ARCHAEOLOGICAL INVESTIGATIONS AT KENDAL PLANTATION ON THE LOWER CAPE FEAR RIVER, BRUNSWICK COUNTY, NORTH CAROLINA

CHICORA FOUNDATION RESEARCH SERIES 74

The cover illustration is a portion of the 1858 Coastal Survey Chart “Cape Fear River, North Carolina.” This chart shows the Kendal cluster of four structures with the rice barn to the northeast. South of Kendal is Orton Plantation while to the north is Lilliput Plantation. Also shown is a bottle seal used by Roger Moore to mark his wine bottles.

ARCHAEOLOGICAL INVESTIGATIONS AT KENDAL PLANTATION ON THE LOWER CAPE FEAR RIVER, BRUNSWICK COUNTY, NORTH CAROLINA

Research Series 74

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Reason and free inquiry are the only effectual agents against error.

-- Thomas Jefferson, *Notes on Virginia*, 1781-1782

ABSTRACT

This research explores the history and archaeology of Kendal Plantation in Brunswick County, North Carolina. The plantation is situated on the left bank of the Lower Cape Fear, just a few miles above the Brunswick Town eighteenth century settlement. Kendal's most famous occupants were the Moore family, with the plantation begun by the patriarch, "King" Roger Moore.

For years, oral history told the story of Roger Moore building on Kendal only after his plantation to the south, Orton, was destroyed. This same tradition explained Kendal's abandonment as Moore rebuilt Orton.

While the investigations at Kendal cannot directly address many of the Orton claims, we have been able to ascertain that it was Kendal, not Orton, where the Moore family first settled after leaving South Carolina, probably in the late 1720s. The first structure built was a brick kitchen, which likely also had living space and certainly contained quarters for kitchen slaves.

Nearby, a far more elaborate brick house was constructed and used by Moore, before he apparently began building Orton in the mid-1740s.

These are very early brick structures, helping to document the power and wealth of the Moore family, uniting them among the political elite of coastal North Carolina. As one researcher has suggested, the presence of this architecture marked the owners as those who "controlled the landscape and other people."

With the death of Roger Moore in 1750, the plantation, including the brick kitchen and brick house, passed to his son, George Moore. Archaeological evidence reveals that these brick structures remained intact and in-use throughout the eighteenth century, probably being used by the Davis family and later by Robert Howe and Benjamin Smith.

When Kendal was acquired by Gabriel Holmes in the 1820s, there is evidence that the frame Kendal structure replaced the original brick structures within the next decade or two. At least one frame slave house, a frame storehouse, and a frame root cellar all date from about this time period.

The storehouse had a relatively short use period, while the slave house, root cellar, and Kendal house all were used through the property's ownership by Frederic Kidder. It was likely during Kidder's ownership that Kendal received several additions, resulting in a large, rambling structure. A year after the acquisition of Kendal by James Sprunt, the Kendal house was lost to fire in 1919.

The colonial artifact patterns consistently match the pattern identified as the Carolina Elite Pattern, speaking directly to the wealth and prestige of the Moore family. In the Colonial Kitchen, porcelains account for 15% of the ceramic collection. While the proportion is much lower in the Colonial House (only 6%), this is still comparable to the urban settings identified by Martha Zierden in Charleston.

A large quantity of wine bottles was recovered from the colonial assemblages, including a number of seals marked for Roger Moore. Proper entertaining required "a ready and prodigious supply of wine." The presence of bottle seals further documents the wealth and taste of Roger Moore. Characteristic of fine dining and entertaining, the Kendal collections produced a variety of tablewares, including stemware and tumblers. The equipment necessary for tea and coffee drinking was also found in the Kendal assemblages, along with a variety of other seemingly high-status goods, such as gilt buttons.

Nevertheless, the bulk of shoe buckles were not especially ornate and no wig curlers were found in the assemblage, suggesting the Moore family were relatively plainly dressed.

These archaeological investigations, while focusing on the colonial activities at Kendal, serve to trace the development of the plantation, examining the architectural remains, including analysis of mortar and brick samples.

Detailed examination of the cultural remains was combined with careful analysis of the faunal remains, which were found to be dominated by cow and pig, with minor amounts of probable sheep.

While cattle were the most common food, the study found a very diverse faunal assemblage associated with the Colonial Kitchen. Like others in their social rank, the Moore's status was demonstrated by the amount and diversity of meats served. In addition, the faunal study found no gnawed bone in the assemblage, suggesting that the plantation grounds were kept free of open debris pits and/or an effort to eliminate rodents. Moreover, there is compelling evidence that the plantation's cattle were being butchered on-site.

Coupled with the faunal study was examination of several oyster collections, as well as the analysis of eggshell recovered in flotation samples.

