planks and support beams, as well as metal bolts, nails, and chunks of brick were recovered. These elements of the original platform, along with the platform drawing by Confederate engineers, were used to plan an accurate reconstruction of the original gun emplacement. Mintz also



Figure 5. Former site manager Bill Faulk identified and removed a barracks chimney ruin in February 1978 prior to the construction of the modern maintenance building on site.

concurred with South's idea that Battery B, and presumably the other earthworks of Fort Anderson, were constructed in a single episode, not gradually or in stages over a period of months or years (Mintz, personal communication 2009). An archaeological field school from East Carolina University re-excavated Gun Emplacement #3 in 2015 for its reconstruction, and in 2016 also excavated Gun Emplacement #2.

To date, the vast majority of investigations into Civil War-era sites in North Carolina have focused on defining structural features or restoration of specific elements. This has been especially true of the previous archaeology at Fort Anderson and Fort Fisher state historic sites. While these investigations have been an important first step towards restoration and public interpretation of these sites, a clearer picture of the material life of those who constructed and occupied Fort Anderson before February 1865, as well as those who were temporarily stationed or lived there afterwards, was needed. The investigations within the barracks area described in this study were designed to provide

a glimpse through the veil of time and to humanize the men and boys of the fort beyond the few written historical accounts.

The Archaeology of Civil War Encampments

Due to the typically very temporary nature of occupation, soldiers' encampments are generally very difficult for archaeologists to identify and thoroughly explore. This is certainly true of Civil War-era encampment sites. Only a handful of these mid-19th century locations have been investigated by archaeologists, and these have primarily been in Maryland, Virginia, and South Carolina. In North Carolina, despite numerous reported accounts in historical literature, only two Civil War-era encampment sites have received more than locational documentation by archaeologists. During a survey at Fort Bragg in 1980, evidence of one of these Civil War encampments was found. The remains were from Federal cavalry units under the command of Federal General Hugh Judson Kilpatrick who camped at the site on March 10th and 11th, 1865, following the battle of Monroe's Crossroads. A systematic metal detector survey of the site (31CD1171) was conducted in 2006 by Fort Bragg archaeologists Linda F. Carnes-McNaughton and Charles Heath, with assistance from consultant Jim Legg. Through the piece-plotting of artifacts from this survey, the location of three specific units under Kilpatrick's command were identified. No report for this work was produced, but the field notes, survey maps, and artifacts are on file as project 2003-10 at the Fort Bragg Cultural Resource Management Program (Carnes-McNaughton, personal communication 2016). A second site in Wayne County was located only as a result of NCDOT archaeologists rescuing artifacts from a site disturbed during construction of the Goldsboro Bypass (Paul Mohler, personal communication, 2009 and 2011). This location was neither reported nor given a site number since the relevant materials were turned in by local artifact collectors and lacked specific contexts (Paul Mohler, personal communication 2016). Encampment sites from earlier eras of conflict in American history have proven even more elusive for archaeologists.

When approaching the investigation of Civil War-era barracks at Fort Anderson, a search of the available published and unpublished archaeological literature yielded only a scant handful of sources. The most thorough of these was Geier et al.'s (2006) *Huts and History: The Historical Archaeology of Military Encampment during the American Civil War*. The case studies presented within this text yielded one common factor in regards to the field investigation of encampment sites: large areas must be opened to provide an overview of the entire camp

SHANTIES, LOG HOUSES, LEAN-TOS

and individual tent or structural locations within. Balicki (2011:59–63) demonstrated that a combined approach of background research, discussions with local informants, systematic metal detection, and mechanical stripping have repeatedly proven to be the most effective means to locate such sites, and that systematic shovel testing “almost guarantees that military sites will not be found.” Though location was not the issue for the barracks at Brunswick Town / Fort Anderson State Historic Site, and mechanical stripping is never an ethically recommended option on protected State property not in immediate danger of development, the basic strategy applied: large areas needed to be opened to effectively document the barracks area at Fort Anderson.

As defined by one of the research questions posed in these investigations, the quandary of the Civil War encampments at this site regarded the political and ethnic identity of the occupants (i.e., Federal or Confederate troops, and/or African-American refugees) and the type of structures present. Based on case studies in *Huts and History*, three different possibilities were identified for this period: wooden sheds (“huts”), Sibley tents (also known as “bell tents,” sometimes with wooden stockade bases), and rectangular tents carried by soldiers (either wall, A, wedge, or half-tent, vernacularly referred in the period as “dog tents”). Each of these three types has been historically documented at other locations. Through period drawings and photographs, as well as through archaeological definition, they have all been shown to have chimneys, indicating some form of heat source (e.g., a “Sibley stove” or hearth pad for coals). Based on a summary survey of a number of excavated Federal and Confederate encampments, Balicki (2011:64–67) has defined archaeological signatures for each of these three types of potential domiciles:

- “Huts” is the name given to wooden structures constructed by soldiers during a prolonged or winter encampment. This standard type of structure has been identified as measuring as small as 12 feet by 12 feet (144 square feet) to as large as 16 feet by 16 feet (256 square feet). These may appear more like log cabins or more vernacular structures, though both would likely have daub “chinking” to seal the areas between the logs. The log cabin appearance is generally found at permanent installations, while more vernacular forms tend to be constructed by soldiers in field camps. The foundation of such huts could be of log, stone, or clear ground, and floors could have been of compacted earth, wooden planks, brick, or slate.



Figure 6. An example of a “hut” style barrack from Brandy Station, Virginia, during the winter of 1863.

Some may have had sunken floors, while others were built on the surface. Hearth and chimney locations could vary within each hut in the same encampment, either on the end or side of the structure. The number of occupants could vary based on the size of the “hut,” but the smallest size would house at least six soldiers. Figure 6 is an example of a “hut” style barrack from Brandy Station, Virginia, during the winter of 1863.

- The conical Sibley tent could house up to 20 individuals. Its construction provides a very distinctive circular shape of approximately 16–18 feet in diameter. These were often erected with a single, central wooden post, usually around 12 feet in height. Soldiers would sleep on a prepared earthen or wooden floor, generally with their feet to the center post and their heads by the edge of the tent. During the winter, or in a more prolonged encampment, a stockaded base could be constructed on a series of upright wooden posts in a shallow trench that was backfilled to support and reinforce the base. Even with the absence of posts, it was not uncommon to surround the tent with a small trench to keep the inside sleeping



Figure 7. Winterized Sibley tents at a Union encampment near Stoneman Station in Fredericksburg, Virginia. A rectangular tent is also visible to the right. Photo not dated.

surface dry. A hearth pad, stove, or chimney would be located inside the center of each Sibley tent. A period image of a winterized Sibley tent is shown in Figure 7.

- Rectangular tents of any type can be the most difficult to identify archaeologically, especially in very temporary encampments. These were designed as impermanent structures that were lightweight, quickly packed, and could be carried on the backs of soldiers. These tents were often erected along a central wooden frame, and pins secured the sides into the ground. In more prolonged occupations rectangular tents may be identified by the presence of shallow postholes, features dug around the tents to improve drainage, platforms of prepared earth, or shallow depressions in the soil (either dug or produced by the weight of the soldiers). Rectangular tents were only designed to house two, or at most three, soldiers. Hearth and chimney features would be placed at either end of the

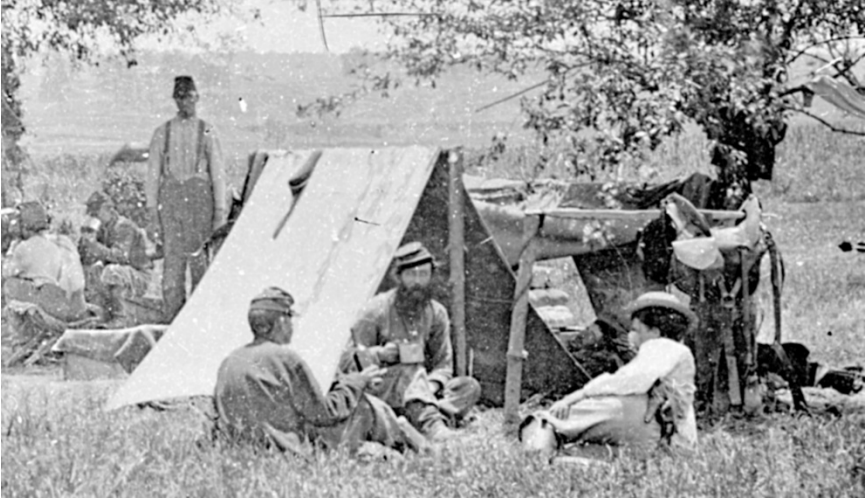


Figure 8. An example of a rectangular tent from Blackburn's Ford at Bull Run, Virginia from July 1862.

rectangular tent, but usually to the rear if one end faced an "avenue" or central pathway of the camp. An example of a rectangular tent shown from Blackburn's Ford at Bull Run, Virginia from July 1862 is provided as Figure 8.

Each of these three types of Civil War-era barracks has been reported to have different signatures through the presence or absence of architectural and/or archaeological features. But would these produce different artifact patterns? In order to try to identify the type of structures used at Fort Anderson, artifact profiles were created for comparable barrack types. These artifact profiles are based on prior excavations at other Civil War encampment sites, and one representative example of each type was chosen in an attempt to most closely match the January–February 1865 overflow at Fort Anderson. While acknowledging the potential differences within barracks based on the type of camp (e.g., permanent, temporary, winter encampment), season of the year, supply networks, length of occupation, officer versus enlisted occupants, soldiers' initiatives, and even time period or phase of the war, the artifact profiles presented in Table 1 represent what we feel are three typical examples of the winter encampment barracks from the above described types. For ease of comparison, these profiles are arranged and presented in a modified version of Stanley South's (1977) Carolina Artifact Pattern.

SHANTIES, LOG HOUSES, LEAN-TOS

Table 1. Comparison of Artifact Totals and Percentages from Excavated Examples of Different Types of Barracks Structures.

Functional Artifact Categories ¹	Wooden "Hut" ²		"Winterized" Sibley Tent ³		Rectangular "Dog Tent" Barrack ⁴	
	N	%	N	%	N	%
<i>Kitchen Group</i>	894	53.7	231	66.0	8	27.6
Ceramics	9	0.5	21	6.0	-	-
Wine / Liquor Bottle	579	34.8	142	40.6	-	-
Pharm. Bottle	14	0.8	1	0.3	-	-
Condiment Bottle	-	-	55	15.7	-	-
Tin Can	-	-	8	2.3	8	27.6
Glassware	-	-	3	0.9	-	-
Tableware	2	0.1	1	0.3	-	-
Kitchenware	290	17.4	-	-	-	-
<i>Bone Group</i>	0	0.0	61	n/a	0	0.0
Faunal/Bone	-	-	42	n/a	-	-
Marine Shell	-	-	19	n/a	-	-
<i>Architecture Group</i>	650	39.0	87	24.9	0	0.0
Cut /Wire Nail	650	39.0	85	24.3	-	-
Window Glass	-	-	2	0.6	-	-
Hardware	-	-	-	-	-	-
<i>Furniture Group</i>	0	0.0	0	0.0	2	6.9
Hardware	-	-	-	-	2	6.9
<i>Arms Group</i>	5	0.3	9	2.6	5	17.2
Shot & Sprue	4	0.2	6	1.7	2	6.9
Percussion Cap	1	0.1	2	0.6	2	6.9
Gun Flint/Spall	-	-	1	0.3	-	-
Gun Part	-	-	-	-	1	3.4
<i>Clothing Group</i>	46	2.8	3	0.9	3	10.3
Buckles	11	0.7	1	0.3	2	6.9
Buttons	32	1.9	2	0.6	1	3.4
Shoe Fragments	3	0.2	-	-	-	-
<i>Personal Group</i>	4	0.2	1	0.3	0	0.0
Personal Items	4	0.2	1	0.3	-	-
<i>Tobacco Pipes Group</i>	4	0.2	3	0.9	2	6.9
Pipes (Ball Clay and Stub Stemmed)	4	0.2	3	0.9	2	6.9
<i>Activities Group</i>	63	3.8	16	4.6	9	31
Construction Tools	2	0.1	-	-	-	-
Farm Tools	1	0.1	-	-	-	-
Storage Items	4	0.2	-	-	-	-
Misc. Hardware	2	0.1	16	4.6	3	10.3
Military Equipment	53	3.2	-	-	6	20.7
Other	1	0.1	-	-	-	-

Table 1 Continued.

Functional Artifact Categories ¹	Wooden “Hut” ²		“Winterized” Sibley Tent ³		Rectangular “Dog Tent” Barrack ⁴	
	N	%	N	%	N	%
<i>Total</i> (minus Bone Group)	1,666	100.0	350	100.0	29	100.0

¹ modified from South (1977).
² data from Winter 1861-1862 (Feature 311 from site 44YO466; Fesler et al. 2006:Table 9.2).
³ data from Structure 2 and associated features at site 44GL358 (Higgins et al. 1995).
⁴ data from artifact catalog sheets of barrack excavated by Stanley South in 1963 at Fort Fisher.

As reported by Fesler et al. (2006), the artifact profile presented for the Yorktown Feature 311 “hut” reveals substantively higher totals in the Architecture group, primarily a result of nails. The Kitchen group, which contained 579 fragments of glass bottles (representing a minimum of 6 bottles) and 290 fragments of kitchenware, such as pans, pots, and kettles (of which a minimum of 6 were observed), may be from the more sustained, continuous occupation through the Winter months of 1861–1862. Complete with a sunken floor, Yorktown Feature 311 met Balicki’s (2011) expected excavation signatures for a “hut.”

The artifact profile for the Sibley tent was abstracted from a Phase III mitigation project of 44GL358, in which a series of archaeological features of such tents and wooden “huts” were documented from an 1862 Union encampment. Given the designation of “Structure 2,” the artifacts from the one complete Sibley tent were excavated from the features of the circular trenches that outlined the tent (features 14, 28, and 161) and the 62 post holes within the trenches for a stockaded base (features 38–43, 46–53, 62–65, 67–70, 80–89, 90, 96–108, and 96–108.) The contents included higher percentages of alcohol and condiment bottles from the Kitchen Group—not unusual for a Civil War soldiers’ barracks—but also a small percentage of nails in the Architecture Group. As used by reenactors, nails are generally not part of a standard Sibley tent, nor would they have been during the Civil War. The tent from 44GL358 was interpreted as having been “winterized,” with interior walls for extra warmth that were likely scavenged from nearby secessionists’ buildings or abandoned military camp dwellings (Higgins et al. 1995:73). Not all Sibley tents, especially during the summer months, would have such artifacts, even in small proportions.

Examples of excavated rectangular tents are even rarer than Sibley tents in the archaeological literature. The only excavated rectangular tent

SHANTIES, LOG HOUSES, LEAN-TOS

that could be identified was from Fort Fisher, down the river from Fort Anderson at the mouth of New Inlet. Identified as Feature F7, Stanley South (1963) excavated the location of a rectangular tent barrack in 1963 as part of the development of Fort Fisher into a State Historic Site. It featured a paltry 29 artifacts, primarily tin cans, a few tobacco pipe and clothing artifacts, and a couple of Minié balls and percussion caps. The lack of architectural artifacts generally speaks to the temporary, impermanent nature of rectangular tents as a barracks structure.

The information contained within these sources and artifact profiles provided our comparative baseline for the features that we expected to encounter during field investigations within the barracks area at Brunswick Town/Fort Anderson State Historic Site. Our expectations were based on the possibility of either: (1) a more long-term occupation if these were Confederate barracks occupied by the soldiers who built and occupied the fort from 1862 through early 1865; or (2) a shorter-term occupation by either Confederate soldiers who regrouped at Fort Anderson from other Cape Fear defensive fortifications in January–February 1865, or Federal soldiers from February–June 1865. In addition to considering the specific archaeological features and artifact profiles that might indicate the type of domicile used, identifying the political identity of the occupants of the barracks may provide an important independent line of data to consider, as different types of domiciles may have been used earlier or later during the war, or may have been more common to either Federal or Confederate troops at different times. As will be detailed in our discussion of the results, a clearer pattern of vernacular wooden structures was identified.

The Barracks of Fort Anderson

The William Peace University archaeological field schools were conducted in the barracks area behind Battery A during May and June in 2009 and 2011. A combined total of 49 college students from William Peace University, Wake Technical Community College, and many other schools across the United States participated in these educational exercises that combined instruction in American historical archaeology and southeastern archaeological excavation techniques. Also in 2009 and 2011, the University of North Carolina at Wilmington's Summer Ventures in Math and Science camps, under the direction of UNC-W archaeology professor Scott Simmons, participated in the investigations



Figure 9. Example of surface evidence of a ballast stone and Colonial brick concentration that represents a Civil War-era barracks chimney base.

for several weeks each year. Over 200 individuals from the Coe Foundation for Archaeological Research, who lent the tools for the field school, as well as local friends and site staff, enthusiastically volunteered their time and trowels for the investigations.

In consultation with the staff of the historic site and John Mintz of the Office of State Archaeology, Beaman crafted the research design for the field school. The first step in this research design was to locate and identify how many barracks chimney bases could be found. A search through the densely overgrown area shown on Twining's and South's maps was conducted in February of 2009. As described by South, these chimney bases appear on the surface of the ground to be small, discrete concentrations of recycled Colonial handmade bricks and ballast stones, as shown in Figure 9. An approximately one-acre area was cleared in March and April 2009, a total of 30 potential barracks features were identified, and these were noted to be arranged in four roughly designed "rows" of barracks off the rear of Battery A (Figure 10).

Over both field seasons, a total of 50 test units of various sizes were excavated, from which 46,149 artifacts were recovered. Despite the effects of both natural and cultural transformational processes, the

SHANTIES, LOG HOUSES, LEAN-TOS

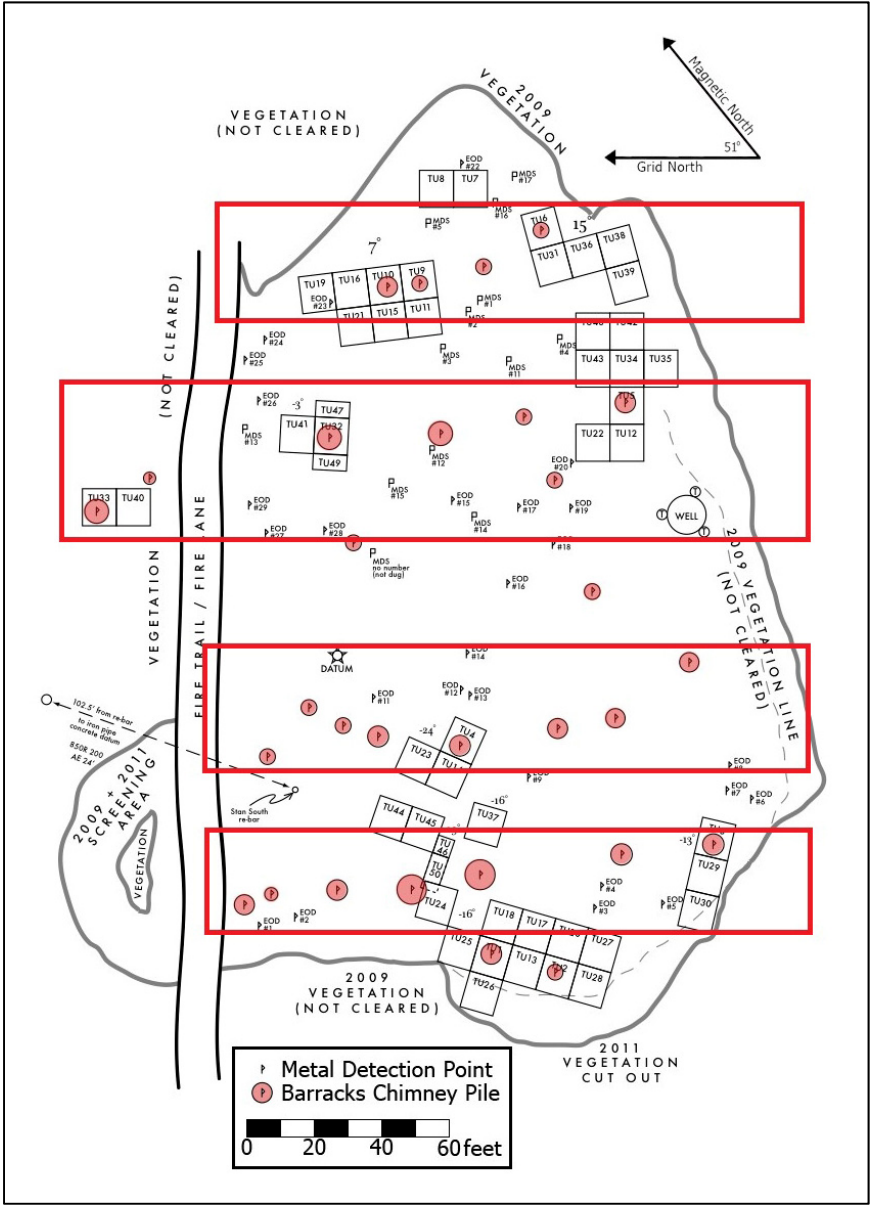


Figure 10. The archaeological base map of the area with the four rows of barracks chimneys that extend west from Battery A highlighted.

stratigraphy of this area was very consistent, with a root mat and top stratum that contained Civil War-era material, a second stratum that yielded Colonial period artifacts, and a large third stratum above subsoil from which prehistoric stone tools and pottery were recovered. The two colonial households (the George Moore House and the Wooten-Marnan House and kitchen) and the remains of three periods of prehistoric occupation (Early Archaic, Early Woodland, and Middle Woodland) that were excavated as part of this project have been covered elsewhere and will not be detailed in this study (Gabriel 2012a, 2012b, 2013; Beaman and Melomo 2016:91–107).