The ethnobotanical remains recovered from the site are equally diverse, revealing the presence of corn, beans, peas, rice, mustard, and peach. Other possible foods included grapes and hickories. Non-food plant remains included goosefoot, bedstraw, and knotweed, which help to reconstruct the Kendal environs. Not surprisingly, considering the importance of longleaf pine on the coast of North Carolina, the dominant wood charcoal was pine. Minor quantities of oak, hickory, water tupelo, magnolia, cedar, and dogwood also help to better document the site ecology. Several fragments of dimensional lumber were recovered from the burned antebellum Kendal house, including pine (from timbers and moldings) and cypress (from cladding).

A variety of pollen and phytolith collections were obtained from both colonial and antebellum settings. A notable finding for the colonial occupation was the presence of wheat which had been processed into a fine white flour. The presence of this processed flour is another example of the Moores' very high status. There is also evidence that holly was being processed into a medicinal beverage, possibly a vermifuge.

The Kendal assemblage offers an exceptional opportunity to explore the lifeways of colonial and early antebellum plantation owners along the Lower Cape Fear in North Carolina. Of particular interest is the opportunity to compare and contrast these lifeways not only with more metropolitan centers, such as Charleston, but also with nearby Brunswick Town.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Introduction

This project grew out of a three year involvement with Belvedere Property Management at Orton Plantation in Brunswick County, North Carolina (Figure 1).

In 2010 Louis Moore Bacon began acquiring property along the Cape Fear River, including over 6,400 acres of Orton Plantation which dates back to his ancestor, Roger Moore. As a result of his acquisition, Orton Plantation's acreage is protected by a conservation easement held by the North Carolina Coastal Land Trust; Orton's original long-leaf pine forests are being restored, providing critical habitat for threatened species; and Orton's iconic rice fields, once a focus of Brunswick County's plantation economy, are also being gradually restored. Recently, the National Register nomination for Orton Plantation has been revised to incorporate approximately 1,100 acres.

In early 2012 Chicora Foundation was invited to examine the cemeteries on the plantation and this initial inspection evolved into conducting conservation work at the two cemeteries, as well as a reconnaissance level archaeological investigation of the property (Trinkley and Hacker 2012). This work incorporated extensive historical background coupled with field investigations. A total of 27 archaeological sites were identified, including the main settlements, the two burial grounds, and a great many settlements associated with the African Americans who lived and worked on Orton and Kendal plantations.

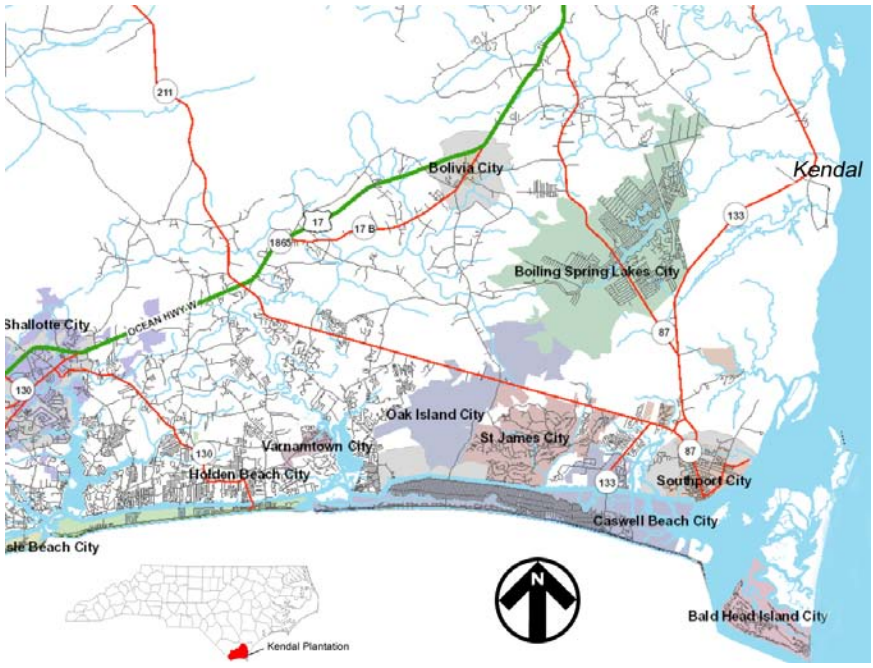

Figure 1. Location of Kendal Plantation in Brunswick County, North Carolina. Orton is immediately to the south.

The conservation work at the plantation vaults (31BW787**2) necessitated the archaeological removal of remains to allow for vault repairs. This presented an exceptional opportunity to examine both the architecture of the vaults, as well as the skeletal remains from within the vaults (Trinkley and Hacker 2014). The four vaults produced remains of 11 individuals, including those of Roger Moore. The investigations incorporated bone lead analysis, isotopic dietary analysis, facial reconstruction, parasitological studies, and aDNA work.

Figure 2. Kendal Plantation in Feburary 2012 showing brick rubble and overgrowth.

In early 2014 brief excavations were conducted in the south yard of Elijah's House (31BW787*7), a frame structure used by a white estate carpenter during the early twentieth century. The yard area, however, revealed evidence of occupation into the late antebellum, probably reflecting artifacts from enslaved African Americans (Trinkley and Hacker 2015).

Kendal Plantation

During the 2012 reconnaissance, Kendal Plantation was formally recorded as archaeological site 31BW788. At this time much of the site was overgrown (Figure 2), but considerable evidence of brick rubble was apparent over an area measuring about 300 by 400 feet, or about 2.75 acres (Trinkley and Hacker 2012:203).

Brick piles and remnant walls clearly defined at least a portion of the Kendal house that had been standing until an early twentieth century fire. In addition, a depression suggested a possible ice house or root cellar and the remains of what appeared to be a kitchen or slave house was also present. Although all of these ruins looked antebellum and the ceramics collected from the site provided a mean ceramic date of 1826, there were indications of an earlier occupation, such as the presence of eighteenth century Chinese porcelains, lead glazed slipware, and delft.

Although our investigations were only at the reconnaissance level, we nevertheless recommended the Kendal Plantation site eligible for inclusion on the National Register, based on the quantity and quality of the remains found at the site. We also observed that Kendal was especially important since the Orton Plantation to the south had been heavily affected by recent architectural modifications.

By early 2014 there were discussions regarding the interest in creating a guest house on the Kendal property. The need for archaeological investigations was recognized and a proposal was developed that would allow detailed investigations not only in the footprint of the proposed guest house, but also elsewhere on the site.

The proposal was approved by mid 2014 and excavations were scheduled for late 2014 going into 2015. The investigations were conducted by a crew of six field archaeologists, Elise Agne, Briana Bigger, Andrew Hyder, Meleah Inboden, Jason McKellar, and Colton Tinker.

Michael Trinkley served as the principal investigator and field director. Debi Hacker served as the field laboratory director, processing and inventorying collections immediately after their excavation.

Previous Historical Archaeology

Brunswick Town

Historical archaeology began in North Carolina with the research of Stanley South at Brunswick Town (established in 1726), just 2 miles south of Kendal (although Russellborough is only a mile to the south of Orton), in the 1950s and 1960s (South 2010). That work is still ongoing (see, for example Beaman and Melomo (2011).

It is worth noting that Roger Moore owned a lot (number 75) and house in Brunswick Town which was apparently used as rental property. South conducted excavations on this lot in 1959, producing a brief technical report (South n.d. d, 2010:155-162). Although the Moore lot and house had been damaged by site looters, South was able to determine that the Roger Moore house dated from the very earliest occupation of Brunswick Town (1731) until 1776 when the town was burned by the British. The Binford pipe dating formula revealed a date of 1748, which South notes correlated well with the known time span for Brunswick (South n.d. d:17).

The main dwelling house was wood, measuring 22 by 30 feet with a porch added after the original construction. To the south was a small 10-foot square (later reported to be 6 by 10 foot) wood structure set on a partial stone foundation. South conjectures that this was a slave house, although no mention was made of a fire place.

Recently there have been several very useful synopses of Brunswick Town archaeology. Nearly an entire volume of *North Carolina Archaeology* was devoted to the site's investigations and artifacts in 1997. Colonowares (Loftfield and Stoner 1997), deftware tiles (Beaman 1997), and olive jars (Mintz and Beaman 1997) have all been further studied.

The following year, Beaman and his colleagues (1998) compiled a useful overview of archaeology at Brunswick Town, including a list