Vernacular Architecture of the Barracks

One of the primary goals of the excavations was to uncover the ballast and brick chimney piles with the purpose and hope of locating undisturbed features such as circular trenches, subterranean floors, hearth pads, fire boxes, or chimney falls—in essence, features that would lend themselves to identification of the type of barracks in the study area. Out of 30 possible candidates, 10 piles were investigated (test units 1, 2, 3, 4, 5, 6, 10, 32, 33, and 37). These were selected based on their distribution across the cleared study area. All showed the same basic details of historical construction: recycled colonial bricks and ballast stones of various sizes, gray mud from the nearby swamp as the “mortar” to hold the hearth pad together, the use of larger stones for a chimney base, and chimneys made from recycled brick, ballast stones, and barrels (from which metal bands were recovered). However, as shown in Figure 11, only Test Unit 10 revealed a partially articulated hearth pad and chimney base.

In order to make comparisons between barracks areas across the study area, artifact profiles were created for several test unit groups: Group 5 (test units 9, 10, 11, 15, 16, 19, and 21), Group 6 (test units 32, 41, 47 and 49), Group 7 (test units 33, 40), and Group 8 (test units 4, 14, and 23). Shown in Figure 12, these four groups on the western side of the site were specifically chosen as the most promising ones from which to obtain primarily Civil War-era profiles. This is based on the lack of colonial-period materials, especially generic bottle glass, that were sometimes intermingled with Civil War materials in other test unit groups within the study area due to site transformational processes. The artifact profile for South’s N18 barrack was included for comparison of a previously defined wooden hut style of barrack. These comparative profiles are summarized in Table 2.



Figure 11. Excavation of test unit 10, with articulated hearth pad and visible chimney fall. The brick bats that comprise the hearth pad were set in gray mud, presumably recovered from the nearby swamp to the west.

As presented, the Architecture and Kitchen artifact groups are the most dynamic and different within the five barrack groups. Within the Architecture group, *all these areas revealed the presence of cut nails and spikes in sufficient quantities to argue construction of wooden structures.* In addition to the bricks and ballast that make up the hearth pads and chimney bases, the appearance of window glass in several of the barracks, especially from groups 6 and 8, may be a result of scavenging for building material from the colonial structures adjacent to the study area. The Kitchen group yielded no evidence of pots, pans, or cooking implements, nor eating utensils. It did reveal varied quantities of glass fragments from liquor and condiment bottles. Additionally, the extremely high number of ceramic artifacts in groups 6 and 8 may not all be specifically related to the soldiers' occupation, but rather the African-American refugee occupation, as will be addressed in consideration of the occupants below. Though minor differences in artifact counts exist, the Furniture, Arms, Clothing, Personal, Tobacco, and Activity groups fell within similar and expected behavioral ranges within the modified Carolina Artifact Pattern (South 1977).

A review of period accounts of the overflow at Fort Anderson may suggest explanations to bridge the “middle range” between the static

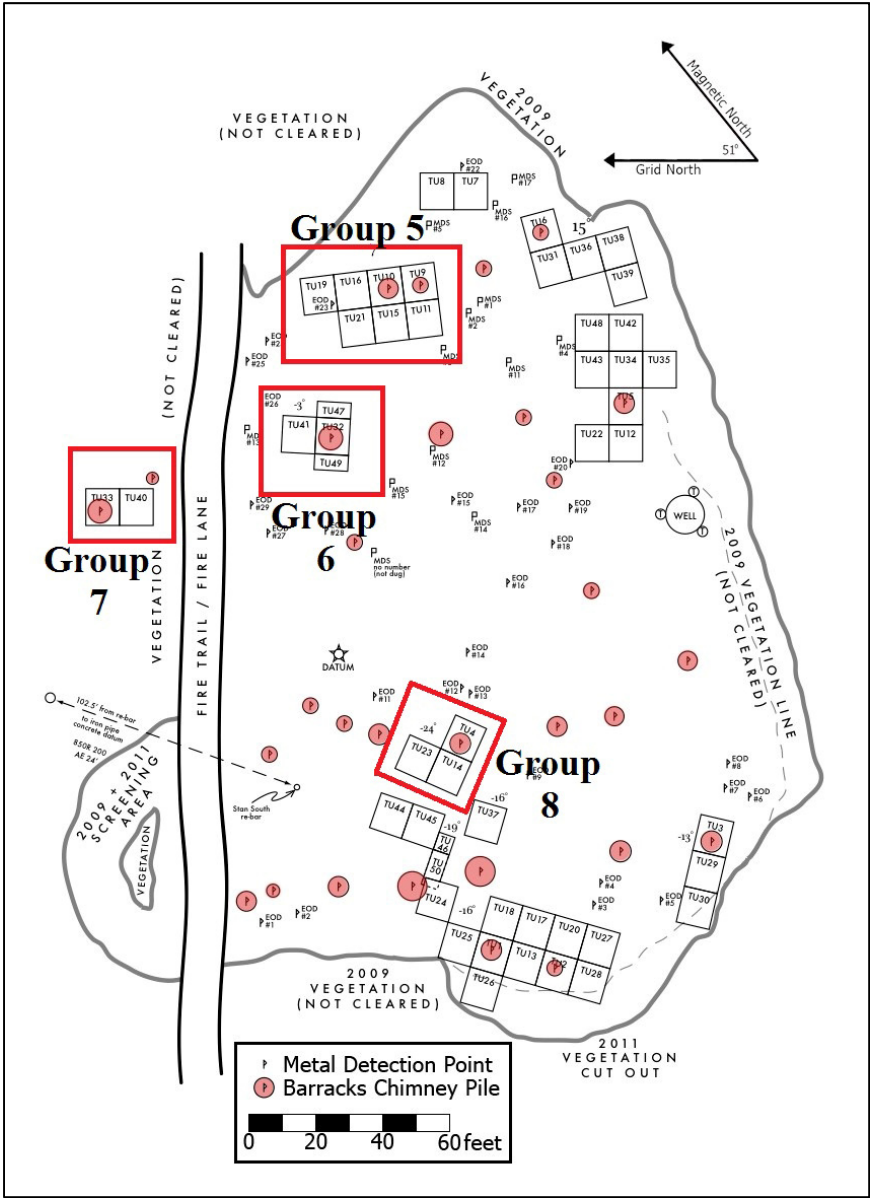


Figure 12. Archaeological base map highlighting the groups of test units that were used to construct the barracks artifact profiles shown in Table 2.

Table 2. Comparison of Artifacts Excavated from Barrack Groups 5, 6, 7, 8, and South's N-18 Barracks Chimney.

Function Artifact Categories (modified from South 1977)		Group 5 Barrack			Group 6 Barrack			Group 7 Barrack			Group 8 Barrack			South's N-18 Barrack Chimney		
Group	Class	N	%		N	%		N	%		N	%		N	%	
<i>Kitchen Group</i>	Ceramics	26	25.2		105	56.8		43	70.5		403	68.3		56	11.6	
	Wine/Liquor Bottle	17	16.5		60	32.4		23	37.7		247	41.9		6	1.2	
	Pharm. Bottle	8	7.8		42	22.7		9	14.8		150	25.4		45	9.3	
	Glassware	1	1.0		-	-		9	14.8		5	0.8		5	1.0	
<i>Bone Group</i>		-	-		3	1.6		2	3.3		1	0.2		-	-	
	Faunal/Bone	129	n/a		31	n/a		5	n/a		293	n/a		0	n/a	
<i>Architecture Group</i>	Marine Shell	120	n/a		31	n/a		-	-		18	n/a		-	-	
	Window Glass	56	54.4		66	35.7		15	24.6		118	20.0		416	86.0	
	Cut/Wire Nail	-	-		50	27.0		2	3.3		56	9.5		0	-	
	Cut/Wire Spike	51	49.5		13	7.0		13	21.3		55	9.3		408	84.3	
<i>Furniture Group</i>	Hardware	2	1.9		3	1.6		-	-		6	1.0		7	1.4	
		3	2.9		-	-		-	-		1	0.2		1	0.2	
		1	1.0		1	0.5		1	1.6		0	0.0		0	0.0	
	Hardware	1	1.0		1	0.5		1	1.6		-	-		0	-	
<i>Arms Group</i>		6	5.8		2	1.1		1	1.6		7	1.2		2	0.4	
	Shot and Sprue	4	3.8		2	1.1		1	1.6		3	0.5		2	0.4	
	Gun Flint/Gun Spall	2	1.9		-	-		-	-		1	0.2		-	-	
	Percussion Cap	-	-		-	-		-	-		3	0.5		-	-	
<i>Clothing Group</i>		7	6.8		3	1.6		0	0.0		13	2.2		0	0.0	
	Buckles	1	1.0		-	-		-	-		1	0.2		-	-	
	Buttons	5	4.9		3	1.6		-	-		11	1.9		-	-	
	Straight Pins	-	-		-	-		-	-		1	0.2		-	-	
<i>Personal Group</i>	Shoe Fragments	1	1.0		-	-		-	-		-	-		-	-	
		0	0.0		0	0.0		0	0.0		2	0.3		0	0.0	
	Personal Items	-	-		-	-		-	-		2	0.3		-	-	
		5	4.9		5	2.7		1	1.6		39	6.6		5	1.0	
<i>Tobacco Pipes Group</i>	Stub Stemmed (Reed Pipes)	5	4.9		3	1.6		1	1.6		39	6.6		5	1.0	
		2	1.9		3	1.6		0	0.0		8	1.4		5	1.0	
	Storage Items	1	1.0		3	1.6		-	-		1	0.2		1	0.2	
	Misc. Hardware	-	-		-	-		-	-		1	0.2		1	0.2	
<i>Activities Group</i>	Military Equipment	-	-		-	-		-	-		6	1.0		3	0.6	
	Other	1	1.0		-	-		-	-		-	-		-	-	
		103	100.0		185	100.0		61	100.0		590	100.0		484	100.0	
	<i>Total (minus Bone Group)</i>															

archaeological record and the dynamic human behavior that initially created it. The artifact patterns of wooden hut barracks, archaeologically determined to be without subfloors or post features, is generally supported by historical accounts of soldiers from the overflow period. The documentary evidence suggests that there was likely an assortment of structures, many wooden, in use at Fort Anderson from mid-January to mid-February of 1865:

- On January 28, William Calder (1865) wrote his mother from Fort Anderson: “Fortunately our position of the lines is just in front of the quarters at the Fort, and we have stopped the gaping cracks in a room of a log house making it comparatively comfortable. It has the advantage of a brick chimney in which we keep a blazing fire all the time. This we use as an office, staying in it all day. At night we sleep in a shanty I have constructed of planks, logs, and sand near the breastworks on a pile of pine straw. This is really warmer than the house, for no air can circulate under us.... The Maj. succeeded in saving a bed in which he sleeps in one side of the shanty, while the Col. and I sleep on the other side on a pile of blankets.”
- In this same letter, Calder (1865) observed that, “The men and company officers sleep along the lines of the breastwork in whatever rude [sic] shelters they can construct.”
- D. MacRae (1865) described his quarters at Fort Anderson in a letter to Julia dated February 1 as “an edifice about three times the size of your chicken coop with a dirt floor and no door or enclosure on one end.”
- An unattributed account from the 3rd Battalion of North Carolina Light Artillery (“Moore’s Battalion”) notes, “The first days at Anderson were certainly spent becoming acquainted with their new quarters, which in Captain Badham’s case consisted of a lean-to that slept himself. A far cry from the comforts of Bald Head Island, when the rain came from behind the lean-to, the men got by very well—when in front, terribly” (Keith 2007:188).
- Zaccheus Ellis (1865) wrote his sister on February 12 that, “We are getting along pretty well now, and have made ourselves very comfortable, having built a pretty good shanty with a chimney, and about three feet of nice pine straw to sleep on and we are warm as a toast.”

SHANTIES, LOG HOUSES, LEAN-TOS

- A letter dated February 12 from Charles Bahnson (1865) to his father describes shells dropping on the fort during the bombardment, and specifically mentions shells that hit “a house in which I formerly stayed, but now occupied by Maj. Holland,” as well as one that struck “Col. Hedrick’s house,” though neither shell exploded.
- Captain Tripp wrote of staying in a “little house” about the size of a garden shed, with three soldiers sleeping in a bunk, and two more sleeping on the floor under the bunk (quoted in Fonvielle 1999:34, 2015:82).
- “...a lean-to of pine poles and planks in back of the trenches...” (quoted in Fonvielle 1999:34, 2015:82–83).
- Not all soldiers who arrived with the overflow were able to initially be accommodated or able to construct or share a barrack. Archibald D. McEwen (1865) wrote to his sister Kate on January 21, stating “I slept in the stables last night and the night before.”

Though none of these accounts can specifically address the area behind Battery A, all do mention some form of constructed structure instead of a Sibley tent or a half tent. The accounts range from the mention of a “house,” which may represent a structure constructed and used as a residence by officers before 1865, to shanties, log houses, lean-tos, and “rude” (presumably “crude”) constructed shelters.

We are confident that the artifact patterns from barracks in Groups 5, 6, 7, and 8 presented in Table 2 reveal adequate quantities of cut nails, as well as the occasionally recovered piece of clay daub from sealing chinks between boards or logs of wooden structures (from test units 1, 2, 3, and 14 in the 2009 investigations), to indicate the presence of rudimentary wooden structures over Sibley tents or half tents. Unless they were winterized with clearly defined archaeological features, such as Sibley structure 2 from Gloucester Point, Virginia (44GL358; Higgins et al. 1995), it is extraordinarily unlikely any form of tent would have used regular cut nails in any quantity, much less the numbers of cut nails recovered in these areas. However, we must acknowledge that the artifact patterns, combined with the lack of associated archaeological features (such as a subfloor or post holes), do not allow us to determine which of these styles of wooden structures may have been the specific barracks structures that were excavated behind Battery A.

It is most likely that there was no specific pattern or template by which the numerous wooden barracks structures were built during the initial overflow of Confederate troops into Fort Anderson. This may be based on the availability of materials, such as planks, logs, or nails, or to the efforts of individual soldiers. Even before 1865, at other winter encampments from either Federal or Confederate sites, photographs and documents reveal wide vernacular variations in styles of wooden huts. Nelson (1982:83, 2006:184) notes that the predominant form of a winter barrack for a Union soldier was “a single-room log hut of horizontally laid, end-notched log walls with a single doorway set in the gable end or the side wall.” Yet, variations regularly existed in the size of the hut, the occasional use of shorter or longer vertical posts to anchor or weatherproof the structure, the excavation of a foundation trench, the presence of sub floors, the styles of roof frames and rafters, and, as shingles were rarely available, the different materials used for roofing (Nelson 1982:83–84, 2006:184–186). Furthermore, in a situation such as the overflow period at Fort Anderson, when supply lines were cut and winter shelter was needed, the documents suggest that soldiers made do with whatever they could scavenge and construct to keep them dry and warm. It is these potential differences within the variety of wooden structures built and used that makes the construction of a predictive quantitative artifact pattern for barracks within the overflow area of Fort Anderson especially difficult if not impossible.

As previously shown in Figure 11, the barracks’ chimney features occur in somewhat orderly rows, reinforcing South’s (2005:163–164) earlier assertion that this area was a military encampment. Other evidence suggest that this was a temporary encampment for the overflow of Confederate soldiers or Federal troops. This includes the relative dearth of Civil War-era artifacts within the barracks structures and the lack of architectural features such as subfloors or post supports, as seen in wooden huts at other Civil War-era encampment sites. These lines of evidence suggest a limited investment by the soldiers in the construction of their barracks, perhaps reflecting their awareness that their stay may be a short one. It is also likely that the African-American refugees who occupied the fort later in 1865 may have reused the barracks, or repurposed wood, ballast, and bricks to construct new ones.

Who Occupied the Barracks Area?

Another primary goal of the research was to attempt to determine who occupied these barracks. Fort Anderson was a Confederate defensive site between 1862 and 1865, and so the most likely inhabitants



Figure 13. The two Confederate uniform or jacket buttons recovered in the investigations. The one on the left is from a Confederate Infantry soldier's uniform, and the one on the right is a North Carolina state seal button.

of any barracks features on site would have been Confederate soldiers. The African-American laborers who helped construct the fort's earthworks were also perhaps housed in the fort for some time during 1862 and 1863. However, once the fort fell, Union soldiers also occupied the fort from February–June 1865. Beyond the military occupants, formerly enslaved African-American refugees were also reported to have lived at the fort for a brief period in 1865 (Howard 2009). Any particular barrack may have been occupied by any combination of these populations over time.

Excavations were conducted in and around what would have been individual barracks structures to help address this goal of who specifically occupied this area. The only artifacts recovered that may yield insight into this question are a total of six buttons from uniform coats and jackets. Two of these buttons were from Confederate uniforms. One has a large capital "I," indicating the button was from a Confederate Infantry soldier's uniform. A North Carolina state seal button from a Confederate uniform was also discovered near test units in Group 5 through a systematic metal detector survey of the study area. This state seal button is shown with the Confederate Infantry button in Figure 13.

The other four buttons were from Union army uniforms. These included: one with an eagle perched on a Federal flag; a General staff officer "War Eagle" cuff button; a "General Service" coat button; and an eagle holding a shield with an "I" inside from an infantry soldier's coat. No additional artifacts were discovered that would indicate specific

army or other unit, such as a belt buckle or special button. Based on this minimal evidence, it can only be suggested that both Confederate and Union soldiers occupied the barracks, or at least performed some activity in this area, at different times.

As noted above, African Americans were also present on the site in three different episodes: initially, as slave labor during the colonial era; then, as labor for the construction of the fort and as stevedores between 1862 and 1865; and finally, as refugees following General Sherman's campaign toward the close of the Civil War. While no direct evidence of any African Americans was recovered from excavations in the research area, analysis of the artifacts recovered may indicate their presence at the site. One category of remains that suggests this includes three glass beads recovered during the 2011 field season. Glass beads, and particularly blue ones, are prolific throughout African-American archaeological sites throughout the southeastern United States (Stine et al. 1996). These artifacts may indicate a possible refugee presence in the research area; however, they could also reflect the documented presence of enslaved African Americans during the colonial era. Unfortunately, no other specific artifacts were identified that can be directly related to African Americans.

However, there may be a material pattern beyond any single type of artifact to reveal the presence of the refugees. The ceramics in the study area that can be dated to after the colonial period and prior to the Civil War may be telling. The quantity and diversity of these ceramics found in association with the barracks structures in the study area far exceed what are found at comparable barracks sites (e.g., the typical barracks shown in Table 1). Most barracks at other sites contain a few sherds—generally a dozen or fewer, of one or possibly two different types of refined earthenwares. Notably, from the 10 barracks features excavated in the research area, a total of 591 fragments of plain and assorted decorative pearlwares (n=321), whitewares (n=140), hard paste porcelains (n=69), cream-colored wares (n=54), and yellowwares (n=16) were recovered, far exceeding the average barrack ceramic assemblage. One example of the unusual assortment of ceramics excavated in the study area is provided as Figure 14, which shows sherds of lavender transfer-printed whiteware found in test unit 33.

It is necessary to consider that the Confederate soldiers who arrived at Fort Anderson in early 1865 from Forts Caswell, Holmes, and especially Johnston would have likely had access to such ceramics in

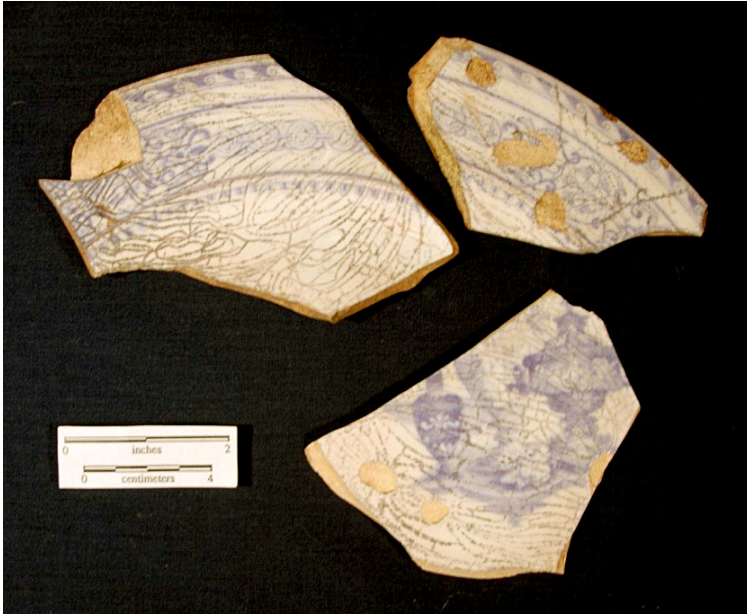


Figure 14. Fragments of a lavender transfer-printed plate from a barrack area in test unit 33.