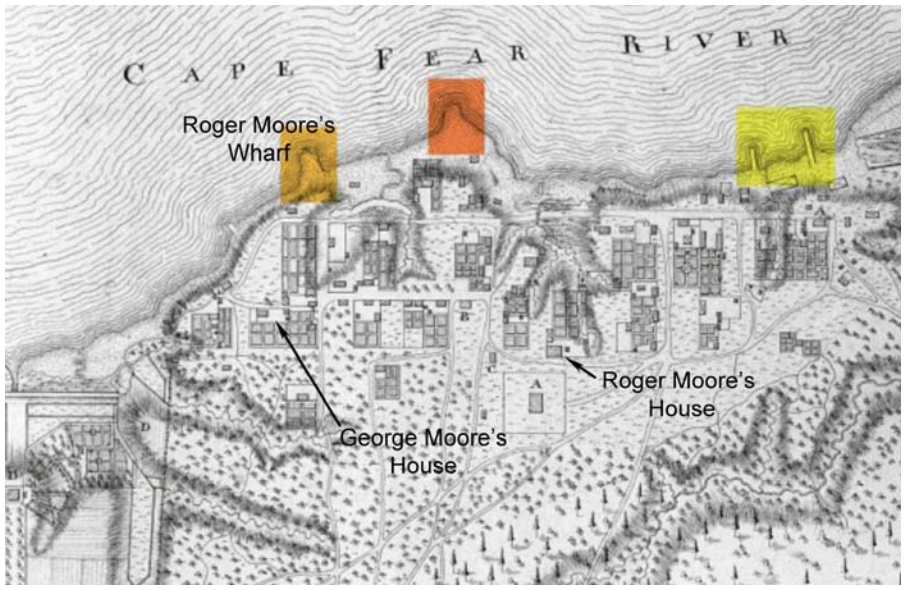

Figure 3. Portion of Sauthier's 1769 *Plan of the Town and Port of Brunswick* showing the wharfs on the Cape Fear (reddish-orange wharf is William Dry's and the two yellow highlighted wharfs are in the commercial district). Also shown is Roger Moore's rental property in Brunswick and the lots given by Roger Moore's will to George Moore which was apparently built on by George Moore as a seasonal residence.

features excavated and the reference for that particular research.

Jennifer Gabriel (2012a, 2012b) used Beaman's (2001) Carolina Elite (Artifact) Pattern to determine that the artifacts at South's Wooten-Marnan Lot were of elite or very high status. The lots were purchased by Moore in 1728 and were left by his 1748 will to his son, George Moore. George disposed of the lots in 1753 and afterwards the owners were of a more middling status. The artifact assemblage suggests that George Moore actually lived at the site, perhaps using it as a seasonal residence that would provide him the opportunity to ensure his representation in the "commercial transatlantic trade activities" centered in Brunswick (Gabriel 2012a:82).

Hannah Smith (2014) provides an interesting review of features and artifacts associated with the Brunswick Town port, identifying four wharfs (Figure 3). One of these is Roger Moore's Wharf, today located in an area that is rapidly succumbing to erosion as a result of Corps of Engineers work in the 1930s (Smith 2014:87). She suggests that while only about 25% of the Moore wharf is still intact, it may represent the earliest such facility at Brunswick. Although Moore is primarily thought of as a plantation owner, Smith suggests he was also a merchant and that he owned his own dock "in order to lessen costs and make the unloading of cargo easier" (Smith 2014:22).

Other Settlements, Coastal Towns and Plantations

In spite of South's early research, Charles Ewen cogently remarks that a great deal of North Carolina's history has been lost to development and that "nowhere is this more true than along the coast where development during the last decade of the twentieth century was especially intense" (Ewen 2011:7-1).

In spite of the losses, Ewen points out some amazing research along coastal North Carolina, including work at the failed settlement of Charles Town (1664-1667) on the Cape Fear River about 4.8 miles north of Kendal (Ewen 2011:7-3). Unfortunately, only a single report has been published on the 15,500 square feet of excavations (Loftfield 2005). While a portion of the site has been lost to the river, enough remains to clearly identify an enclosed, defensive compound. Loftfield compares the site to similar fortifications found in the Barbados.

Towns such as Bath (settled in 1705), located in Beaufort County, and New Bern, (established in 1710), situated in Craven County, have also been the subject of considerable historic archaeology. South, in addition to work at Brunswick, also conducted research at Bath, North Carolina's first port of entry, but the most research work has been by East Carolina University (Ewen 2011:7-4). While work at New Bern has included a variety of compliance projects, the area is most commonly associated with Tryon Palace, North Carolina's first permanent state house.

In contrast to the work at colonial towns, plantation archaeology seems to have been limited to three plantations: Somerset Place, Hope, and Foscue (Ewen 2011:7-7).

Somerset Place (1785-1865), situated on the edge of Lake Phelps in Washington County, was one of the largest plantations in North Carolina prior to the Civil War. Most of the recent archaeology has focused on the extraordinarily well preserved African American settlement (see, for example, Steen 2003; Penny 2003; and Samford 2011). The investigations explored the chapel, plantation kitchen, and slave hospital, as well as a variety of slave dwellings. This work provides a wealth of new data although Steen admits that dating was relatively inconclusive, "except in a broad sense" (Steen 2003:190). The use of a "typeless approach" (Steen 2003:48) does make it very difficult to compare the results to other plantation work, although in general the work suggests antebellum followed by intensive postbellum occupation. Perhaps the most significant issue with work at Somerset is that there has never been any systematic testing

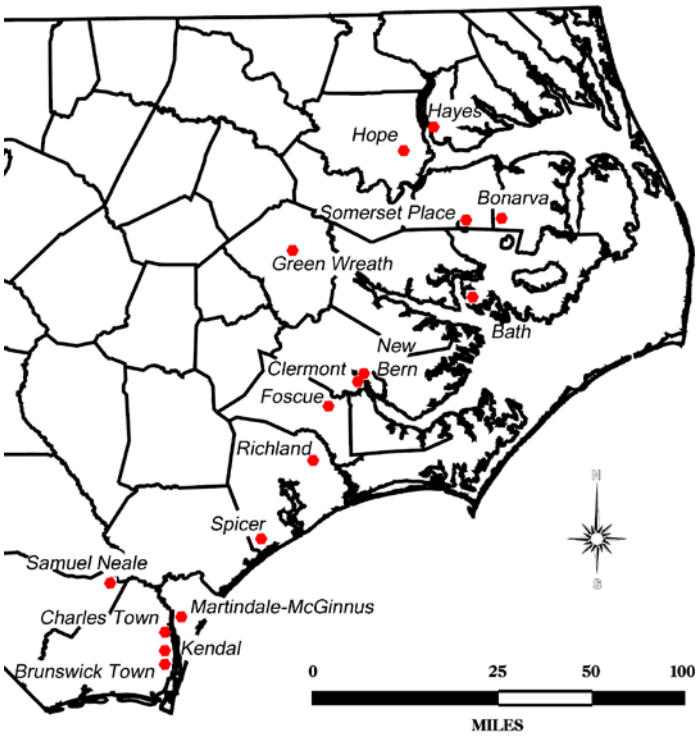

Figure 4. Approximate locations of the towns and plantations discussed in the text.

program to help discern the totality of the settlement (Penny 2003:126).

Hope Plantation is situated in Bertie County and the existing structure originated in the early nineteenth century (although there was likely an earlier settlement) (Ewen 2011:7-7). It has been the subject of several theses, including an examination of the plantation landscape by Buck (1999). Unlike many of eastern North Carolina's plantations, Hope was not associated with a water feature and was primarily accessed by road.

Ewen (2011:7-7) also briefly mentions work at Foscue Plantation in Jones County. It is also an early nineteenth century plantation on which both naval stores and cash crops were produced. Of particular interest is excavation at the plantation's vault (Seeman 2011), which not only produced more individuals that documentary sources suggested, but was also able to create "osteobiographies" of the elite rural family.

Buck (1999:43-46) mentions several other eastern North Carolina plantations that have been briefly investigated either archaeologically or historically, including Bonarva Plantation in Tyrell County, settled just prior to the last decade of the eighteenth century; Hayes Plantation in Chowan County which while settled at least by 1769 was apparently restructured at the turn of the nineteenth century; and Green Wreath Plantation in Pitt County. Like Hayes Plantation it was settled during the late eighteenth century, but extensively modified during the early nineteenth century.

Samford (2011) also mentions other plantations, although primarily in the context of African American archaeology. Examples include Clermont in Craven County, where a late-eighteenth and early nineteenth slave settlement were examined; Neils Eddy tract in Columbus County where a variety of plantation sites were examined at a survey level; and Richlands Plantation in Onslow County. Also worthy of mention is the Onslow County plantation of the middling planter John Spicer, Jr. dating from the late eighteenth and early nineteenth century. Investigations focused on block stripping and feature excavation. An early log structure was encountered, as well "pit features" associated with butchering and candle making.

Of even greater interest is the work by Adams (2002) which explored an outlying slave cabin likely associated with enslaved African Americans working on the production of naval stores on the Samuel Neale plantation in Columbus County. Here work represents perhaps the only examination of what must be described as an ephemeral settlement. Lacking access to firearms, the workers relied heavily on fish and turtle that could be easily caught in nearby creeks. Terrestrial mammals included only those that could be trapped or snared.

Investigations at the Martindale-McGinnis Plantation in New Hanover County, south of Wilmington found evidence of late eighteenth century earth-fast structure with a ballast stone chimney (Samford 2011:11-7; Mims 2003:19-23). It is suggested that this site may be Belmeade Plantation.

Plantation archaeology is not as common a research topic along the North Carolina coast as it has been along the South Carolina coastal zone, with extensive work in Charleston, Beaufort, and Georgetown counties (see, for example, Stine and Adams 2004). In addition, the North Carolina work has focused on primarily late eighteenth through nineteenth century plantation settlements, resulting in relatively few reports on colonial plantations. Moreover, few investigations have occurred in the Lower Cape Fear and some of the most intriguing – such as investigations at Charles Town – have yet to be fully published.

Research Goals

There was no federal funding, permitting, or licensing involved at Kendal Plantation and there was no federal, state, or local mandate to conduct the excavations. The work was conducted at the behest of the property owner, Mr. Louis Moore Bacon, who planned to construct a guest house in the immediate vicinity of the Kendal Plantation archaeological remains (31BW788).

We had only a general idea of the Kendal Plantation remains going into the research. For example, it was not known if the frame structure that burned in February 1919 was constructed during the colonial or antebellum period. Surface artifacts certainly revealed both eighteenth and nineteenth century remains, with the site producing a mean ceramic date of 1825 (Trinkley and Hacker 2012:206). While the collection was dominated by creamwares, earlier lead glazed slipwares, delft, and white salt glazed stones were also present.

With relatively little certainty regarding the occupation periods or context present, we did not feel safe in advocating research topics such as further testing of Beaman's Carolina Elite Pattern. Nor did it seem safe to necessarily anticipate comparison of findings with those at nearby Brunswick Town since many felt that Orton, much more so than Kendal, was the contemporaneous property.