Smithville (now Southport). However, given the hastiness of their abandonment and arrival to Fort Anderson, it is doubtful that they would have seen such ceramics as materially necessary as their military equipment, or other desired items such as the bottles of liquor or condiments so readily found at most barracks sites. With the possible exception of high-ranking officers, it is also unlikely that a well-supplied Union Army would have had a large quantity or such a diversity of ceramics. If the rank-and-file Confederate or Federal troops did not have or have need for the assortment or quantity of ceramics found in the barracks, then how did the refugees acquire them? It is possible that the recently liberated refugees would have brought them from the plantations of their bondage, or they collected them around the areas of Fort Anderson.

While this is more a circumstantial and speculative discussion than reported historical fact, given the comparative data of minimal ceramic fragments in barracks structures occupied by soldiers at other encampment sites, it is reasonable to infer that the larger quantities and diversity of European white earthenwares of the ante-bellum period within the barracks structures at Fort Anderson were associated with the African-American refugees. Since the refugees continued to occupy Fort

Anderson and the surrounding plantations for an unspecified time after their arrival in mid-1865, some turned to the hazardous endeavor of scavenging iron shells from the fort as a way of financial gain (*The Statesville American* [Statesville, North Carolina], February 28, 1870). With earned currency, consumable goods would have become more available and attainable. Over time, the newly free African Americans likely constructed more substantial housing outside of Fort Anderson. But at the time of their initial arrival in the area, the existing barracks of early 1865 were the most likely places of settlement for the African-American refugees and their material goods, whether they were brought or collected.

The Material Life of Soldiers

Another primary goal of these investigations was to extend beyond the previous archaeology at Fort Anderson concerning design and defense and to explore the material life of the soldiers who were stationed there. This research goal was designed to evaluate functional types of recovered artifacts and what they may reveal about life within these small quarters. Considering the varieties of materials, and particularly personal items, that could theoretically be visible in a barracks context, we were particularly interested in exploring anthropological questions of the social class and ethnicity of the inhabitants of the barracks, and also perhaps constructions of masculinity in this exclusively male space. The discussion that follows addresses what can be learned about the life of the soldiers through an analysis of the kitchen group artifacts, the faunal evidence, and one unique personal item that was discovered in the excavations.

To our disappointment, despite the recovery of 46,149 artifacts over the 2009 and 2011 field seasons, little distinctive material culture related to the soldiers' lives was present. Very few personal items were found which soldiers used to pass the time, or material mementos recovered which soldiers would have carried to remember loved ones back home. Furthermore, due to the relatively short occupation at the fort and the effects of site transformational processes, limited faunal or ethnobotanical remains were recovered that could be specifically linked to the Civil War-era occupation, nor remains of pots, pans, or kettles in which to cook their meals. However, a number of barracks-related domestic artifacts were retrieved, including fragments of Civil War-era ceramics and bottles, Prosser buttons, stub-stemmed pipes, and cut nails. Over a quarter of the period artifacts recovered were associated with the



Figure 15. Unfired friction primers. According to the 1863 Confederate Ordnance Manual, “A friction primer for cannon is a small brass tub filled with gunpowder, which is ignited by drawing a rough wire briskly through friction composition, contained in a smaller tube inserted into the first, near the top, and soldered at right angles to it. A lanyard, with a hook attached, is used to ignite the primer.” A number of both used and unused friction primers were recovered in the barracks area investigations and metal detector survey.

kitchen group. As would be expected, a number of military artifacts were also recovered, such as percussion caps and multiple unfired friction primers (Figure 15).

The variety of artifacts recovered from the barracks area does underline that in addition to being engaged in military activities, the residents of Fort Anderson were indeed engaged in numerous tasks of everyday life. These tasks included gathering and preparing food, maintaining shelter, and mending clothing. Many of these activities would have been very familiar to the soldiers outside of the military context. However, as noted by Salisbury and Stine (2016), some of these “domestic” tasks were typically performed by women and thus would

Table 3. Summary Table of Faunal Material from Barracks Area West of Battery A at Fort Anderson (abstracted from Compton 2016:G-42 [Table 4]).

Animals	MNI		Biomass	
	N	%	N	%
Fishes	4	23.5	291.51	6.6
Turtles	1	5.9	283.17	6.4
Snakes	1	5.9	1.62	< 0.1
Wild birds	3	17.6	136.76	3.1
Domestic birds	2	11.8	62.18	1.4
White-tailed deer	2	11.8	1,022.50	23.2
Other wild mammals	1	5.9	32.15	0.7
Domestic mammals	3	17.6	2,585.83	58.6
Total	17	100.0 %	4,415.72	100.0 %

have implied new roles for the enlisted men. The presence of medicinal bottles in the barracks area indicates the challenges soldiers faced in staying healthy, and the presence of liquor bottles, ginger beer bottles, and tobacco pipes suggests the simple pleasures that soldiers sought while stationed at Fort Anderson.

Until the Federal campaign for Wilmington toward the close of the war, historic accounts describe life at Fort Anderson as quiet and boring. Fonvielle (1999:21) notes that soldiers are described as spending their off-duty time “hunt[ing] the vast piney woods surrounding the fort, fish[ing] in the Cape Fear and Orton Pond, or wander[ing] about the ghostly remains of Old Brunswick.” An analysis of the animal remains discovered from Civil War contexts in the barracks area reflects the soldiers’ reported food gathering behavior. Though very limited, Matthew Compton (2016) analyzed the Civil War faunal collection. Compton noted that a mix of wild and domestic animals characterize the faunal collection. Table 3 summarizes these faunal remains from the Civil War period in the barracks area. When compared to faunal samples from other Civil War contexts, the proportion of wild taxa represented at Fort Anderson is notably higher.

SHANTIES, LOG HOUSES, LEAN-TOS

While hunting and fishing may have initially been a way that bored soldiers passed their time, as the Civil War progressed and Confederate supply lines were increasingly threatened, the hunting and fishing of wild game took on a more critical role. As Fonvielle (1999:35) notes, soldiers “took to hunting, deer, rabbits, wild turkeys, and even [wild] cattle and sheep surrounding the fort. They also foraged for pigs, chickens, and goats on farms and plantations some distance away.” One soldier even reported, “All the meat we get we have to hunt in the woods” (Fonvielle 1999:35). Both leisure and necessity may have contributed at different times during the war to the greater use of wild game by the inhabitants of Fort Anderson compared to their military contemporaries.

The relatively few animal remains discovered in the study area, and the proportion of wild game within the sample, may provide further evidence that the barracks west of Battery A represent the overflow of Confederate forces following the fall of Fort Fisher. If the barracks were occupied for a short period of time by Confederate forces who were on the move and whose supply lines were being cut, or by Federal soldiers who were only at Fort Anderson a few days before moving towards Wilmington, then a relatively small and diverse faunal sample could be expected.

While an analysis of the faunal evidence provides some insight into the lives of the soldiers generally, the retrieval of personal artifacts would help to tell a richer story. Unfortunately, with the exception of one unique artifact discussed below, personal artifacts were nearly absent from the materials recovered over two field seasons. The near absence of personal or non-military artifacts recovered may serve as evidence of the absence of these items from this barracks area. The relative absence of such materials may provide a unique line of evidence in support of the hypothesis that the soldiers who occupied these barracks had escaped other local fortifications with nothing more than the clothes on their backs. The potential variety of wooden huts in this area (none of which contained subfloor “cellars”), the general absence of personal objects, as well as the limited quantity of kitchen artifacts, faunal remains and military items may indicate a hastily constructed and brief occupation for the overflow Confederate soldiers in January 1865. It is also possible this area was used briefly by the Union forces, the vast majority of which stayed in the fort only a few days before pushing forward to Wilmington. While interpretations of the absence of evidence are necessarily speculative, this argument is supported by the other lines of data that have been provided.



Figure 16. Fragments of the cloisonné (glass over copper base) “strawberry” pendant recovered from Civil War context in test unit 31.

Despite the relative lack of personal and non-military artifacts discovered, one of the most unique artifacts was a personal one, and one that raises interesting questions about gender in the context of a military barracks. In 2011, a tiny copper and glass artifact was recovered from Civil War context in Test Unit 31. The artifact was a hemispherical copper alloy object, enameled with glass to resemble the top half of a strawberry. Shown in Figure 16, the intricate painting clearly resembled the leafy cap of the berry; the red portion was also accented with black dots to represent tiny seeds. The interior of “the strawberry” is also enameled in a white engobe, most likely to make the exterior colors stand out. The metallic fastener loop is embossed with a vining pattern. Bits of gilding are visible on the exterior of the loop, which is secured to the main body of the strawberry by a splayed cotter pin. By no surprise this delicate object also exhibits minute cracks and chips where the enamel has spalled off. The base of the cap has a finished edge. The lower portion of “the strawberry” was either metal or cloth but did not survive burial in the ground.

Research into this artifact and discussion with colleagues suggested that “the strawberry” is part of a chatelaine, based on existing historic museum samples. A chatelaine was an accessory used by women to keep certain useful tools close at hand. These small tools were attached to chains that could be attached to the waist of a dress. Some useful or

fragile items were kept in small metallic containers that attached to the rest of the chatelaine, while other items, such as scissors or a notebook could be directly attached with a chain. If the chatelaine contained mostly sewing implements, there was sometimes a small pincushion or needle sharpener made of cloth and metal. The construction material of the artifact, as well as the context in which it was recovered, suggests that it dates to the nineteenth century, and therefore likely corresponds to the Civil War occupation of the site. The lower portion of “the strawberry” was thus probably a cloth pouch containing sand or sawdust to help hold pins and needles (Smith and Beaman 2016).

There are a number of ways that this artifact may have found its way into the archaeological record, and thus how its significance may be interpreted. One possibility is that it was lost by a woman visiting one of the soldiers at Fort Anderson. As a muster station, throughout much of the war Fort Anderson was manned by soldiers from the surrounding counties. Until the close of the Civil War, duty at the fort was safe and fairly routine, making it possible for family members or friends to visit. As discussed by Salisbury and Stine (2016), there are two historical records that lend support to the idea of female visitation to the site. During the second half of 1864, two military notices prohibited visitors to the fort, and the latter notice specifically forbade “ladies” visiting. These notices imply that prior to the end of 1864, females were visiting the fort and presumably the men stationed there. Salisbury and Stine (2016) note, “Additional historical research is needed to determine if these were wives, lovers, sisters, mothers, or particular kinds of working women such as laundresses or prostitutes.” Regardless of their specific role, the strawberry chatelaine artifact may provide material evidence of such female visitors.

Another possible explanation for the presence of “the strawberry” in the barracks context is that a family member or friend gave this small item to a soldier before he left home for service. Not only would it serve as a memento of the person left behind, but it might also have provided an important function. Salisbury and Stine (2016) note that in the context of a military fort, soldiers might necessarily have to adopt behaviors not typically ascribed to their gender. A male soldier would need to mend his own clothing, and a means to secure his pins and needles in a chatelaine might be particularly helpful. Establishing with great specificity the use and depositional history of this one fragmentary artifact is necessarily challenging; however, it does provide an important

focus for questions regarding the everyday lives of the soldiers, and their visitors, at Fort Anderson.

The accumulated evidence suggests that the barracks area west of Battery A may have been a relatively ephemeral location for the many and diverse groups of soldiers who spent time at Fort Anderson, and thus may provide only limited insight into their lives. However, the evidence that was recovered both supports and adds texture to the historical documentation, and also raises new questions.

A Brief Metal Detector Survey

Having a defined artifact pattern of hut structures for barracks during the 2009 field school, the 2011 field school provided an opportunity to locate the other larger set of Civil War barracks shown on Twining's map of the fort. While no above-ground evidence existed for these barracks as did the chimney bases in the wooded area, an overlay of Twining's map with the modern plan of the site revealed their general location near the Visitor Center and parking lots. With the assistance of the Eastern North Carolina Metal Detecting Association, students conducted a systematic metal detecting survey near the Visitor Center and modern parking area using the Alamance Template (Mintz et al. 2011). Contiguous grids of 100 ft. by 100 ft. were established, then segmented into 4x4-ft squares with specific alpha-numeric grid coordinates. All metal objects, from cut and wire nails to pull tabs and pop tops, were piece-plotted and saved. A total of seven grids were completed in a two-week period of the field school. The recovery and analysis of over 3,000 metal artifacts yielded very few that dated to the Civil War period. A few of the more exciting artifacts found were a Confederate officer's coat or jacket button not worn by one less than the rank of lieutenant (Figure 17), a period stirrup, a US Naval watercap cannonball fuse, and a nine inch "pie shell" from an exploded ordnance during the naval bombardment. Unfortunately, no concentrations of Civil War-era material indicated the presence of what may be individual barracks. It is possible that the Federal soldiers used rectangular tents during their brief occupation of the fort, which would have left minimal evidence. It is also possible that the area that was metal detected had been too disturbed from the construction of the entrance road, parking lot, and Visitor Center. This method did prove extremely effective in piece-plotting artifacts in the search for Civil War-era concentrations, and is recommended for further use in exploring the remaining barracks features between the Visitor Center and Battery A.



Figure 17. A Confederate uniform button that would have not been worn by someone with less than the rank of lieutenant was located in Metal Detector Survey Grid A near feature N18.

Discussion and Conclusion

Over two field seasons, a total of 30 ballast and brick barracks features were identified and mapped, and the locations of 10 were archaeologically investigated, but only one showed evidence of an articulated hearth pad and chimney base. Beyond the ballast and brick surface features, no archaeological features were found to clearly identify the barracks structures as compared to winter quarters at other Civil War barracks sites (e.g., post holes or subfloors). However, the analysis of artifact patterns associated with several barracks features aligned with the documentary evidence in supporting the hypothesis that the barracks were temporary wooden “huts.” These lines of evidence, and others, suggest that these huts were likely initially erected as overflow housing for Confederate troops abandoning other Cape Fear defenses in January 1865 after the fall of Fort Fisher. The analysis of the artifacts recovered suggests that both Confederate and Federal soldiers may have occupied the barracks area at different times. It is extremely likely that formerly enslaved African-American refugee populations used this area for at least a brief time as well. A more comprehensive interpretation of the material life of the soldiers and refugees was limited by the materials recovered. However, an analysis of the kitchen group artifacts and the faunal evidence, in conjunction with documentary sources, offered some insight into the daily lives of the soldiers at Fort Anderson, who clearly

spent some time self-provisioning. Most significantly, the retrieval of a unique personal item, a woman's cloisonné pendant, highlights the documented presence of female visitors to the site, providing a unique contribution to the interpretation of life at Fort Anderson. This information has been added into the interpretation presented in tours, and many of the recovered artifacts were integrated into a special museum exhibit as part of sesquicentennial commemoration activities at Brunswick Town / Fort Anderson State Historic Site.

After conducting two field schools in this research area, we believe that the archaeological knowledge that can be gleaned from the primary research area behind Battery A has been virtually exhausted. While the fieldwork conducted in 2011 offered some unique and important findings, for several of the research questions the work seems to have been largely redundant to the findings of 2009. Redundancy in research is not problematic, however, as the redundancy of 2011 helped to confirm conclusions about the Civil War barracks area reached tentatively in 2009 and to further our understanding of the life of the soldiers and possibly the African-American refugee presence. Furthermore, the research conducted in 2011 shed important new light on the colonial period in the research area and to a lesser degree the prehistory of the research area. While more relevant materials undoubtedly lie in unexcavated areas, we feel at this point that the findings of 2011 do not warrant additional research in this area concerning these periods. Based on our conscious attempt to preserve archaeological and architectural features in place, the barracks chimney hearth pads and chimney bases uncovered in the 2009 and 2011 excavations remain safely reburied after their archaeological documentation and are available to future researchers with new methods and advanced research questions.

The field schools of 2009 and 2011 successfully fulfilled the overarching goals of their planned research: to better define the remnants of the Civil War barracks area and to provide interpretive information through investigation of these remains. This research has provided important knowledge useful in developing interpretations of the Civil War activities at the site, has recovered a wealth of Civil War-era artifacts that may be useful in developing future permanent exhibits, and has uncovered and documented barracks features that may be useful for interpretive displays or reconstruction in the future. Yet this research has reminded us that there is still a wealth of archeological knowledge that lies beneath the surface at Brunswick Town / Fort Anderson that can

benefit the public. Through the field schools we have learned that this knowledge can be recovered at little cost to the public and can be done in a manner that is exploratory and that maintains the overall integrity of the site and its resources. Further investigations are recommended in the barracks area in the vicinity of the Visitor Center based on the metal detector survey conducted in 2011. Excavations in this area could be directed to test the validity of the metal detector survey in identifying barracks features, and could provide useful comparative data with the barracks area west of Battery A. Systematic test pits in the woods south of the current research area could potentially identify additional features associated with the barracks as well as potential related activity or refuse areas.

Other permanent features of Fort Anderson also have yet to be located or addressed archaeologically, such as permanent barracks, stable, hospital, quarantine warehouses for blockade runners' imported wares, and the barracks for the stevedores, workers who loaded and unloaded blockade runners' ships. In his recently completed research design for Fort Anderson, Hildebran (2017) also advocates comparison of Fort Anderson's construction and design to military treatises of forts of the period. The commercial area of Brunswick could contain evidence of the warehouses and quarantine station. This warehouse and commercial district has not been investigated to date. Research there, as well as at other locations such as the river side of Battery A, could provide important interpretive information about perhaps the most important aspect of any human presence at Brunswick Town and Fort Anderson—the relationship to the Cape Fear River.

Notes

Acknowledgments. This study is not the sole effort of an individual but a collaborative endeavor, for which the authors thank for their valuable encouragement, advice, and assistance, and hope this study reflects well on their efforts.

Our most valuable acknowledgment goes to the hundreds of people who participated in the archaeological process of field excavation and laboratory processing that made our study possible. The 49 students of the 2009 and 2011 William Peace University Field Schools and the 24 students in the 2009 and 2011 University of North Carolina Wilmington Summer Ventures and Science and Math Camp deserve special recognition for their constant enthusiasm and tireless hard work, despite the hot and humid conditions with no shortage of ticks and snakes. Other volunteers in the field represented students, faculty, and dedicated individuals from Cape Fear Community College, The Coe Foundation for Archaeological Research, East Carolina University, the Eastern North Carolina Metal Detector Association, Friends of Brunswick Town/Fort Anderson, North Carolina State University, The George Davis Chapter of the Sons of Confederate Veterans, staff members of Brunswick Town/Fort Anderson State Historic

Site, University of North Carolina Wilmington, Wake Technical Community College, William Peace University, Wilson Community College, and Zebulon Middle School. Dedicated volunteers at the Office of State Archaeology Research Center in Raleigh worked equally as hard in their diligent processing of the recovered artifacts in 2009, as did Jennifer Gabriel and Hannah Smith of East Carolina University for the 2011 artifacts. All of these volunteers are individually acknowledged in the two field reports (Beaman and Melomo 2011, 2016), though space prohibits doing so here.

This study would also not have been possible without the permissions, oversight, and guidance of the North Carolina Department of Natural and Cultural Resources, specifically Stephen Claggett, Dolores Hall, and John Mintz of the Office of State Archaeology. Also critical to our work was the cooperation and enthusiastic support of Brenda Bryant (former Site Manager), Jim McKee (former interpreter and current Site Manager), and the rest of the staff of Brunswick Town / Fort Anderson State Historic Site, who were terrific hosts to our students, staff, and volunteers, and who made it a wonderfully welcome place to conduct archaeology.

In both field schools, several of our colleagues from across the state lent their expertise in history, archaeology, and time in assisting in excavations: Linda Carnes-McNaughton, Chris Fonvielle, Richard Kimmel, Paul Mohler, Billy Oliver, Nora Reber, Kenneth W. Robinson, Scott Simmons, and Laura Vick.

The one visitor who most excited the students and staff was Stanley South, original archaeologist of Brunswick Town / Fort Anderson. South visited both field schools in 2009 and 2011, and enthusiastically praised the effort to continue the exploration of Fort Anderson and unexplored areas of Brunswick Town he began in 1958. His talks and stories dazzled and energized the students, who could not take enough pictures with him. South also sent letters of praise and thanks to the field school staff for sending final copies of their reports to him. We honor his memory with our thanks here.

Additional thanks go to Pam Beaman and Alex Keown for their diligent editing skills.

As always, additional thanks go to R.P. Stephen Davis, Jr., long-time Editor of *North Carolina Archaeology*, for his acceptance of our slightly tardy submission and the editorial support to see this manuscript in print.