In addition, we confronted decades of oral tradition that, intentionally or otherwise, focused on making Orton the main holding by Roger Moore and relegated Kendal to a subsidiary role. With Orton being promoted as constructed in 1725, there was very little time for Roger Moore to construct, much less live at, Kendal.

Consequently, much of our endeavors were exploratory in nature. We had a series of maps showing some of the Kendal structures and we sought to identify their locations and explore their functions – a process not dissimilar to South's approach at Brunswick Town.

Since it was our understanding that only those remains under and in close proximity to the footprint of the new house would be disturbed, we attempted to balance our investigations, ensuring that those areas to suffer the greatest impact were very carefully examined. We initially proposed eight weeks of investigation, which seemed entirely satisfactory.

As the field work progressed many of our initial assumptions were challenged and, in fact, proved incorrect. Our eight week project was extended to 12 weeks.

Consistent with our exploratory goals, the work began by conducting 20-foot auger testing over an area of about 0.9 acre situated on top of the massive brick rubble associated with the burned Kendal house and what was thought to be the kitchen to the north.

We quickly found that this testing did not cover enough of the site to the north or west. Additional grid was laid out and more testing was conducted on two separate occasions. By the conclusion of the project we had incorporated 3.5 acres in our testing.

Based on the structural evidence revealed by these auger tests, we began work at what quickly revealed itself to be a colonial structure with mean dates at least as early as the 1740s. In contrast, the Kendal house appeared to date no earlier than perhaps the first quarter of the nineteenth century, with abundant evidence that it continued to be enlarged and modified throughout its history.

While four of the eight postbellum structures could be identified, the others remained elusive. Nevertheless, the two structures thought to be in the footprint of the proposed guest house were investigated. What was thought to be the kitchen north of the Kendal house was completely excavated since it would be under the proposed guest house. It was found to be a slave/postbellum servant house. Given the size of the Kendal house, and our understanding that it would not be destroyed, investigations there focused on a sample excavation within six of the primary spaces known to exist.

Toward the end of the project we were told that some aspects of the plans had changed. A much larger area than anticipated was to have the A horizon stripped off. This of course would remove virtually all vestiges of the site. However, the stripping would be done during our presence and we had the ability to identify, plot, photograph, and at least sample significant features.

Rather than encapsulating the Kendal house, much of the area was to be cleaned of brick. Given the shallow depth of the foundations, this is likely to be very destructive. It was not possible to conduct additional investigations at the Kendal house, although we believe that our samples are representative.

We also discovered that efforts to preserve several of the colonial structures and their associated dense middens would be only partially successful. While the structures were encapsulated, the middens were unfortunately destroyed by additional stripping after we left. The loss of these middens significantly degrades the value of the colonial architecture since it removes the extraordinary faunal remains and extensive trash middens.

There is little doubt that in retrospect even more work would have been appropriate and beneficial, most especially in the vicinity of the colonial middens. It may even be argued that the time spent at the Kendal structures might have been better spent elsewhere. We accept this criticism.

Nevertheless, we were able to recover about 92 cubic feet of collections from 31BW788, including 12 cubic feet of faunal remains, primarily from the colonial middens. We have an excellent assemblage of colonial, as well as antebellum, remains from Kendal. The former provide an excellent opportunity to examine the Carolina Elite Pattern, comparing it to the urban Townhouse Pattern observed in Charleston, South Carolina (Grimes and Zierden 1988).

The mere discovery of the very early colonial remains at Kendal addresses the early history of both Kendal and Orton, significantly rewriting some of the “accepted” facts regarding the two properties. We will argue that Kendal was constructed prior to Orton and that Roger Moore likely lived at Orton only a few years before his death in 1751.

We are also fortunate to be able to incorporate chemical and petrographic characterization of the colonial bricks at Kendal, as well as a similar study that compares and contrasts the postbellum, antebellum, and colonial mortars at the site. This is the first time that this level of architectural analysis has been undertaken at a North Carolina plantation and we hope it provides a baseline for additional studies, especially in the Lower Cape Fear area.

Additional research is also possible on the ballast stones recovered from Kendal and this expands on the research by Burdette and Smith (2014) in this area of the Cape Fear.

Further research topics are considered in

the analysis of individual artifact classes, such as the colonoware sherds recovered from the colonial assemblages; the variety of flint (or chert) gunflints and gunspalls; the examination of different tobacco pipe stem dating results (e.g., McMillan 2010); and the range of elite clothing items recovered from Kendal. Our research has even incorporated the function of the site's postbellum cistern and the modifications made to the Kendal house by Frederick Kidder to permit "modern" bathroom facilities.

I can explain the research goals no better than South, who comments, "historical archaeology is a process that allows the researcher to explore the story that a dwelling or a town has to tell through its citizens; the events of which they were a part; and the material culture remains that they left behind, including their own" (South 2010:247).

Curation

The artifacts from Kendal Plantation (31BW788) account for approximately 92 cubic feet. They are processed under accession number 2015.0083 provided by the Office of State Archaeology, Division of Historical Resources, Office of Archives & History, North Carolina Department of Cultural Resources.

The collections have been cleaned and/or conserved as necessary. Further information on conservation practices may be found in a following section of this study.

All original and duplicate records have been provided to the curatorial facility on pH neutral, alkaline buffered paper. Photographic materials have been provided as tiff images on archival gold DVDs meeting the preservation standards of the National Register of Historic Places.

The Environment

Physiography and Drainage

Brunswick County is in the Inner Coastal Plain of North Carolina and ranges in elevation from sea level to 75 feet above mean sea level (AMSL). At these higher elevations, the land is dissected to form gently rolling hills and valleys. In the vicinity of Kendal Plantation elevations range from about 4 to 17 feet AMSL.

This physiographic province consists of stair-step-like plains or terraces that dip gently toward the ocean. In Brunswick County these consist of the Wicomico, Talbot, and Pamlico terraces. The Wicomico surface covers about one-third of the County and ranges from 75 to 45 feet AMSL. The Talbot surface, with elevations of 45 to 25 feet AMSL, covers more than half of the County. The Pamlico surface covers a narrow strip of mainland near the ocean and Cape Fear River, as well as the floodplain of the Waccamaw River, and ranges from 25 feet AMSL to sea level.

Most of the County is nearly level with short slopes along the main drainageways. The main streams are wide and shallow, and those near the ocean are affected by tides. A short distance inland, the streams become narrow with broad interstream areas.

The slope into the marsh frontage along the Cape Fear River drops gradually from 15 or 16 feet AMSL to the marsh, at about 3 feet and lower. Similar topography is found to the south, bordering the creek separating Kendal and Orton. The Kendal house that burned in 1919 was set on a confined interior plain about 16 to 17 feet in elevation.

There is a distinct slough, open to the marsh, to the north. Elevations in this slough range from about 15 feet AMSL at its head to about 11 feet at its mouth. To the north of the slough is a gradual slope on which set the Kendal rice barn. This slough may originally have been connected to an interior marsh finger to the north west of the Kendal House. Whether it gradually filled in or the topography was intentionally altered is unknown. Nevertheless, today there is a narrow peninsula of land north of Kendal that during the late nineteenth century was the location of a water tower and, at the marsh edge, a pump house. Further north is Lilliput Creek.

To the northwest is the marsh finger of Lilliput Creek. To the west of the Kendal house the elevations drop, forming a low saddle, open to Orton Creek marsh on the south. Elevations here range from 13 to 7 feet AMSL.

Thus, historically Kendal was situated on a pronounced rise, with elevations naturally dropping to the east, toward the Cape Fear marsh, to the south, toward the Orton Creek marsh. To the north, northwest, and west there were fingers of marsh that further isolated the settlement. With the conversion of these marshes to rice fields, Kendal would have been situated between several large, verdant pastures.

The tidal range at Fort Caswell, situated at the mouth of the Cape Fear and essentially representing oceanic tides, is about 6.7 feet. The measured salinity of the water at this location is 24ppt. Open ocean salinity is generally in the range from 32 to 37ppt. About 16 miles upriver, at the mouth of Town Creek (north of Kendal), the tidal range is about 6.2 feet and the salinity drops to an average of about 15ppt, with a low of 6ppt and a high of 27ppt – falling into what would be considered brackish water. As one moves up the creek the tidal range decreases and salinities drop to an average of 10ppt (Hackney 2007).