Earlier versions and select elements of this study on the barracks at Fort Anderson were presented at the 2012 Archaeological Sciences of the Americas Symposium, the 2012 Middle Atlantic Archaeological Conference, the Fall 2014 meeting of the North Carolina Archaeological Society, the 2012 and 2014 Society for Historical Archaeology conferences, the 2013 and 2015 Southern Anthropological Society meetings, and the 2011 and 2012 Southeastern Conference for Historic Sites Archaeology. Newsletter articles on the progress of the barracks investigations were also featured in the *Brunswick Belle* (1(4):1–4 [2009]; 3(3):1–3 [2011]), the North Carolina Archaeological Society *Newsletter* (19(4):2–5 [2010]; 26(4):1–4 [2016]), and the Southeastern Archaeological Conference *Newsletter* (51(2):12–15 [2009]).

Figures. Figure 1, the excerpt from the 1769 map of Brunswick Town by Claude Joseph Sauthier, is from the North Carolina State Archives. Figure 2, the excerpt from Twining's Map of Fort Anderson, is from LC Civil War maps (2nd ed.), 99; Civil War maps in the National Archives, 8; Philips, 1353; LeGear, *Atlases of the United States*, 266. Figure 3 is reproduced from South's (1959) barrack excavation report. The original of Figure 3, as well as Figures 4 and 5, are from the Brunswick Town / Fort Anderson

SHANTIES, LOG HOUSES, LEAN-TOS

image collection, Historic Sites Archaeology Files, North Carolina Office of State Archaeology Research Center, Raleigh. Figure 6 is reproduced courtesy of Stocktrek Images/Alamy Stock Photo. Figure 7 is from Library of Congress, Prints & Photographs Division, Civil War Photographs LC-DIG-ppmsca-32975. Figure 8 is from Library of Congress, Prints & Photographs Division, Civil War Photographs, LC-DIG-cwpb-01153. Figures 9–18 are from the 2009 and 2011 Archaeological Field School files, Department of Anthropology, William Peace University. All images are reproduced here with appropriate permissions.

Collections. The master paperwork and image files for the 2009 and 2011 William Peace University Archaeological Field School are stored at the Department of Anthropology, William Peace University, Raleigh. The artifacts recovered during the field schools, South's artifacts from feature N18, and copies of the paperwork files are stored at the North Carolina Office of State Archaeology Research Center, Raleigh.

Disclaimer. Even with the tremendous support and assistance of the individuals acknowledged above, the authors assume full responsibility for any factual errors and the interpretations presented in this article.

References Cited

Bahnson, Charles

- 1865 Letter to Father, dated February 12, from Fort Anderson. Transcription.
Copy on file at Brunswick Town/Fort Anderson State Historic Site, Winnabow, North Carolina.

Balicki, Joseph

- 2011 Watch-Fires of a Hundred Circling Camps: Theoretical and Practical Approaches to Investigating Civil War Campsites. In *Historical Archaeology of Military Sites: Method and Topic*, edited by Clarence R. Geier, Lawrence E. Babits, Douglas D. Scott, and David G. Orr, pp. 57–73. Texas A&M Press, College Station.

Barrett, John G.

- 1963 *The Civil War in North Carolina*. University of North Carolina Press, Chapel Hill.

Beaman, Thomas E., Jr., and Vincent H. Melomo

- 2011 *Exploratory Excavations at Brunswick Town / Fort Anderson State Historic Site: Barracks West of Battery A (31BW376**12)*. 2009 Field Season Final Report. Prepared for Brunswick Town / Fort Anderson State Historic Site, Winnabow, North Carolina, by Peace College, Department of Anthropology, Raleigh.
- 2016 "At night we sleep in a shanty I have constructed of planks, logs, and sand... on a pile of pine straw:" *Archaeological Excavations of the Fort Anderson Overflow Barracks West of Battery A (31Bw376**12) and Metal Detector Survey of a Suspected Barracks Area West of Battery B (31Bw376**7) at Brunswick Town/Fort Anderson State Historic Site*. With Contributions from J. Matthew Compton, Jennifer L. Gabriel, Matthew T. Kerr, Daniel J. Polito, Eleanora A. Reber, Alexandria D. Salisbury, and Linda F. Stine. Prepared for Brunswick Town / Fort Anderson State Historic Site, Winnabow, North Carolina, by William Peace University, Department of Anthropology, Raleigh.

NORTH CAROLINA ARCHAEOLOGY [Vol. 67, 2018]

Calder, William

- 1865 Letter to Mother, dated January 23, from “In the Trenches, Fort Anderson.” William Calder Papers, #125, Southern Historical Collection, Chapel Hill, North Carolina. Transcription. Copy on file at Brunswick Town / Fort Anderson State Historic Site, Winnabow, North Carolina.

Carbone, John S.

- 2001 *The Civil War in Coastal North Carolina*. North Carolina Office of Archives and History, Division of Historic Resources, Raleigh.

Compton, J. Matthew

- 2016 Animal Remains from the Barracks Area Behind Battery A at Brunswick Town/Fort Anderson State Historic Site, 31Bw376**12, Brunswick County, North Carolina. In “*At night we sleep in a shanty I have constructed of planks, logs, and sand...On a pile of pine straw*”: *Archaeological Excavations of the Fort Anderson Overflow Barracks Area West of Battery A (31Bw376**12) and Metal Detector Survey of a Suspected Barracks Area West of Battery B (31Bw376**7) at Brunswick Town/Fort Anderson State Historic Site, Volume I: Technical Report*, edited by Thomas E. Beaman, Jr., and Vincent H. Melomo, Appendix G, pp. G1-G73. William Peace University, Department of Anthropology, Raleigh.

Ellis, Zaccheus

- 1865 Letter to Sister, dated February 12, from “Headquarters, Taylor’s Battalion, near Fort Anderson.” Zaccheus Ellis Papers, Southern Historical Collection, Chapel Hill, North Carolina. Transcription. Copy on file at Brunswick Town / Fort Anderson State Historic Site, Winnabow, North Carolina.

Fesler, Garrett R., Matthew R. Laird, and Hank D. Lutton

- 2006 “Beautiful Confusion:” The Archaeology of Civil War Camp Life in an Urban Context. In *Huts and History: The Historical Archaeology of Military Encampment During the American Civil War*, edited by Clarence R. Geier, David G. Orr, and Matthew B. Reeves, pp. 216–243. University Press of Florida, Gainesville.

Fonvielle, Chris E., Jr.

- 1997 *The Wilmington Campaign: Last Rays of Departing Hope*. Savas Publishing, Campbell, California.
- 1999 *Fort Anderson: The Battle For Wilmington*. Da Capo Press, Boston, Massachusetts.
- 2015 *To Forge a Thunderbolt: Fort Anderson and the Battle for Wilmington*. SlapDash Publishing, LLC, Carolina Beach, North Carolina.

Gabriel, Jennifer L.

- 2012a *New Data, Old Methods: A Functional Analysis of Colonial Era Structures on the “Wooten-Marnan Lot” at Brunswick Town, North Carolina*. Unpublished Master’s thesis, Department of Anthropology, East Carolina University, Greenville.
- 2012b *New Data, Old Methods: The Recovery, Definition, and Functional Analysis of the George Moore House at Colonial Brunswick Town*. *North Carolina Archaeology* 61:71–93.

SHANTIES, LOG HOUSES, LEAN-TOS

- 2013 A Case of a Missing House and Kitchen: The Rediscovery of the Wooten-Marnan Residence at Colonial Brunswick Town. *North Carolina Archaeology* 62:124–150.
- Geier, Clarence R., David G. Orr, and Matthew B. Reeves (editors)
- 2006 *Huts and History: The Historical Archaeology of Military Encampment during the American Civil War*. University Press of Florida, Gainesville.
- Higgins, III, Thomas F., Charles M. Downing, Kenneth E. Stuck, Gregory J. Brown, and Karl J. Reinhard
- 1995 *The Civil War at Gloucester Point: Mitigation of Site 44GL358 Associated with the Proposed Route 17 Coleman Bridge Project, Gloucester County, Virginia*. Technical Report Series No. 19. Submitted to Virginia Department of Transportation by the William and Mary Center for Archaeological Research, Department of Anthropology, The College of William and Mary, Williamsburg, Virginia.
- Hildebran, Daniel
- 2017 *Research Design of Fort Anderson*. Unpublished Master's thesis, Department of Anthropology, East Carolina University, Greenville.
- Howard, Josh
- 2009 The Refugees of Sherman's Army and Their Relationship with the Fort Anderson Area. Research Report compiled by Josh Howard, Research Historian, Research Branch, North Carolina Office of Archives and History, January 30, 2009.
- Keith, H. James
- 2007 *3rd Battalion North Carolina Light Artillery: "Moore's Battalion", C.S.A.* Lulu Enterprises, Inc., Morrisville, North Carolina.
- Louis Berger and Associates, Inc.
- 1992 *Archaeological Investigations at Fort Johnson, Fort Anderson, The Robbins Plantation, and Battery Lamb: Military Ocean Terminal, Sunny Point, North Carolina*. Report prepared for The Wilmington District Corps of Engineers, Wilmington, North Carolina, by The Cultural Resources Group, Louis Berger and Associates, Inc., Richmond Virginia.
- MacRae, D.
- 1865 Letter to Julia, dated February 1. Hugh MacRae Papers, Duke University, Durham, North Carolina.
- McEwen, Archibald D.
- 1865 Letter to Kate, dated January 21, from Fort Anderson, Transcription. Copy on file at Brunswick Town/Fort Anderson State Historic Site, Winnabow, North Carolina.
- Mintz, John J., Joshua B. Howard, Marty Matthews, and Fritz Farrow
- 2011 Revisiting the Scene: Archaeological Investigations at Alamance Battleground State Historic Site. *North Carolina Archaeological Society Newsletter* 21(1):2–3.
- Moore, Mark A.
- 1999 *The Wilmington Campaign and the Battles for Fort Fisher*. DaCapo Press, Boston, Massachusetts.

NORTH CAROLINA ARCHAEOLOGY [Vol. 67, 2018]

Nelson, Dean E.

- 1982 “Right Nice Little House[s]”: Impermanent Camp Architecture of the American Civil War. *Perspectives in Vernacular Architecture* 1:79–93.
- 2006 “Right Nice Little House[s]”: Winter Camp Architecture of the American Civil War. In *Huts and History: The Historical Archaeology of Military Encampment During the American Civil War*, edited by Clarence R. Geier, David G. Orr, and Matthew B. Reeves, pp. 177–193. University Press of Florida, Gainesville.

Salisbury, Alexandria D., and Linda F. Stine

- 2016 Gender Ideals, Roles, and Activities in a Civil War Landscape: Brunswick Town/Fort Anderson State Historic Site. In “*At night we sleep in a shanty I have constructed of planks, logs, and sand... On a pile of pine straw*”: Archaeological Excavations of the Fort Anderson Overflow Barracks Area West of Battery A (31Bw376**12) and Metal Detector Survey of a Suspected Barracks Area West of Battery B (31Bw376**7) at Brunswick Town/Fort Anderson State Historic Site, Volume I: Technical Report, edited by Thomas E. Beaman, Jr., and Vincent H. Melomo, Appendix H, pp. H1–H19. William Peace University, Department of Anthropology, Raleigh.

Smith, Hannah P., and Thomas E. Beaman, Jr.

- 2016 A Strawberry from the Battlefield: A Cloisonné Object from a Bombarded Civil War Encampment at Fort Anderson. *North Carolina Archaeological Society Newsletter* 26(4):1–4.

South, Stanley A.

- 1959 Excavation Report – Fort Anderson Barracks, Excavation Unit N18. Report on file, North Carolina Office of State Archaeology, Office of Archives and History, Division of Historic Resources, Department of Natural and Cultural Resources, Raleigh.
- 1960 Archaeological Base Map of the Site of Brunswick Town, Brunswick County, North Carolina, Correlated with C. J. Sauthier’s Map of April 1769 and the Reconstructed Lot Plan of Maurice Moore (1726) with a List of the Property Owners, and Fort Anderson, 1862–1865. Copy on file, Historic Sites Archaeology Files, Office of State Archaeology Research Center, Raleigh.
- 1961 Excavation Report - The Newman-Taylor House, Brunswick Town. Report on file, North Carolina Office of State Archaeology, Office of Archives and History, Division of Historic Resources, Department of Natural and Cultural Resources, Raleigh.
- 1963 Field Notes and Artifact Catalog form for feature F7, Fort Fisher State Historic Site. On file, North Carolina Office of State Archaeology, Office of Archives and History, Division of Historic Resources, Department of Natural and Cultural Resources, Raleigh.
- 1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.
- 2005 *An Archaeological Evolution*. Springer Science + Business Media, Inc., New York.
- 2010 *Archaeology at Colonial Brunswick*. Historical Publications Section, North Carolina Division of Archives and History, Department of Cultural Resources, Raleigh.

SHANTIES, LOG HOUSES, LEAN-TOS

Stine, Linda F., Melanie A. Cabak, and Mark D. Groover

1996 Blue Beads as African-American Cultural Symbols. *Historical Archaeology*
30(3):49–75.

ANATOMY OF A TAR KILN

by

**Joseph M. Herbert, Linda F. Carnes-McNaughton,
William J. Feltz, Michelle Hagstrom Parsons,
and Jonathan Schleier**

Abstract

Tar kilns are common historical features in the Carolina Coastal Plain and elsewhere across the Southeastern Coastal Plain where hundreds are known, but few excavated. This article describes the archaeological salvage of a circular tar kiln dating from 1850–1920 that was located in an artillery impact area at Fort Bragg, North Carolina. Details of the kiln floor, plank-lined drain trench, and catchment basin, together with in situ stacks of charred light-wood, reveal structural elements of the kiln's architecture that closely match those described from Colonial period sources.

This paper describes the results of archaeological salvage excavations of a tar kiln that was scheduled for demolition as part of the construction of a new live-fire range within an existing artillery impact area on Fort Bragg, North Carolina. Artillery impact areas are typically off limits to archaeology activities due to the danger of unexploded ordinance, but in this case construction of the new firing range entailed an explosive ordinance clearance survey that provided the opportunity for limited excavation and documentation of the remains of a tar kiln. With the cooperation of Fort Bragg Range Support, heavy machinery was used to expose the kiln floor so that its architectural features could be documented in a few days' time. Researching the archaeological features that were exposed led to a trove of historical images, records, and essays chronicling the rich legacy of the naval stores industry, including tar kilns and their importance in the history of the Southeast. The excavation of this historical time capsule provides a fascinating glimpse into a time in North Carolina's past when the production of pine resin, tar, pitch, and turpentine¹ was a major rural industry in the Tar Heel state.

Although this article describes the archaeology of a single kiln, our story also delves into the environmental geography and economic history of the Carolina Sandhills. Fort Bragg is located in the Sandhills environmental province, which is the geographic region situated on the oldest, most elevated, and most inland terrace of the Atlantic Coastal

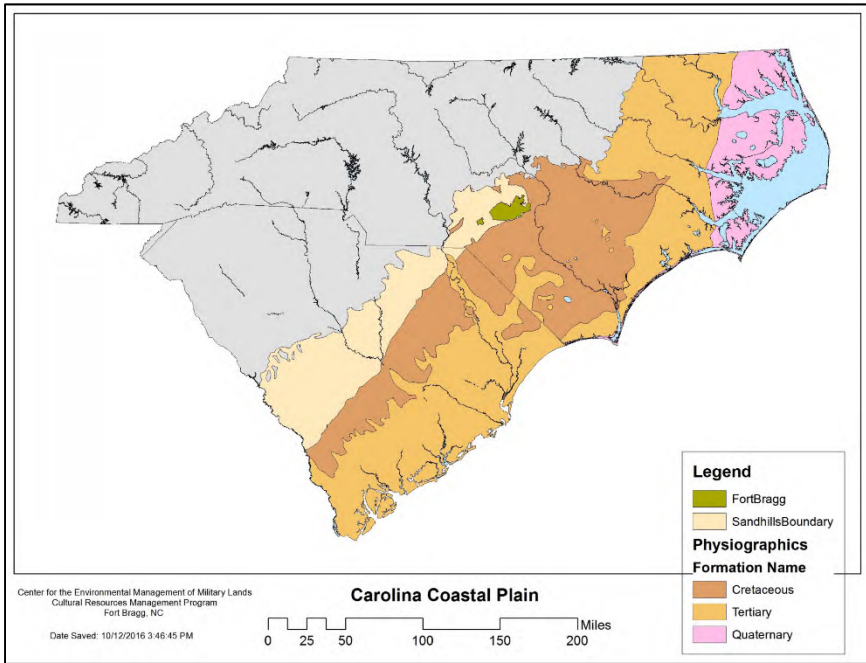


Figure 1. North Carolina Coastal Plain geologic formations, the Sandhills and Fort Bragg.

Plain (Figure 1). The region is characterized by deep sandy soil, where surface water quickly leaches organic material, producing infertile mineralized sand that makes poor soil for farming. Xeric (dry) conditions on the well-drained uplands, coupled with frequent lightning strikes, has over many millennia selectively favored a fire-adapted ecosystem with longleaf pine, wiregrass, and scrub-oak vegetation being the dominant natural vegetation (Frost 1998, 2000; Frost and Wild 2005; Schafale 2012; Sorrie et al. 2006) (Figure 2). Biologists suggest that in pre-settlement times the longleaf pine/wiregrass-dominated ecosystem encompassed at least 92 million acres stretching from Texas to North Carolina (Figure 3). The earliest narratives of European explorations along the waterways of the Carolina coast describe landscapes with open savannah-like vistas, widely spaced large trees, and tall grasses (Lawson 1966 [1709]:68). Modern environmental scientists recognize that such an open mid-story forest structure is often maintained by frequent wildfire. The Sandhills exemplify such a pyrophytic ecosystem as wildfire encourages the recruitment of longleaf pine (*Pinus palustris*) by exposing the mineralized soil necessary for the germination of its seeds. Historic-period farmers in the Sandhills were constrained by soil



Figure 2. Fire-adapted longleaf-wiregrass Sandhills scrub ecosystem.



Figure 3. Historic range of the longleaf pine forest (92 million acres).

infertility and xeric conditions that proved too challenging for large-scale farming (e.g., cotton plantations). One sociological result was that the wealthy planter class did not flourish in the Sandhills as it did elsewhere in the Southeast. Small-acreage farmers not heavily invested in seasonal crop work or encumbered by large slave holdings were ideally positioned to engage in the naval stores industry where the longleaf pine forest provided an abundant and naturally adapted economic resource.

Background History

The history of Sandhills farmers' ascendancy in the North American naval stores industry is a fascinating story of interwoven forces, related to socio-economic factors as well as to geographic and environmental conditions. From the earliest period of Colonial settlement throughout the Age of Sail, naval stores products were a vital part of ship building and maintenance. Every ship that plied the world's oceans required tar and pitch to caulk seams and serve rigging. Every foot of planking seam in a ship's hull and deck was caulked with oakum and sealed with tar, and every line of standing rigging (supporting masts and spars) was protected from chafing and weather by being tarred.² Hundreds of thousands of barrels of tar destined for the British Royal Navy were shipped from the American Colonies, and most of it originated in North Carolina.

As British naval power grew throughout the seventeenth century, building and maintaining ships overstrained the British Isle's forest resources, and it was necessary to import products from abroad. At that time Finland (then part of Sweden) was the chief producer of naval stores, and the British Royal Navy purchased almost all its naval stores from the Swedish Tar Company, which held a monopoly on the European market (Airaksinen 1996:117). The balance of trade in the Baltic was unfavorable for the British as their exports, primarily textiles, could not reliably offset expenses for Swedish naval products. The Swedish market price for tar rose in relation to Britain's needs, which were particularly demanding in war times. Thus, in 1696 the British Board of Trade and Plantations was created to monitor trade balance and enact regulation to encourage useful, and discourage harmful, trade. Notable contributions to the trade imbalance were made by the New England colonies, whose particularly successful fishing, ship-building, and woolen manufacturing industries were in direct competition with those of the Mother Country (Williams 1935:170–171). New England lacked the environmental prerequisites for producing such lucrative export products as cane sugar, molasses, rum, and tobacco; and partly in

consequence of this deficit, New England's textile and ship-building industries flourished. As a means of correcting the imbalance created by the success of New England's export of fine textiles and ships, the British Board of Trade passed the Woolen Act of 1699 which restricted importation of textiles from New England by imposing tariffs. Just at this time (1689 to 1713) the English were engaged in a series of wars with the French, fueling demand for naval stores; simultaneously, the Great Northern War between Sweden and Russia (1699–1721) restricted the supply of naval stores flowing out of Sweden. Recognizing an opportunity, Sweden responded by raising prices on tar exported to Britain. The British Royal Navy paid 10 shillings 4 pence for a barrel of Swedish tar in 1689, 20 shillings in 1693, and 50–60 shillings in 1703 (Williams 1935:177). In response, the Naval Stores Act of 1705 was enacted by the Board of Trade to stimulate Colonial production of tar by ordering bounties to be paid on all naval stores imported from the New England colonies (Williams 1935:171). This clever policy was designed to insure that New England would become the principal tar-producing region in the colonies, simultaneously reducing Britain's dependence on Swedish tar while providing an economic alternative to New England's textile producers whose exports were being stifled by tariffs. It unquestionably did have the effect of stimulating the Colonial naval stores industry. Prior to 1705 Britain imported very few barrels of Colonial tar, but during the first nine years of the bounty system (1705–1713) England imported an average of 7,239 barrels per year of American tar and pitch, and between 1716 and 1724 the average grew to 61,488 barrels per year (Williams 1935).

Although the British Board of Trade controls resulted in dramatic stimulation of the North American naval stores industry, the natural environment proved to be an equally powerful economic organizing force. While Colonial exports of naval stores soared during these years, the economy of New England benefited only as an intermediary in the trade, as the vast majority of tar on which the English bounty was collected originated in North Carolina. The reason of course was that the pine forests most suitable for the production of tar were located in the Carolina Coastal Plain, and not New England. American ingenuity being what it was, the solution was not long in coming; Carolina 'tar heels' shipped their products by sail to New England ports and onward to Britain, collecting the bounty along the way, which more than offset the cost of shipping. As a result, about 80 percent of American tar exported to England during the period of 1705–1775 was produced in North Carolina, and about 90 percent of the tar produced in North Carolina was

shipped to Great Britain by way of New England ports (Airaksinen 1996:119).

The manner in which tar was produced was also a matter of concern for the Board of Trade as the British Royal Navy was quite particular about the quality of tar. The Board saw to it that detailed instructions for the production of tar were provided to the New England farmers. They even went to the extreme of financing the immigration of experienced Finnish tar producers to the colonies to assure that proper methods of extraction and processing were propagated in the nascent Colonial industry. One result was the transfer of detailed information about the design and construction of tar kilns that, over many decades, was replicated throughout the southern colonies with remarkable fidelity. As will be seen, the Colonial plan for tar kilns continued to be used right up to the 1930s when tar production finally ceased to be profitable for small rural farmers in the Sandhills.

The Process of Resin Extraction

The literature on the naval stores industry is vast, and there are a number of recently published volumes (Butler 1998, Earley 2004, Outland 2004) and relevant research articles (Harmon and Snedeker 1993; Hart 1986; Hockensmith and Ison 1996a, 1996b; Robinson 1991, 1997) that describe the history of the naval stores industry and its persistence on the landscape in the American South. A brief description of the process here may be helpful at this point. Pine resin or gum is produced by scraping bark from the boles (trunks) of mature pines. Trees were often scraped in a chevron pattern called a cat face, using a hack-tool or puller, to initiate the weeping of sap that drained into a reservoir chopped into the base of the tree. Throughout the Colonial period and up to early modern times gum reservoirs, or boxes, were simply chopped into the bases of trees using a long, narrow-bitted “boxing” axe. Each box was periodically emptied of gum by a long-handled dip tool, with the gum being transferred to barrels and transported by wagon to river-port towns (Figure 4). Some live bark was left on each tree at first tapping, but over a few short years trees wounded in this way sickened and died and were then cut for lumber or processed in tar kilns. The best quality tar was produced from the resin of live trees and was called green tar, or virgin gum, but tar could also be made by sweating sap from lightwood split from dead or dying trees. Kilns for this purpose were commonly built throughout the forest where resinous waste wood was abundant. The prevalence of relict tar kilns across the pine lands of the Carolinas attests to a thriving industry, as well as to one that was



Figure 4. Dipping gum (resin) from a boxed longleaf pine, about 1900. Photograph from N.C. Division of Archives and History and reproduced from Butler (1998).

increasingly reliant on extraction techniques that focused on secondary resources derived from over-harvested longleaf stands.

Prior to 1840, naval stores were produced primarily in coastal North Carolina counties. After 1840 the turpentine industry took hold and spread from the lower Cape Fear River Valley inland to the Sandhills (Figure 5). This production shift was caused by changing market demands that favored turpentine used in the manufacturing of rubber, paper, paint, varnish, and a variety of other products. In 1841 Wilmington had two turpentine distilleries, but by 1848 that number had increased to 16. When the price for turpentine soared to over \$5.00 per barrel in 1845, many farmers dropped their plows and took to the woods (Perry 1968:517). Records for 1849 provide comparative prices of crude un-distilled turpentine (raw resin, or sap) at \$2.25 per barrel, scraped or hard turpentine (dried sap) at \$1.25 per barrel, liquefied turpentine (distilled spirits) at \$.26 per gallon, and tar (produced from kilns) at



Figure 5. Drawing of a North Carolina turpentine distillery, by E. A. Abbey. From *Harpers Weekly* 20(1005):265, 1876.

\$1.15 per barrel (Oates 1950:751). Oates (1950:867) describes multiple turpentine distilleries in the Fort Bragg area such as the McDiarmid and Company distillery (Peter McKellar Williams) that operated at Spout Springs from the mid-1860s until 1882. A. H. Slocumb operated four distilleries within the Fayetteville town limits until the late 1880s when a town ordinance banned distilleries as a fire hazard (Oates 1950:723). An incident in the late 1890s illustrates this risk of fire, when a leaking barrel of turpentine dumped into the Cape Fear River was set alight, quickly igniting adjacent barrels and burning for several days. Oates (1950:540–541) describes numerous related businesses that thrived on the naval stores industry, and even waste rosin, or dross, from local distilleries was burned in smudge pots to repel mosquitoes. In 1893, Moore County led the state with 34 distilleries, shipping their products to market by newly designed railroad circuits.

It was not until the early twentieth century that Charles Herty's cup-and-gutter system for collecting gum was widely adopted by naval stores producers. The system of external reservoirs was developed expressly to eliminate internal boxing of the trees, which damaged and ultimately



Figure 6. Hacking a tree fitted with tin gutters and terra-cotta Herty cups. From *The Mentor: The Forest*, June 1, 1918, serial no. 156, vol. 6, no. 8.

destroyed the tree (Figure 6). The removable Herty cup was made of low-fired earthenware, very similar in size and shape to clay flowerpots. The Herty system is credited with saving the naval stores industry from self-destruction, as it proved to be an efficient means of collecting pine gum without chopping resin boxes into trees. Fragments of Herty cups

can be found scattered across the forest floor at Fort Bragg and throughout the Southeastern pine lands.

Building and Firing a Tar Kiln

Colonial period accounts of building tar kilns describe digging the floor or base as a circular depression 30 feet across, sloping 16 inches from the perimeter to the center point and with a narrow trench dug from the center of the depression to the outside of the kiln rim. This trench was often lined with boards fastened into a box that drained into a catchment pit a few feet outside the kiln (Catesby 1754:34). Once the floor was dug and the box-pipe in the trench reburied, lightwood splints (or billets) were arranged around the central drain, teepee fashion, in a cone six feet across and ten feet high. Then, four-foot long billets were laid side-by-side, radiating from the center cone to the perimeter of the floor. Layer upon layer of billets were stacked up to 14 feet high, with short split limbs and knots (or waster wood) thrown on top, raising the middle of the stack about two feet higher than the sides (Figure 7). Once stacked, the top was overlaid with green pine boughs and then covered with earth. Next, the sides of the stack were “flagged” by inserting green pine boughs between the projecting ends of the billets with the needles facing outward (Figure 8). Finally, earth was “banked” against the sides, being supported outside by horizontally interlaced poles stacked like a split-rail fence with pole ends binding one on another (Figure 9) (Catesby 1754:34).

A hole was opened at the top of the stack, and the fuel within was ignited. As soon as the fire was kindled the hole at the top was closed up and other holes were made along the sides through which oxygen drew the fire downward. In sequence, holes higher up were closed while those lower were opened. The horizontal logs supporting the sides were taken down as necessary to open holes for combustion (Figure 10). Catesby (1754) describes how on the second day after firing the tar would begin to run out of the pipe, whereupon it would continue to flow for four or five days after which time all the holes in the sides were stopped up and earth thrown back on the top in order to put out the fire and preserve the wood from being completely consumed. What remained was charcoal that also had purpose. “A kiln of thirty feet diameter, if the wood proves good, and is skillfully worked off, will run about 160 to 180 barrels of Tar, each barrel containing 32 gallons” (Catesby 1754), or 5,120 to 5,760 gallons of tar per kiln firing.

On Fort Bragg, in addition to fragments of Herty cups, the iron parts of various hand tools used in the production of naval stores are found



Figure 7. Building a kiln stack. From *Sandhills Sketches*, by William Haynes (1916).



Figure 8. Flagging the kiln. From *Sandhills Sketches*, by William Haynes (1916).

ANATOMY OF A TAR KILN



Figure 9. Banking the kiln. From *Sandhills Sketches*, by William Haynes (1916).



Figure 10. Burning the kiln. From *Sandhills Sketches*, by William Haynes (1916).

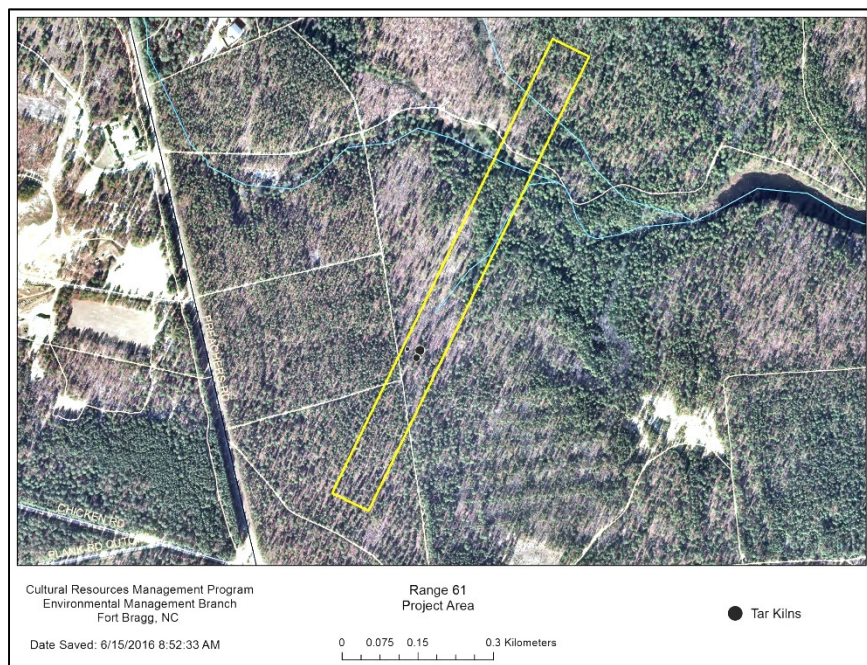


Figure 11. Aerial view of proposed Range 61 construction area and kiln location.

scattered in the woods, not always associated with a domestic or kiln site, but wherever they were abandoned. Artifacts such as hack tools, dippers, pullers, axe heads, and puller counterweights (or peas) testify to this once-dominant industry in the Sandhills.

Excavation of Site 31HK3741, the Range 61 Tar Kiln

Construction of Range 61 began on Fort Bragg in the spring of 2017 (Figure 11). Because the new range is located within the boundary of an existing artillery impact area, no prior archaeological survey or cultural resources inventory had been conducted in this area.³ As construction entailed land clearing and major earth moving, an Explosive Ordinance Demolition (EOD) survey was conducted. Following EOD clearance, surface reconnaissance by archaeologists revealed the presence of two adjacent relict tar kilns, visible only as low mounds of earth with central depressions and encircling trenches (Figure 12). The kiln locations were recorded with GPS and uploaded to ArcGIS, photographs were taken, and preliminary plan view and topographic maps were drawn. As construction began, arrangements were made with Range Support for archaeological salvage excavations to be conducted over a four-day period in May 2017.



Figure 12. Elevation view of relic tar kiln before excavation.

The two tar kilns can easily be seen with LiDAR imagery, along with several features denoting the location of an abandoned firing range nearby (Figure 13). Although the surface topography of the kilns shows up in the LiDAR data, the maelstrom of military disturbances on Fort Bragg can limit the effectiveness of using LiDAR as a means of discovering tar kiln locations. Remarkably, Catesby's account from 1754 is essentially identical to the architectural features of the Range 61 kiln that was constructed between about 1840 and 1918. A sketch of the surface features that were visible prior to excavation records a circular kiln of a size and structure that match Catesby's notes in almost every detail. Cross-section Line A was laid out in order to bisect the kiln, providing a profile of the floor at the center where we hoped to find the drain sump opening and expose the trench and catchment basin (Figure 14). Heavy equipment operators removed the overburden to expose the original ground surface up to the edge of Section Line A (marked in the photo with yellow pin flags) (Figure 15). Mechanical skimming was finished with a skid steer, which exposed the undisturbed floor of the kiln on the east side of Section Line A. Using hand tools, archaeologists shovel skimmed and troweled the kiln floor to define its limits and features (Figure 16). This work revealed the interior charred surface of

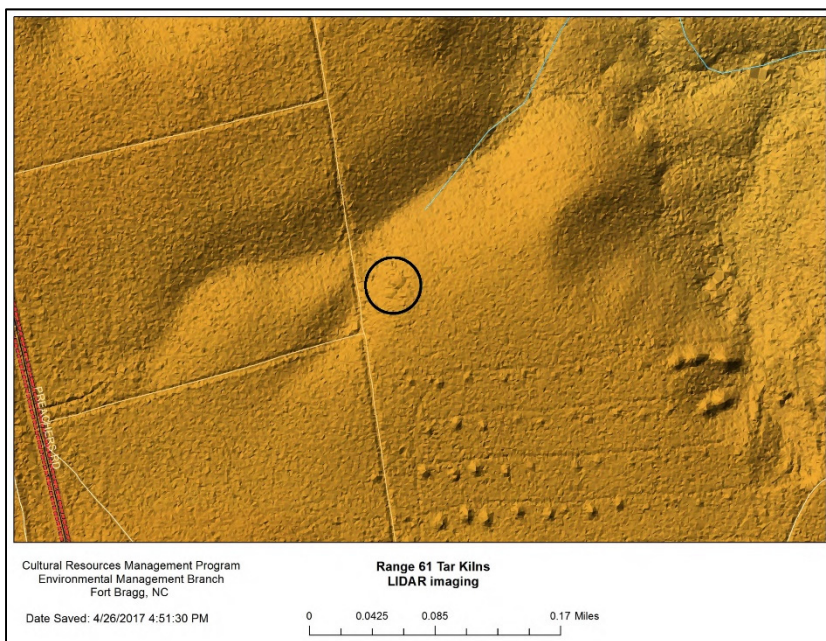


Figure 13. Light Detection and Ranging (LiDAR) imagery of the ground surface of the kiln area.

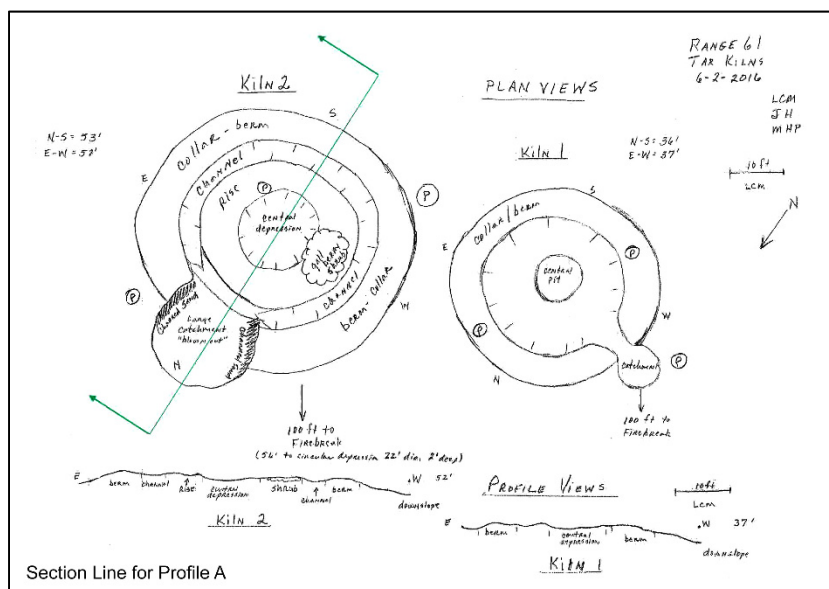


Figure 14. Sketch of plan view showing the two kilns and cross-section of larger kiln (Section A).

ANATOMY OF A TAR KILN



Figure 15. Removing the overburden and exposing the kiln floor.



Figure 16. The maximum extent of the kiln floor distinguished by soil coloration. Stadia rod is graduated in 20-cm units; overall length is 7.1 m (23 ft 4 in).

the kiln to be 28 ft in diameter, with an outer maximum diameter of about 50 ft including the sand collar berm. The profile at Section A revealed a concave floor that was excavated into the clayey, B-horizon subsoil, with the depth at the center of the floor measuring 24 inches below the kiln rim (Figure 17). As expected, the kiln floor had been thermally altered and appeared bright red-orange in color.

Mechanical and manual stripping was then employed to cut a second cross-section (Section B), perpendicular to the first, to expose the drain trench and catchment basin (Figure 18). The upper surface of the catchment basin was exposed about 30 inches below the outer rim of the kiln. The exposed profile of the drain trench revealed that it had been refilled with successive layers of loose sand and clay (Figure 19). It was an exciting moment when a hole opened in the drain trench profile wall and exposed the end of the drain pipe connecting the sump in the center of the kiln to the catchment basin (Figure 20). A retractable metal tape was inserted into the drain trench hole in the profile wall and extended from the catchment pit to the sump opening in the kiln center, with the total length of the drain trench measuring 17 ft. In cross-section the drain pipe was one foot square, constructed with four sawn planks forming a box sluice (Figure 21). Tool marks on the planks indicated use of a circular saw. Lumber mills using circular saw blades became popular after 1840 (Sloane 1965:26), and this date serves as the approximate TPQ (*terminus post quem*), or earliest date the kiln could have been made. The top or covering plank had deteriorated and collapsed into the trench. Photographs made of the interior of the plank-lined trench pipe revealed that it was partially charred (Figure 22).

Two iron nails were recovered from the trench box; one was a square cut nail dating from 1835 to 1900, and the other was a 10-d common wire nail, dating from about 1900 to the present. Both nails had been used to fasten together the sides of the wooden trench liner. These nails, together with evidence that the planks were sawn with a circular saw, effectively date the kiln to the period 1840 to 1918. The TAQ (*terminus ante quem*), or terminal date, is the year the property was acquired by the U.S. Army for construction of Camp Bragg. The wooden drain pipe ended about three feet short of the lip of the catchment pit, leaving some question as to why the wooden trench liner did not extend completely to the catchment pit. Had some architectural element, such as a metal pipe, been removed? Had this three-foot section been left unlined with a wooden box pipe intentionally, or could it have been that the last few feet of the box pipe, not being buried, was exposed

ANATOMY OF A TAR KILN



Figure 17. Profile at cross-section line (Section A). The stadia rod is graduated in feet and extended to 12 ft, the overall length of the basin.

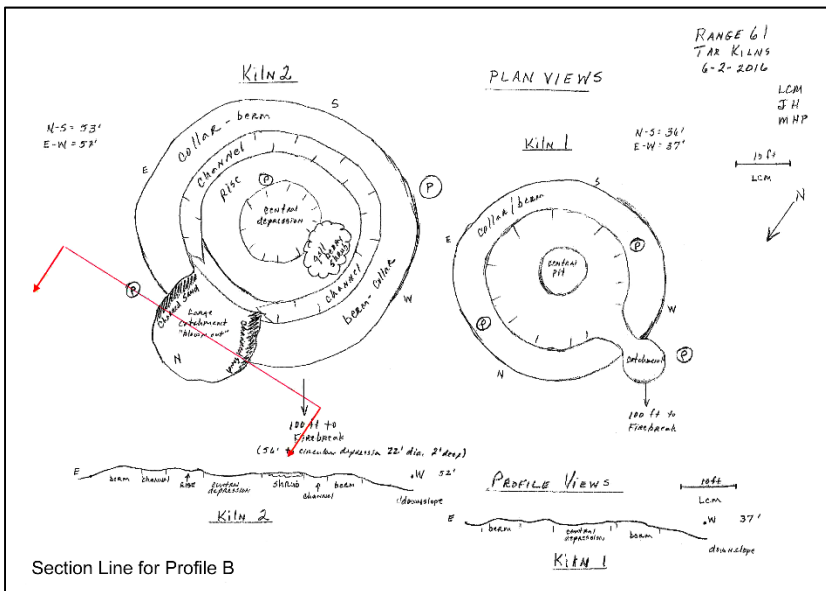


Figure 18. Sketch of plan view showing cross-section line (Section B) in catchment area of larger kiln.

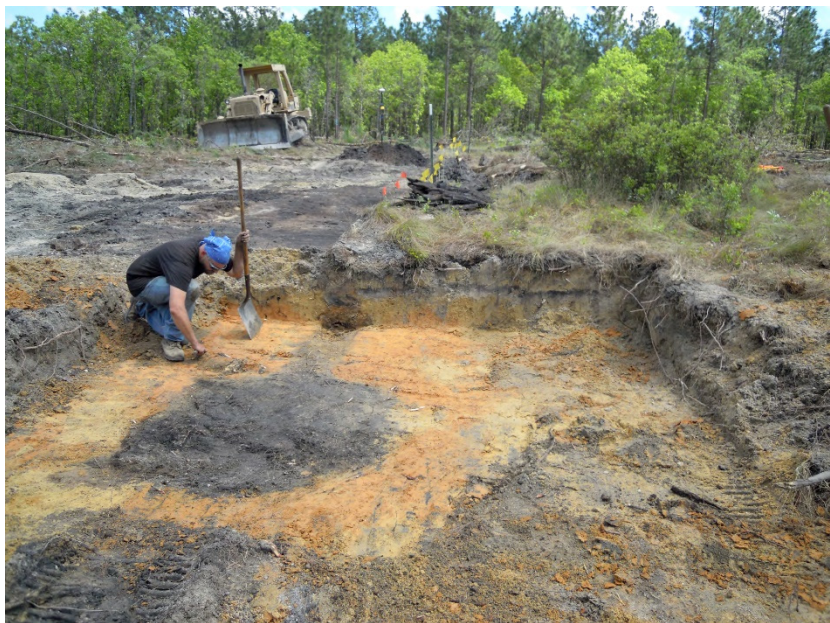


Figure 19. Tops of the trench drain and catchment pit prior to excavation.



Figure 20. Exposing the trench drain at the catchment pit.



Figure 21. Exposing the opening of the trench drain and wooden liner.

to oxygen and consequently burned. This is a mystery we have yet to solve, but it was observed that the three-foot section of drain trench between the end of the wooden pipe and the catchment pit appeared to have been hardened and reddened by fire, so it seems likely that the hot, liquefied tar simply ran through an open trench once outside the kiln wall.



Figure 22. Close-up of wooden liner planks showing circular sawn tool marks.

No evidence was found in the bottom of the catchment pit to indicate that a wooden barrel or bucket had been left in place when the kiln was abandoned. Moreover, no evidence was found suggesting that a barrel had ever been placed on the floor of the catchment pit. Instead, the clay floor and side walls were hardened and reddened by heat, as if by firing. Evidence of tar-saturated sand or charcoal was minimal in the

pit floor and walls, perhaps because the clayey B-horizon soil did not absorb much. The overall impression of the catchment pit was that it had been dug into the clayey subsoil with its walls and floor having been carefully scraped smooth. The hardened reddish walls gave clear evidence of heating either intentionally prior to igniting the kiln, or perhaps as a result of being filled with hot, liquefied tar. The length of the drain trench measured 20 ft total from the central kiln drain to the center of the catchment pit. The catchment pit measured five feet in diameter at the top, tapering to two feet in diameter at the bottom with the total depth being 27 inches (Figure 23).

As previously described, charred billets preserved in situ were arranged on the prepared clay floor of the kiln and were aligned radially around the central drain opening (Figure 24). The absence of billets laid prone near the center of the kiln suggests that billets may have been arranged standing up, teepee fashion, as described by Catesby (1754). The charred billets were dense and heavy with cross-sections exhibiting very close annular rings, indicating that they had been split from old-growth trees. Mixed with the billets were smaller limb remnants and knotty chunks historically known as waste wood.

Four shallow depressions were noted around the lip of the catchment pit at what appeared to be the original ground surface. These indentations may have been made at locations where long-handled dippers were levered against the pit rim when pitch was removed. One vintage photo suggests just such a scenario where hot tar was ladled from the catchment pit into a barrel standing at ground level (Figure 25). The barrel appears to be fitted with a spout about a foot above the base. If hot tar ladled from the catchment pit contained sand or other heavy impurities, these would settle to the bottom of the barrel with the spout, placed above the sediment, yielding filtered, sand-free tar.

Questions remain about the specific design of the catchment pit, and details about how the liquefied tar was collected are still missing. That said, the placement of this kiln on a gentle slope (6.5 percent) where the B-horizon subsoil was close to the surface provides some information about the historic decision-making process for selecting kiln sites. The morphological data derived from measurements of the Range 61 Kiln, and observations of its construction, design, and drainage, also provide a first look at the internal anatomy of a nineteenth-century kiln.

As this article goes to press the Fort Bragg CRMP research team is using LiDAR imagery to locate additional tar kilns as has been done in



Figure 23. Elevation view following excavation. Note the catchment pit in foreground.

the Francis Marion National Forest in South Carolina (Cao and Southerlin 2018; Southerlin 2013, 2015). Ground-truth determinations of this imagery for all of Fort Bragg will undoubtedly lead to the identification of hundreds of kilns, but at present the number of confirmed kilns is 66. Figure 26 shows the location of tar kilns that were discovered in the field during Phase I survey and inventory. Comparing

ANATOMY OF A TAR KILN



Figure 24. Kiln floor with charred billets in situ.



Figure 25. “Sweating out tar from pine wood in the turf covered tar kiln, N. Carolina” (date unknown). From Keystone-Mast Collection, UCR/California Museum of Photography, University of California at Riverside.

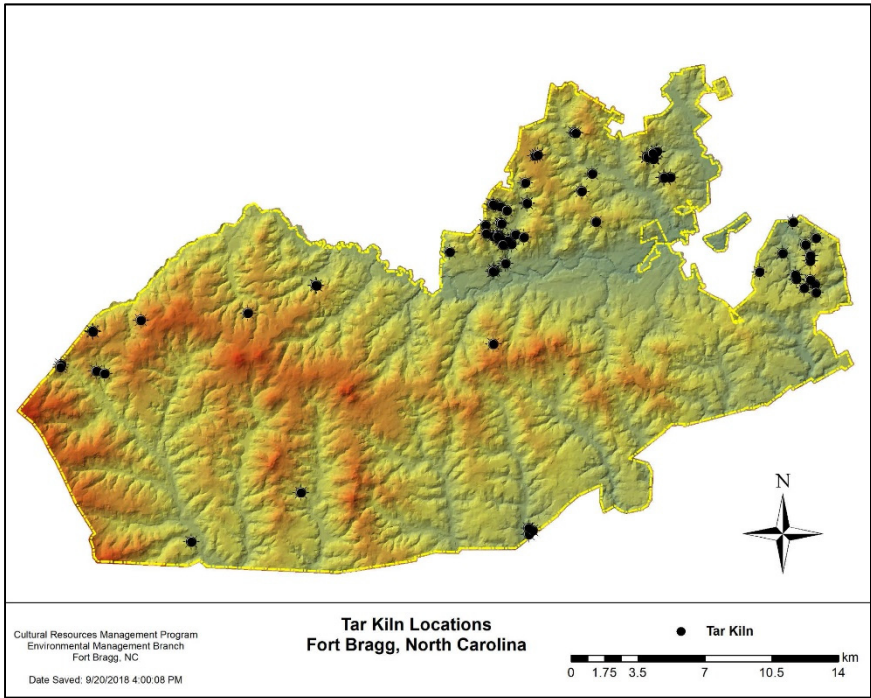


Figure 26. Location of known kiln sites on Fort Bragg.

known kiln locations with possible kiln locations observed in LiDAR indicates some limitations in correspondence. Of 66 known kilns, 41 can be identified in LiDAR and 25 cannot. Factors that can limit LiDAR accuracy include insufficient resolution to register kiln remains having very low relief or those obstructed by foliage.

The application of LiDAR imagery on Fort Bragg provides the potential for discovering many more tar kilns, and we are currently conducting a virtual survey of Fort Bragg, with the prospect of verifying possible kilns at some time in the future. Meanwhile, among the 66 that have been field verified, 22 are described as circular in shape, nine rectangular or linear, three are oval, and the shapes of the remaining 32 have not yet been fully documented. The size data on these kilns is also limited as documentation procedures have varied between projects. Of the currently accessible data, the median diameter of the 17 circular kilns is 39 ft. The smallest circular kiln measured is 23 ft in diameter, while the largest is 56 ft (Figure 27). Comparing the areas of circular and rectangular kilns, it is evident that the latter tend to be smaller (Figure 28). As the tar kiln study on Fort Bragg progresses, it promises to

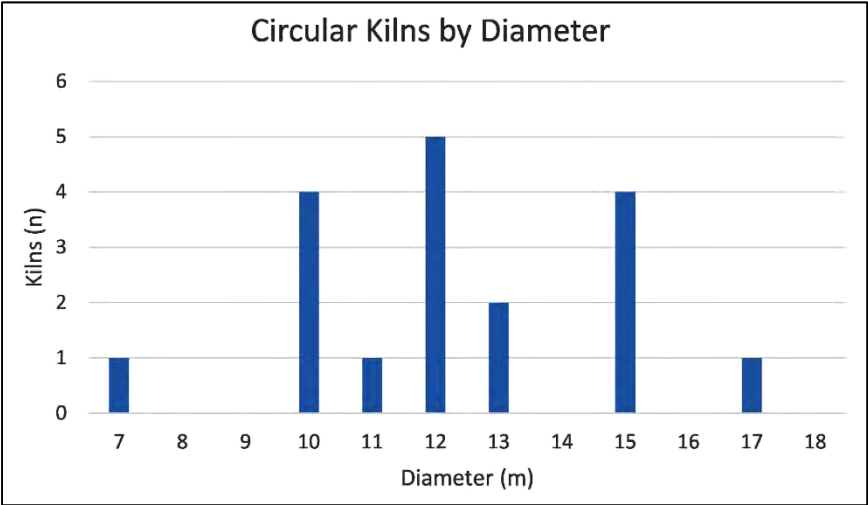


Figure 27. Chart of kiln diameter for 18 circular kilns on Fort Bragg.

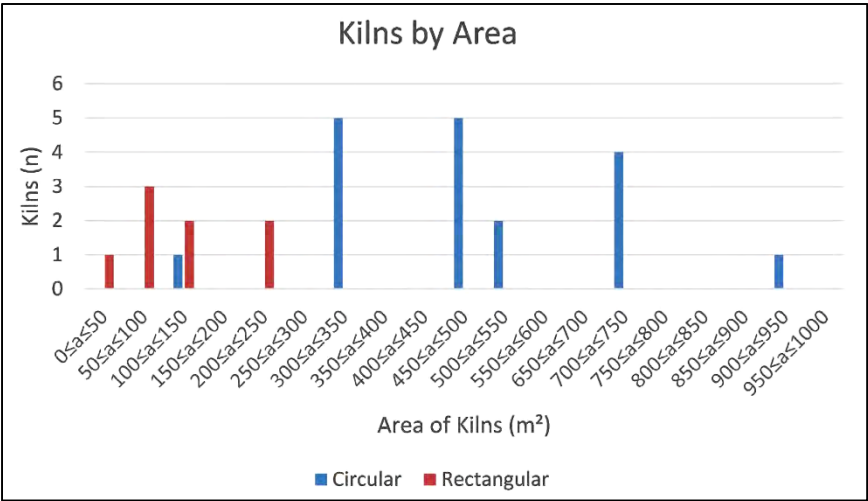


Figure 28. Comparison of the area of circular and rectangular kilns on Fort Bragg.

provide an opportunity to learn more about the functional and environmental dynamics of this important historic element in the rural economy of the Tar Heel state.

Notes

¹ Part of the fascination of this legacy is learning the processes by which raw pine *resin* (also called gum) was collected as sap from trees, *tar* was sweated from resinous wood superheated in a kiln, *pitch* was made by boiling down resin or tar to a highly

viscous form, and *turpentine* was distilled from pine resin; each product having a different application in the naval stores industry.

² In each place where a ship's rigging lines were spliced (attached) to blocks (pulleys) they were tightly lashed (wrapped) with marlin (smaller line) in very specific ways; first wormed (*with* the lay of the yarn), then parceled (*against* the lay of the line), with the whole business being served (wrapped with tightly sewn canvas) and coated with slush (a mixture of tar, boiled linseed oil and a drying agent) (Ashley 1944:539).

³ As a rule, archaeology involving excavation is not conducted within Impact Areas where the probability of encountering unexploded ordinance prohibits digging.

Acknowledgments. The authors wish to thank Fort Bragg Range Operations, particularly Wolf Amacker, Installation Range Officer, for providing access to the site and arranging support, and the Charlie Team of equipment operators who assisted in removing the kiln overburden. The authors extend their thanks to members of the Fort Bragg Training Lands Working Group, and the Natural and Cultural Resources Management Committee for their interest and support. We also wish to thank the editor, Steve Davis, for his assistance improving the images from the *Sandhills Sketches*.

References Cited

Airaksinen, Mikko

1996 Tar Production in Colonial North America. *Environment and History*, Lammi Symposium Issue 2(1):115–125.

Ashley, Clifford

1944 *The Ashley Book of Knots*. Doubleday and Company, Inc., Garden City, New York.

Berry, C. B.

1968 Horry County's Oldest Industry. *The Independent Republic Quarterly* 1(5):11–15.

Butler, Carroll B.

1998 *Treasures of the Longleaf Pines Naval Stores*. Tarkel Publishing, Shalimar, FL.

Cao, Luan, and Bobby Southerlin

2018 An Assessment of the Use of LiDAR in Locating Tar and Pitch Production Sites in Francis Marion National Forest. Paper presented at the Archaeological Society of South Carolina, 2018 Conference, Columbia, South Carolina.

Catesby, Mark

1977 [1754] The Natural History of Carolina, Florida, and the Bahama Islands; Containing the figures of Birds, Beasts, Fishes, Serpents, Insects, and Plants.... In *The Colonial South Carolina Scene, Contemporary Views, 1697–1774*, edited by H. Roy Merrens, pp. 87–109. Tricentennial Edition, University of South Carolina Press, Columbia.

Combes, John D.

1974 Charcoal Kilns and Cemetery at Paris Mountain State Park. *University of South Carolina Institute of Archaeology and Anthropology, Newsletter-Notebook* 6(1):3–16.

ANATOMY OF A TAR KILN

Earley, Lawrence S.

2004 *Looking for Longleaf: The Fall and Rise of an American Forest*. University of North Carolina Press, Chapel Hill.

Frost, Cecil C.

1998 Presettlement Fire Frequency Regimes of the United States: A First Approximation. In *Proceedings of the 20th Tall Timbers Fire Ecology Conference: Fire in Ecosystem Management: Shifting the Paradigm from Suppression to Prescription*, edited by T. L. Pruden and L. A. Brennan, pp. 70–81. Tall Timbers Research Station, Tallahassee, Florida.

2000 *Studies in Landscape Fire Ecology and Presettlement Vegetation of the Southeastern United States*. Unpublished Ph.D. dissertation, University of North Carolina, Chapel Hill.

Frost, Cecil C., and Stephanie Wilds

2005 *Presettlement Vegetation and Natural Fire Regimes of Fort Bragg, North Carolina*. Report prepared for Endangered Species Branch, Natural Resources Division XVIII Airborne Corps, Fort Bragg, North Carolina.

Harmon, Michael A., and Rodney J. Snedeker

1997 The Archaeological Record of Tar and Pitch Production in Coastal Carolina. In *Carolina's Historical Landscapes: Archaeological Perspectives*, edited by Linda F. Stine, Marth Zierden, Lesley M. Drucker, and Christopher Judge. University of Tennessee Press, Knoxville.

Hart, Linda P.

1986 *Excavations at the Limerick Tar Kiln Site (38BK472)*. Francis Marion and Sumpter National Forests Cultural Resource Management Report 86–52.

Haynes, William

1916 *Sandhills Sketches*. Published by D. O. Haynes, New York.

Hockensmith, Charles D., and Cecil R. Ison

1996a Kentucky's Historic Pine Tar Industry: Comparisons Between Large and Small Scale Production Technologies. *West Virginia Archeologist* 48(1–2):1–18.

1996b Pine Tar Kilns and the Naval Stores industry of Eastern Kentucky. *Tennessee Anthropologist* 20(2):83–95.

Lawson, John

1966 [1709] *A New Voyage to Carolina; Containing the Exact Description and Natural History of that Country: Together with the Present State thereof and a Journal of a Thousand Miles Travel'd thro' Several Nations of Indians Giving a Particular Account of their Customs, Manners, etc.* 1966 facsimile ed., Readex Microprint, USA.

Oates, John A.

1950 *The Story of Fayetteville and the Upper Cape Fear*. Bowd Press, Charlotte, North Carolina.

Outland, Robert B., III

2001 Suicidal Harvest: The Self-Destruction of North Carolina's Naval Stores Industry. *The North Carolina Historic Review* 78(3):309–344.

NORTH CAROLINA ARCHAEOLOGY [Vol. 67, 2018]

2004 *Tapping the Pines: The Naval Stores Industry in the American South*.
Louisiana State University Press, Baton Rouge.

Perry, Percival

1968 The Naval-Stores Industry in the Old South, 1790–1860. *The Journal of Southern History* 34(4):509–526.

Robinson, Kenneth W.

1991 Archaeological Data Recovery at Weed's Lightwood Plant: An Early-twentieth Century Naval Stores Distillery, Cumberland County, North Carolina. Manuscript on file, North Carolina Department of Transportation, Raleigh.

1997 Port Brunswick and the Colonial Naval Stores Industry: Historical and Archaeological Observations. *North Carolina Archaeology* 46:51–67.

Schafale, M. P.

2012 *Guide to the Natural Communities of North Carolina: Fourth Approximation*. North Carolina Natural Heritage Program, Department of Environment and Natural Resources, Raleigh.

Sloane, Eric

1965 *A Reverence for Wood*. Ballantine Books, New York.

Sorrie, Bruce A., Janet B. Gray, and P. J. Crutchfield

2006 The Vascular Flora of the Longleaf Pine Ecosystem of Fort Bragg and Weymouth Woods, North Carolina. *Castanea* 71:127–159.

Southerlin, Bobby

2013 A Survey of Tar and Pitch Productions Sites in the Francis Marion National Forest, Part I. Paper presented at the 2013 Annual Conference of the Archaeological Society of South Carolina, Columbia.

2015 The Current Status of Research on Tar and Pitch Production Sites in Francis Marion National Forest, Berkeley and Charleston Counties, South Carolina. Paper presented at the Southeastern Archaeological Conference, Nashville, Tennessee.

Williams, Justin

1935 English Mercantilism and Carolina Naval Stores, 1705–1776. *The Journal of Southern History* 1(2):169–185.

OPTICALLY STIMULATED LUMINESCENCE DATES ON EARLY WOODLAND PERIOD POTTERY IN NORTHWESTERN NORTH CAROLINA

by

Thomas R. Whyte

Abstract

Two sherds of a ceramic vessel typologically assignable to the Early Woodland period Swannanoa or Watts Bar series that were recovered from a rockshelter in Watauga County, North Carolina were dated by optically stimulated luminescence. The resulting dates correspond to median radiocarbon assays in the mid-eleventh century BC.

The earliest ceramic technology found in the Appalachian Summit region of western North Carolina was defined by Bennie C. Keel, primarily on the basis of a buried Early Woodland period component at the Warren Wilson site (31BN29) in Buncombe County (Keel 1976). Named for the adjacent Swannanoa River, Swannanoa phase pottery is described by Keel as consisting primarily of coil-constructed conoidal jars with coarse sand and crushed quartz tempering and cord or fabric marked exteriors. Minor surface treatments include, plain, simple stamped, and (later) check stamped (Keel 1976). Keel considers this combination of attributes as having a northern origin. Other material culture associated with Swannanoa ceramics at the Warren Wilson site includes small, stemmed projectile points, soapstone vessels, bar gorgets, and net weights (Keel 1976). No structural remains other than isolated postmolds have been identified. Although Keel was unable to date the Swannanoa pottery from Warren Wilson, he estimated its age to between 700 and 200 BC based upon its similarity to ceramics dated in neighboring states.

Thus far, 13 radiocarbon dates on organic materials associated with Swannanoa/Watts Bar ceramics have been obtained from eight archaeological sites in the Appalachian Summit and adjacent Ridge and Valley province (Howell 2017). All but one are from sites in eastern Tennessee. The exception is one of the earliest dates (cal. 3340 BP) from the Katie Griffith site (31WT330) in Watauga County, North Carolina (Whyte 2003). Altogether, these dates range between approximately 3500 and 2500 BP (Howell 2017).

Recent developments in optically stimulated luminescence (OSL) dating of ceramic artifacts present the opportunity to directly date their manufacture/use. This is clearly preferable to estimating their ages by radiocarbon dating organic materials such as wood charcoal found in contextual association. Typically, in OSL dating of ceramics, individual sand grains are obtained from within a sherd and ionizing radiation that has accumulated within the grains since the last intensive heating of the sherd or vessel is measured and equated to time lapsed. Detailed descriptions of the process are provided by Finley et al. (2017), Murray and Wintle (2000), and Rittenour et al. 2015). The following is a report of OSL dating of two pottery sherds from a rockshelter site in northwestern North Carolina that would be classified as Swannanoa or Watts Bar cord-marked.

Church Rockshelter No. 2 (31WT39)

Church Rockshelter No. 2 (Figure 1) is an east-facing recess in weathered Cranberry Gneiss bedrock overlooking Watauga River in Watauga County North Carolina (Whyte 2013a). The site's elevation is 805 m above mean sea level. Excavations of the rockshelter were undertaken by Appalachian State University (ASU) in 1975 and 2011. The sheltered space includes two small areas of soil accumulation. The lower, larger area had been thoroughly excavated by artifact collectors and the 1975 ASU explorations. The smaller, more elevated space to the south appeared to be undisturbed prior to the 2011 excavations. Two adjacent 1x1-m units excavated in this space yielded artifacts dating primarily to the Early Woodland period. These include 33 sherds of a single conoidal ceramic vessel that was cord marked and tempered with finely crushed quartz, biotite, and muscovite (weathered to illite). This temper likely was produced by crushing a weathered piece of muscovite biotite schist. All particles are angular and less than 2 mm in size, giving the paste a sandy feel and thus the illusion of sand tempering. They were recovered from approximately 53 cm below surface. Because of this combination of tempering materials, Whyte (2013a) referred to this pottery as Watts Bar.

Two conjoining sherds (Figure 2) were selected for OSL dating to determine the age of the pottery and to evaluate the consistency of OSL assays. Descriptions of these sherds are provided in Table 1. Along with a soil sample for dosimeter reference, these sherds were submitted to the Institute for Integrated Research in Materials, Environments, and Society (IIRMES) at California State University, Long Beach. The reports from IIRMES are as follows.

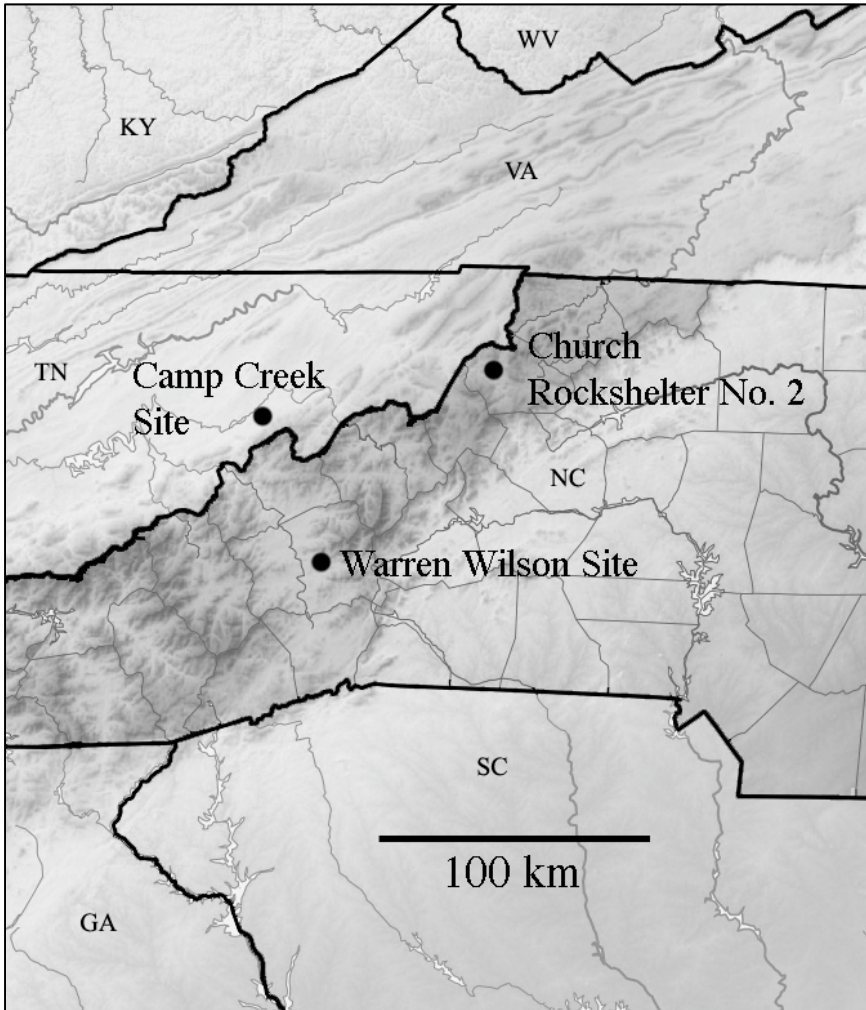


Figure 1. Locations of archaeological sites discussed.

31WT39-1 (Figure 3)

Twenty-three aliquots were analyzed, and all equivalent doses passed the criteria test. The luminescence signals of all aliquots were very strong. The average of the dates is 1065 ± 175 BC with an error term of 5.7% based on the central age model. Most of dates, based on each aliquot (22 out of 23), are within the 2-sigma range. Overdispersion rate of all dates is 5.9%, which suggests that all dates, based on each aliquot, are close to each other.



Figure 2. Pottery sherds 31WT39-1 (left) and 31WT39-2 (right) submitted for OSL dating.

Table 1. Descriptions of Pottery Sherds from 31WT39 Submitted for OSL Dating.

<hr/>	
31WT39-1 (LB1464)	
Vessel Portion: Body sherd with a coil break oblique to cord marking pattern.	
Temper: Sand and crushed quartz, biotite, and muscovite.	
Surface Treatment: Cord marked exterior and smoothed interior.	
Thickness: 6.3–7.3 mm.	
Exterior surface color (Munsell): 7.5YR5/4	
Interior surface color (Munsell): 10YR5/3	
Core color (Munsell): 7.5YR5/2	
31WT39-2 (LB1465)	
Vessel Portion: Body sherd with a coil break oblique to cord marking pattern.	
Temper: Sand and crushed quartz, biotite, and muscovite.	
Surface Treatment: Cord marked exterior and smoothed interior.	
Thickness: 6.1–7.8 mm.	
Exterior surface color (Munsell): 7.5YR6/4	
Interior surface color (Munsell): 7.5YR5/2	
Core color (Munsell): 7.5YR5/2	
<hr/>	

OPTICALLY STIMULATED LUMINESCENCE DATES

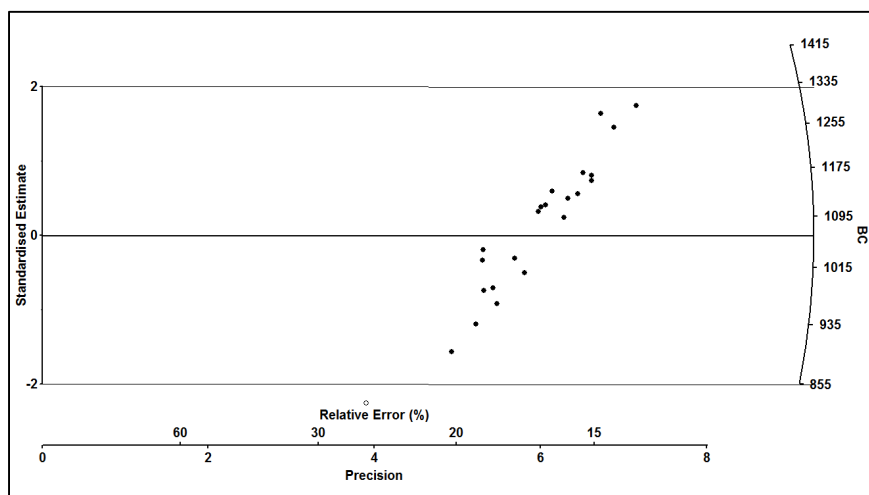
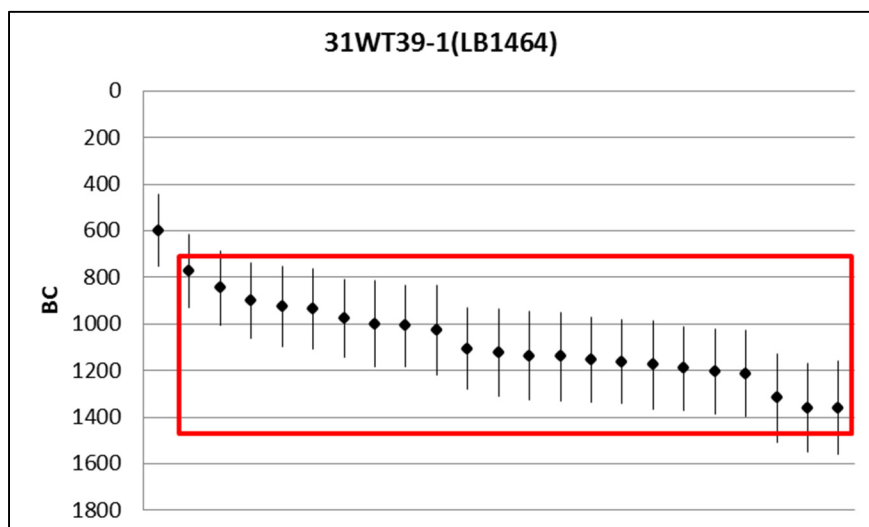


Figure 3. IIRMES OSL results for pottery sherd 31WT39-1 (LB1464).

31WT39-2 (Figure 4)

Twenty-four aliquots were analyzed, and 23 equivalent doses passed the criteria test. The luminescence signals of all aliquots were very strong. The average of the dates based on 23 aliquots is 1162 ± 183 BC with an error term of 5.8% based on the central age model.

Overdispersion rate of all dates is 10.5%. Five dates are beyond the 2-sigma range. The average dates, excluding these five, based on the central age model is 1068 ± 169 BC. Overdispersion rate is 5.5%. Since the dates within the 2-sigma range cluster tightly, the latter date is the better estimate of this sample.

Summary

The reports from IIRMES are contained in Figures 3 and 4. Sherd number 31WT39-1 (LB1464) yielded a date estimate of 1065 ± 175 BC (Figure 3) and Sherd number 31WT39-2 (LB1465) yielded a nearly identical date estimate of 1068 ± 169 BC (Figure 4). These approximate the mean for radiocarbon dates reported by Howell (2017).

Discussion

Two sherds from one ceramic vessel assignable to the Early Woodland Swannanoa or Watts Bars series were submitted to IIRMES for OSL dating. The two sherds, recovered from Church Rockshelter No. 2 (31WT39) in western Watauga County, North Carolina, yielded nearly identical age estimates (1065 ± 175 BC and 1068 ± 169 BC). These OSL dates approximate the median for radiocarbon dates associated with Swannanoa/Watts Bar pottery from sites in the region (Howell 2017). The fact that two conjoinable sherds produced such similar dates, to some extent, corroborates the accuracy of OSL dating of pottery.

There is no evidence of permanent residence in the Appalachian Summit during the Early Woodland period (Whyte 2003). Early Woodland sites in the region are generally small, contain few if any postmolds or features other than hearths, and the pottery is often made of non-local clays indicating seasonal migrations into the uplands from elsewhere (Whyte 2003). Tempering materials of these early wares also may indicate varying geographic sources. The varying tempers, including those observed by Lewis and Kneberg (1957) at the Camp Creek site, may reflect the varying lithologies of the geographic areas in which the ceramics were manufactured; some of these vessels were then transported from one region to another by their makers, possibly through

OPTICALLY STIMULATED LUMINESCENCE DATES

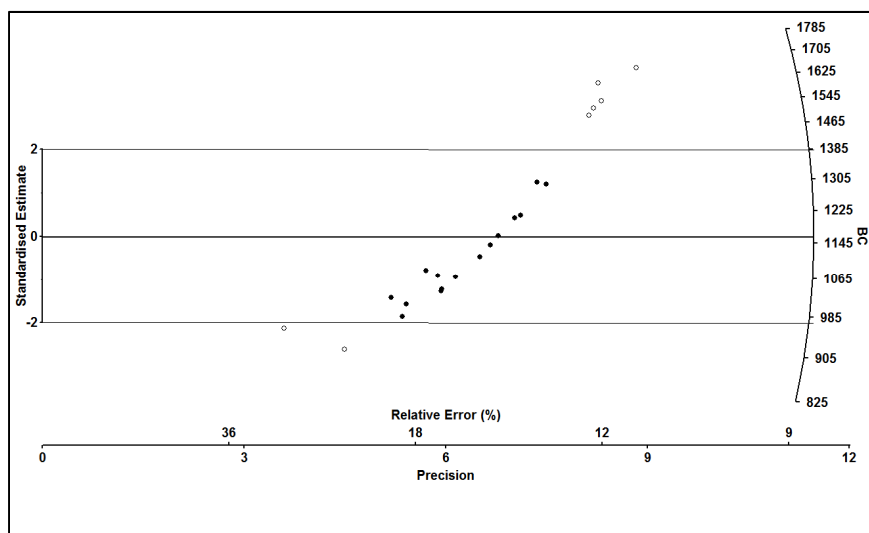
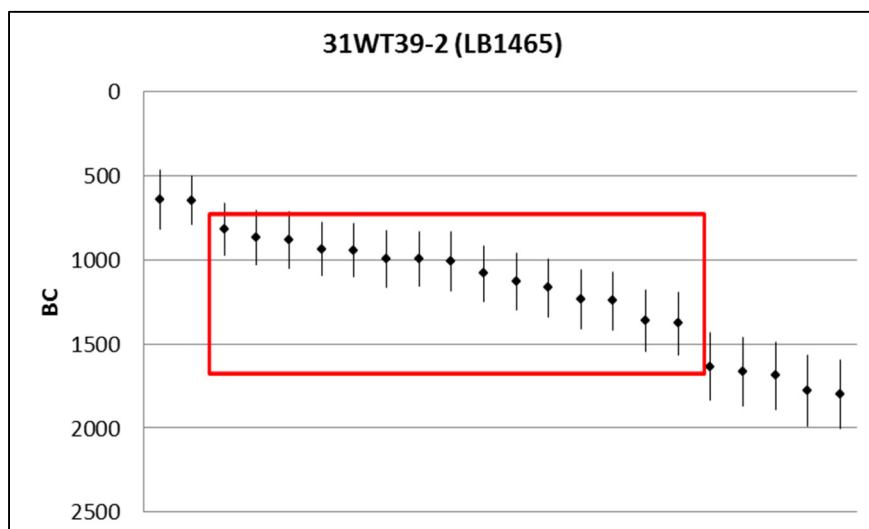


Figure 4. IIRMES OSL results for pottery sherd 31WT39-2 (LB1465).

seasonal migration between the lowlands of the Ridge-and-Valley province and the uplands of the Blue Ridge province.

The Swannanoa series is nearly identical in its description to that of the Watts Bar series described by Lewis and Kneberg (1957) for eastern Tennessee. They describe the pottery as fabric or cord marked and tempered with sand or crushed quartzite. And much like Keel's (1976) description of the Swannanoa series, they observe that a small percentage of sherds are plain, check stamped, or simple stamped, and some exhibit "crude incising." Lafferty (1981:312) observed that pottery from northeastern Tennessee could be assigned to either of the two types but argues that the differences could reflect "differences in family pottery traditions" and "Quite conceivably, these represent different artisans and consistent differences in their approach to the making of pottery." In effect, the only differences between the two series appear to be the state line that divides them and descriptions of the tempering particles (Whyte 2013b). Indeed, if ceramic types were species, Watts Bar would be given taxonomic priority and the Swannanoa series dropped from the nomenclature.

The similarities between the cord-marked wares of the southern Appalachian region and slightly older Vinette 1 wares of the Northeast have long been recognized (Keel 1976). Vinette 1 pottery also consists primarily of conoidal jars tempered with finely crushed rock (Taché 2005), formed by coiling and marked on the exterior with cord patterns oblique to the rim (Ritchie and MacNeish 1949). Furthermore, evidence from numerous sites containing these ceramics, like those of the southern Appalachian region, indicates scheduled seasonal migration (Jackson 1986).

During the final days of seasonally migratory hunter-gatherer existence in the eastern woodlands, adoption of ceramic vessel technology would have spread along existing lines of communication that had been established in the earlier, Late Archaic period (Whyte 2007). This suggests the existence of some form of communication linking the eastern Great Lakes region with the Appalachian Summit. At first, a successful technology incorporating crushed rock tempering, coiling, conoidal shapes, and cord marking would have been replicated from one human group to another. As humans became less mobile and began to experiment with their own expressions of and improvements on the technology, communities of ceramic practice may have become more restricted in space and distinctive regional variations in ceramics, such as

OPTICALLY STIMULATED LUMINESCENCE DATES

those witnessed in Middle Woodland period assemblages, would have resulted.

Notes

Acknowledgments. I am grateful to Cameron Howell for sharing his knowledge of Swannanoa pottery, to the late Charles Church for allowing me to excavate at Church Rockshelter No. 2, to Sachiko Sakai of IIRMES, California State University, Long Beach for OSL dating, and to the Appalachian State University Department of Anthropology for funding this research.

References Cited

- Finley, Judson B., Carlie J. Ideker, and Tammy Rittenour
2017 Single-Grain Optically Stimulated Luminescence Ages of Brownware Pottery in the Middle Rocky Mountains and the Spread of Numic Ceramic Technology. *American Antiquity* 82:761–780.
- Howell, Cameron
2017 Tracing Ceramic Origins in the Highlands: Refining the Swannanoa Phase in Space and Time. Paper presented at Upland Archaeology in the East, Symposium XII, Boone, North Carolina.
- Jackson, L.J.
1986 New Evidence for Early Woodland Seasonal Adaptation from Southern Ontario. *American Antiquity* 51:389–401.
- Keel, Bennie C.
1976 *Cherokee Archaeology: A Study of the Appalachian Summit*. University of Tennessee Press, Knoxville.
- Lewis, T.M.N., and Madeline Kneberg
1957 The Camp Creek Site. *Tennessee Archaeologist* 8:1–48.
- Lafferty, Robert H., III
1981 *The Phipps Bend Archaeological Project*. TVA Publications in Anthropology No. 26, Norris, Tennessee.
- Murray, Andrew S., and Ann G. Wintle
2000 Luminescence Dating of Quartz Using an Improved Single-Aliquot Regenerative Dose Protocol. *Radiation Measurements* 32:57–73.
- Ritchie, William A., and Richard S. MacNeish
1949 The Pre-Iroquoian Pottery of New York State. *American Antiquity* 15:97–124.
- Rittenour, Tammy M., Larry L. Coats, and Duncan Metcalfe
2015 Investigation of Late and Post-Fremont Alluvial Stratigraphy of Range Creek, East-Central Utah: Use of OSL when Radiocarbon Fails. *Quaternary International* 362:63–76.
- Taché, Karine
2005 Explaining Vinette I Pottery Variability: The View from the Batiscan Site, Québec. *Canadian Journal of Archaeology* 29:165–233.

NORTH CAROLINA ARCHAEOLOGY [Vol. 67, 2018]

Whyte, Thomas R.

- 2003 Prehistoric Sedentary Agriculturalists in the Appalachian Summit of Northwestern North Carolina. *North Carolina Archaeology* 52:1–19.
- 2007 Proto-Iroquoian Divergence in the Late Archaic-Early Woodland period Transition of the Appalachian Highlands. *Southeastern Archaeology* 26:134–144.
- 2013a Archaeological Investigations at Church Rockshelter No. 2 (31WY39), Watauga County, North Carolina. *North Carolina Archaeology* 62:27–54.
- 2013b State Lines, Headwaters, and Ceramic Typologies in the Appalachian Summit. Paper presented at the 70th annual meeting of the Southeastern Archaeological Conference, Tampa, Florida.

AN UNUSUAL BURIAL TREATMENT?: TWO STONE-LINED GRAVES FROM GUILFORD COUNTY, NORTH CAROLINA

by

**Shawn M. Patch, Lauren Minford,
and Scott Halvorsen**

Abstract

Site 31GF514 in Guilford County, North Carolina, has two graves that are unusual because of their topographic setting, orientation, and use of stone to create above-ground containers. These graves do not fit neatly into previously identified patterns for burial treatment in the Piedmont. Based on the available evidence, we suggest the use of stone for above-ground burial reflects a practical response to the problem of digging graves in these particular locations. The individuals were likely buried in the nineteenth century, but at present it is not possible to offer a more precise date.

The purpose of this article is to document an unusual burial treatment observed for two historic graves at site 31GF514 in Guilford County, North Carolina. We include a site description, overview of typical burial treatments for Piedmont North Carolina, and possible factors that may have influenced the use of stone and unique burial treatment in this situation.

Site 31GF514 was identified during an archaeological survey by New South Associates, Inc., for the proposed widening of U.S. 158 in Forsyth and Guilford counties, North Carolina (Patch et al. 2015). The project is designated as TIP# R-2577ABC by the North Carolina Department of Transportation and includes several new location alternatives around Stokesdale. As a result of design changes, the cemetery will not be impacted by any proposed construction activities.

Site Description

Site 31GF514 contains two stone piles on a very narrow landform adjacent to a small stream (Figure 1). The piles are located approximately 30 m from each other. Each pile was placed on the only area of flat ground in its immediate vicinity (see contour lines on Figure 1), and both are oriented almost exactly north-south. Despite the unusual placement and orientation, the piles were initially assumed to be possible

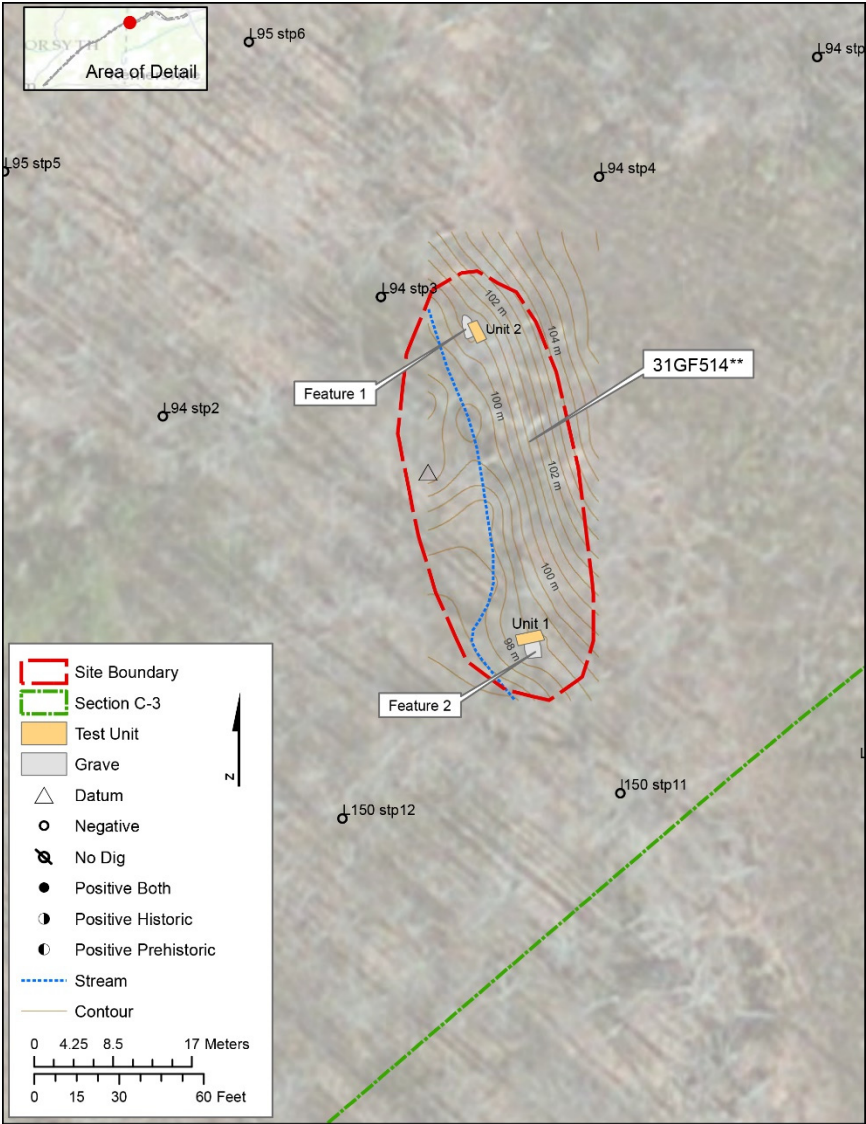


Figure 1. Map of site 31GF514 showing surface features and topography.

graves. The contour lines indicate a fairly steep slope to the east immediately above the stream bank. No other surface features were noted in the vicinity, and shovel tests at 30-m intervals did not yield any artifacts. Historic maps from 1910, 1920, 1924, and 1938 did not show any dwellings or other buildings around the piles, although that does not

AN UNUSUAL BURIAL TREATMENT?

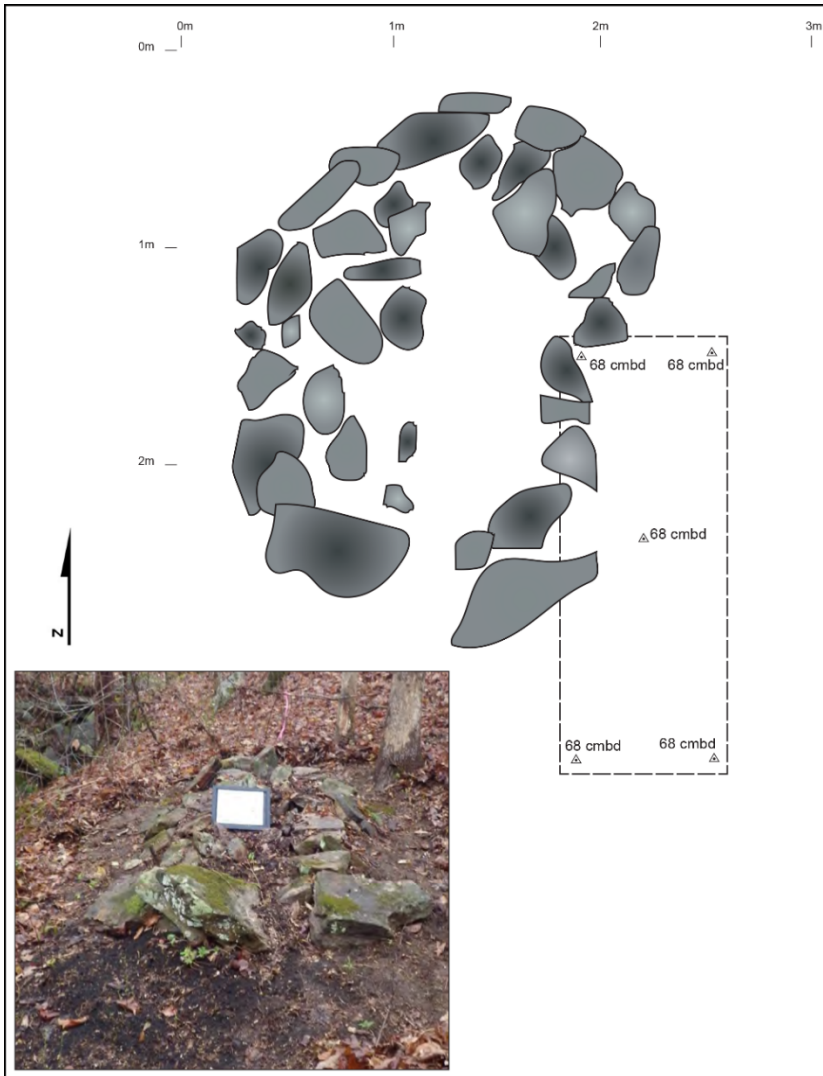


Figure 2. Plan view map and photograph of Feature 1.

mean that earlier buildings could not have been present and demolished prior to the first known map.

After consultation with NCDOT and the North Carolina Office of State Archaeology (OSA), all parties agreed that limited archaeological testing was necessary to determine with certainty whether or not these stone piles were graves. We also conducted additional research to obtain

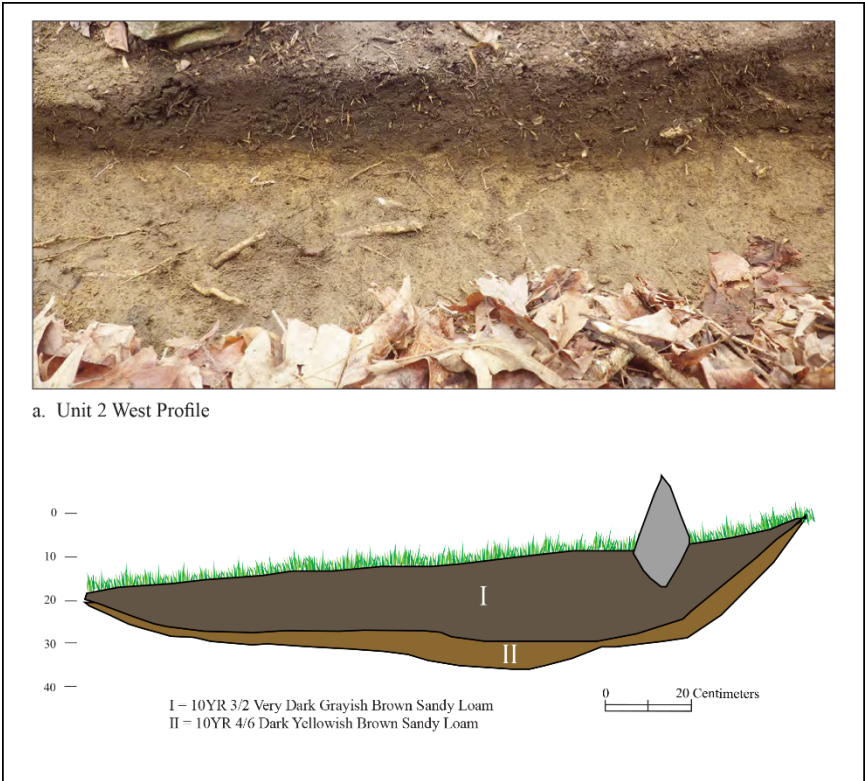


Figure 3. Profile drawing and photograph of Feature 1.

more information about the burial treatment, date(s) they were interred, and possible ethnic affiliation. The subsequent excavations confirmed that the two piles of stone were human graves.

Feature 1 (northern) has a large pile of rocks in an oblong shape with a slight depression in the center (Figure 2). It measures approximately 2.5 m long (north-south) and 1.5 m wide (east-west). Many of the stones are somewhat large, and those at the southern end may have been placed atop the grave.

Excavation Unit 2 was placed along the eastern side of Feature 1 and reached a depth of 15-20 cm (Figure 3). The stratigraphy of the unit was as follows: Stratum I, a 10YR 3/2 very dark gray brown sandy loam from 0-20 cm below surface; and Stratum II, a 10YR 5/6 yellowish brown sandy loam below 20 cm. A dark black, highly organic soil stain was noted leaching onto the surface on one end of the feature. This was likely material from the burial.

AN UNUSUAL BURIAL TREATMENT?

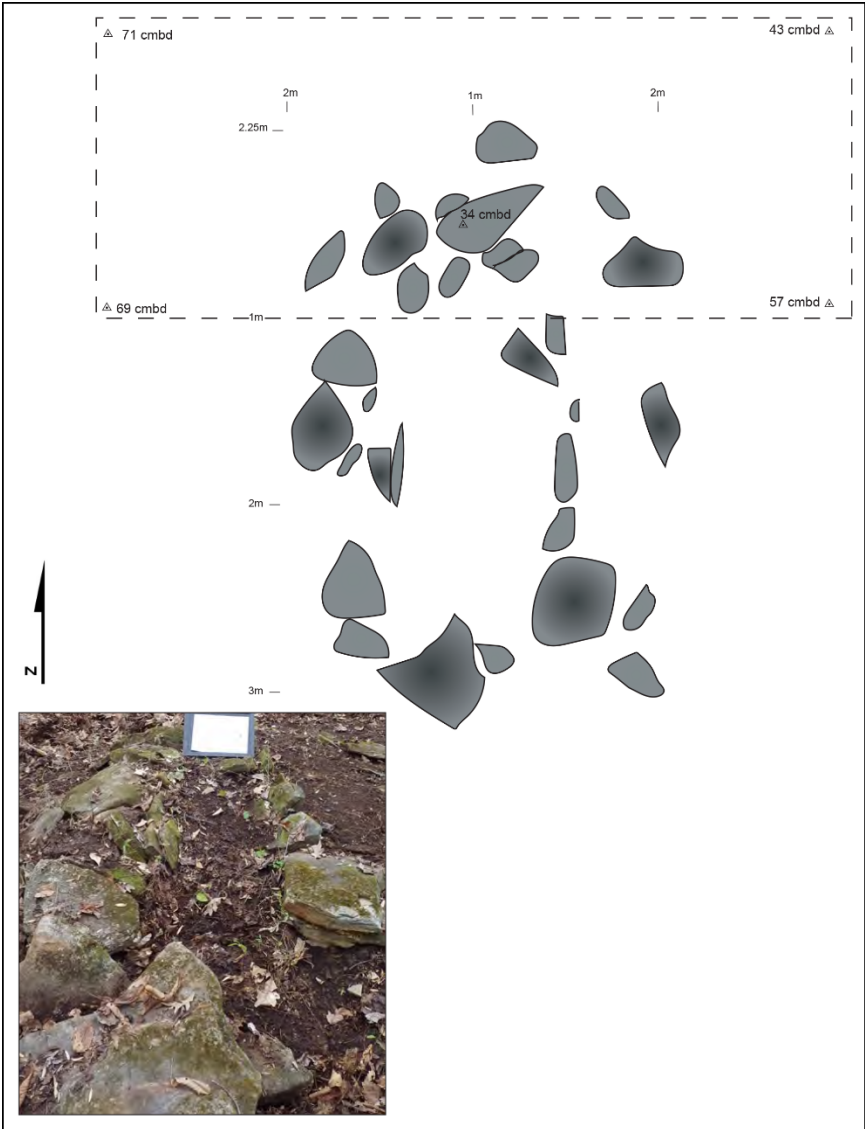


Figure 4. Plan view map and photograph of Feature 2.

Feature 2 (southern) has flat slabs that were placed in the ground vertically and likely had other slabs placed across the top, as well as a slight depression in the center (Figure 4). This rock pile also measured 2.5 m long (north-south) but was slightly more than one meter wide (east-west).



Figure 5. Plan view photograph of Feature 2.

Excavation Unit 1 was placed outside the northern end of Feature 2, bisecting the rock pile to create a window (Figure 5). The unit measured 170 cm by 330 cm, and only reached a depth of about 10-15 cm (Figure 4).

Artifacts recovered from the two excavation units included a brass ring, cut nails (dating from 1805 to present) (Miller 2000), a glass button, and several shells (Figure 6). The brass ring is rather simple in terms of form and craftsmanship, but it does have a possible amethyst or amethyst glass setting. The glass button has a soldered back that has been broken. On the front are multiple facets. Based on its style and size, it may have come from an article of clothing such as a shawl but was not heavy enough for an overcoat. The cut nails are short, and one has wood still adhering to it. There is no doubt these came from a burial container. The shells are very small fragments of common land snails that occur naturally. Their presence adjacent to a stream is not unexpected, and they were not likely the result of cultural practices. Based on these artifacts, we suggest the burials date from the mid- to late-nineteenth century.

Research at the Guilford County Register of Deeds and the Guilford County Clerk of Court was conducted in the hopes of possibly identifying a full chain-of-title back to the early nineteenth century and, although a long shot, to maybe find a reference to a family cemetery and/or identify the ethnicity of the interred individuals. Unfortunately, the records could not be traced beyond 1871, which likely post-dates the burials by at least several decades (based on the small artifact assemblage).

AN UNUSUAL BURIAL TREATMENT?



0 .5 1 CM

glass button



0 .5 1 CM

brass ring



0 1 2 CM

cut nails

Figure 6. Artifacts from excavations at site 31GF514.

Stone Burial Traditions

The use of rocks for human graves originated in the precontact period and continued into the historic period (Gresham 1990). Graves with stones similar to these are variously referred to as “cairns,” “crypts,” “piles,” “vaults,” and “tombs,” and were common throughout Appalachia (Jeane 1978). Historic use of rock cairns was more common in rural areas where fieldstone was readily accessible and where access to commercial sources may have been difficult. The use of stone cairns as a burial treatment were prevalent among Highlander Scots and has been documented throughout the Appalachian region (Little 1998). Fieldstone markers have a long tradition in the Upland South across time and space and were used by a range of ethnic groups.

Discussion

The graves at site 31GF514 are enigmatic for several reasons. The site does not fit neatly within any of the previously recognized burial traditions for the Piedmont. First, the topographic setting is unusual, with both graves placed on the only flat terrain in the immediate vicinity. And, their orientation deviates from the typical east-west pattern seen in most cemeteries. That leads to a question of why were they interred here? What was significant or important about this location to begin with? Research in the Southeast has indicated a pattern of certain African-American graves being placed on marginal land, often near water. This is particularly strong for the Ante-Bellum period and along the Georgia and Carolina coasts (Chicora Foundation, Inc. 1996; Patch et al. 2010). Because the deed records are incomplete, the ownership history is not entirely clear; however, they certainly indicate African-American ownership, which may be a clue to the ethnicity of the interred individuals.

Second, there is no associated dwelling that might indicate this was a family cemetery. In fact, the graves themselves are in a low spot in the landscape that would otherwise have low visibility. No ornamental plantings were noted, although the site was investigated in late March, not full spring, and it cannot be ruled out entirely. Although not a formal cemetery, a certain level of planning is implied given the use of at least one coffin and the amount of effort that was expended to create the stone coverings. Does the location next to a stream indicate a trail or other thoroughfare? If so, did the deceased die in transit to/from one location to another?

AN UNUSUAL BURIAL TREATMENT?

Third, both graves appear to be very shallow, suggesting they were not buried in shafts but instead were placed on the surface. At least one of the burials was placed in a wooden container, which indicates some care was used for burial. The burial container was placed on the ground and the stones were piled around and on top of it. Feature 2, in particular, shows evidence of rocks that were placed vertically around a burial container.

Conclusions

We do not have specific answers to the questions raised by the patterns observed at site 31GF514. The standard research approaches we conducted, including deed and map research and archaeological excavations, have not produced satisfactory answers. There are many intriguing possibilities, but absent hard data, it would be pure speculation to infer anything beyond the descriptions presented here. The graves do not fit neatly into existing cemetery contexts for the South (Crissman 1994; Jeane 1978). Based on the available evidence, we suggest the use of stone for above-ground burial reflects a practical response to the problem of digging graves in these particular locations. The individuals were likely buried in the nineteenth century, but at present it is not possible to offer a more precise date. We welcome any input or information from the broader archaeological community.

References Cited

Chicora Foundation, Inc.

1996 *Grave Matters: The Preservation of African-American Cemeteries*.
Columbia, South Carolina.

Crissman, James K.

1994 *Death and Dying in Central Appalachia*. University of Illinois Press,
Urbana.

Gresham, Thomas H.

1990 Historic Patterns of Rock Piling and the Rock Pile Problem. *Early Georgia*
18(1-2):1-40.

Jeane, Gregory D.

1978 The Upland South Cemetery: An American Type. *Journal of Popular*
Culture 11:895-903.

Little, Ruth

1998 *Sticks and Stones: Three Centuries of North Carolina Grave Markers*.
University of North Carolina Press, Chapel Hill.

Miller, George L.

2000 Telling Time for Archaeologists. *Northeast Historical Archaeology* 29:1-22.

NORTH CAROLINA ARCHAEOLOGY [Vol. 67, 2018]

Patch, Shawn M., Sarah Lowry, Staci Richey, and J.W. Joseph

2010 *Windows in Time: Documentation, Mapping, and Management Recommendations for Eight Historic Cemeteries at Marine Corps Air Station Beaufort, Beaufort County, South Carolina*. New South Associates Technical Report No. 1883, Stone Mountain, Georgia.

Patch, Shawn M., Lauren Souther, Rebecca Shepherd, and Ellen Turco

2015 *Intensive Archaeological Survey and Testing for Proposed Widening and Improvements to U.S. 158, Forsyth and Guilford Counties, North Carolina*. New South Associates, Inc., Stone Mountain, Georgia.

ABOUT THE AUTHORS

Thomas E. Beaman, Jr., RPA, Associate Professor of Anthropology, Wake Technical Community College, Scott Northern Wake Campus, BH 255, 6600 Louisburg Road, Raleigh, North Carolina 27616-6328

Linda F. Carnes-McNaughton, Cultural Resources Management Program. Directorate of Public Works, Attn: (IMBG-PWE-MCR), 2175 Reilly Road, Stop A, Fort Bragg, North Carolina 28310-5000

William J. Feltz, Oak Ridge Institute of Science and Education, Fort Bragg, 2175 Reilly Road, Stop A, Fort Bragg, North Carolina 28310-5000

Scott Halvorsen, North Carolina Department of Transportation, 1020 Birch Ridge Drive, Building B, Raleigh, North Carolina 27610

Joseph M. Herbert, Colorado State University, Center for the Environmental Management of Military Lands, Fort Bragg. Directorate of Public Works, Attn: (IMBG-PWE-MCR), 2175 Reilly Road, Stop A, Fort Bragg, North Carolina 28310-5000

Jim McKee, Site Manager, Brunswick Town/Fort Anderson State Historic Site, 8884 St. Philip's Road Southeast, Winnabow, North Carolina 28479

Vincent H. Melomo, Associate Professor of Anthropology and Department Chair of Culture, History, and Politics William Peace University, 15 East Peace Street, Raleigh, North Carolina 27604

Lauren Souther Minford, JMT, 9201 Arboretum Parkway, Suite 310, Richmond, Virginia 23236

Jonathan Schleier, Colorado State University, Center for the Environmental Management of Military Lands, Fort Bragg. Directorate of Public Works, Attn: (IMBG-PWE-MCR), 2175 Reilly Road, Stop A, Fort Bragg, North Carolina 28310-5000

Michelle Hagstrom Parsons, 868 King Arthur Drive, Fayetteville, North Carolina 28314

Shawn M. Patch, New South Associates, Inc., 1006 Yanceyville Street, Greensboro, North Carolina 27405

Thomas R. Whyte, Department of Anthropology, Appalachian State University, Boone, North Carolina 28608