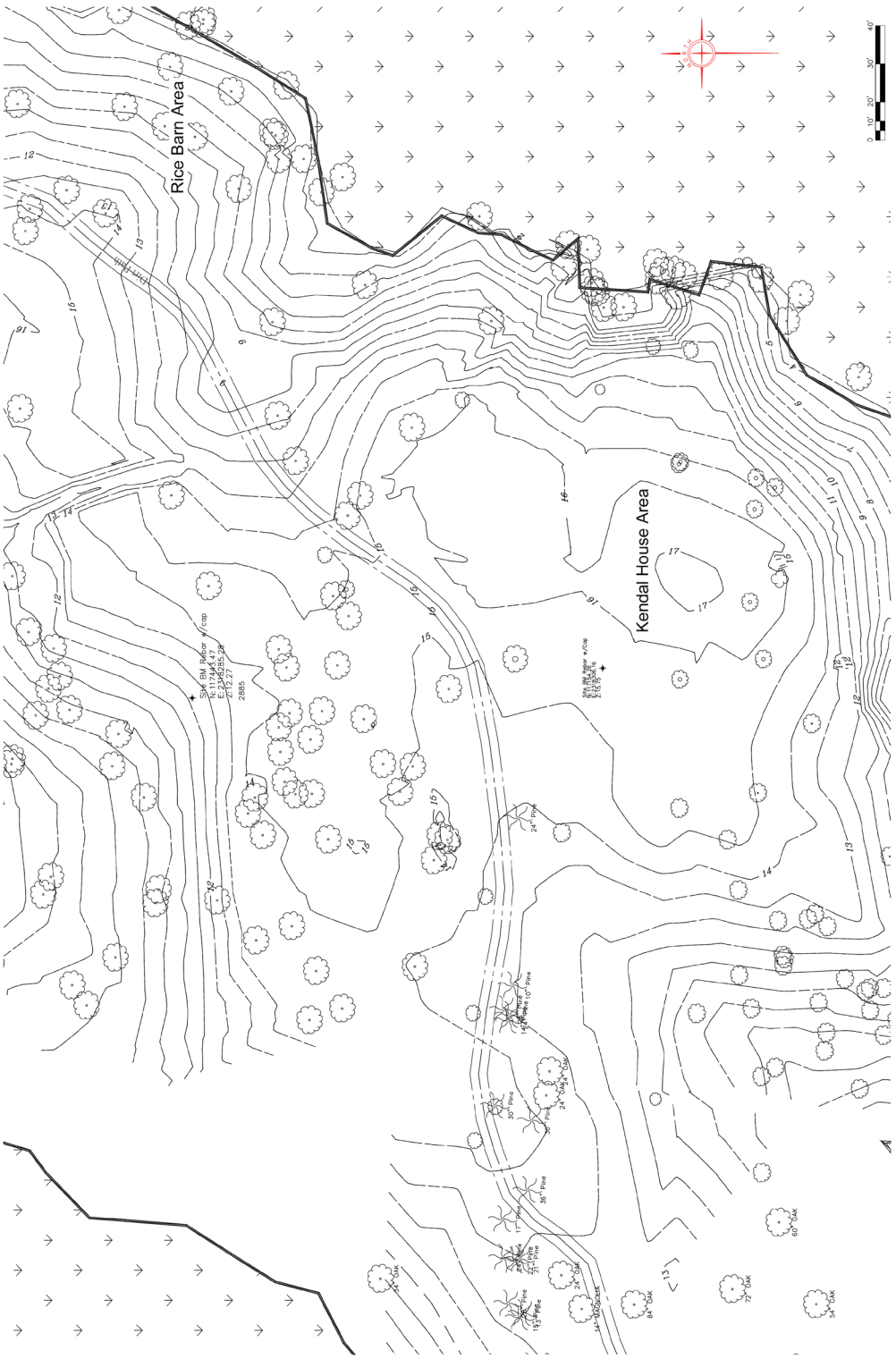

Figure 5. Topographic map of the Kendal Plantation area.

Perhaps the most notable feature of interior Brunswick County was known as Green Swamp, often shown on period maps (Figure 6). It originally consisted of over 140 square miles spanning Brunswick and Columbus counties. The east side is drained by the Cape Fear River, the west side by the Waccamaw River, and the south side drains to the Atlantic Ocean. In 1850 it was described as a "vast morass of more than forty miles in diameter" (*Weekly Commercial*, Wilmington, NC, October 11, 1850, pg. 2).

Figure 6. Green Swamp in relation to Kendal Plantation. Source map is the 1795 *The State of North Carolina* by Samuel Lewis.

Green Swamp is the widest undissected interstream area in Brunswick County and the largest area of muck soils. This very poorly drained interstream area has an accumulated organic surface layer of variable thickness. The accumulations are thickest where they have filled in the Carolina bays and in drainageways. The accumulated organic matter blankets the landscape and has obliterated the landscape features outlining Carolina bays and the upper part of many drainageways.

The area preserves some of the County's finest examples of longleaf pine savannas with an herb layer containing many orchids and insectivorous plants. In addition, there are dense evergreen shrub bogs or pocosins.

The Cape Fear River drainage, on the east side of the county, includes numerous irregularly-shaped ponds and lakes created by sinkholes or the dissolution and removal of underlying limestone that results in ground collapse or subsidence. In most areas of Brunswick County, the limestone bedrock is not directly exposed at the surface, but is covered by a variable thickness of sand, silt, and clay. This overburden may bridge subsurface cavities for long periods of time. Eventually a catastrophic collapse of the overburden into the subsurface cavity may occur, and a sinkhole is formed.

Some sinkholes may fill with water, forming ponds or lakes, such as around the town of Boiling Springs Lake and Sunny Point Military Ocean Terminal. These features are distinct from the elliptical Carolina Bays which are much larger than sinkholes, and have an oval shape pointing in a northwest to southeast direction.

Geology

The coastal plain consists of sediments ranging from the Cretaceous through Quaternary age that are typically thin at the fall line, but thicken toward the sea to a maximum of over 9,800 feet in the vicinity of Cape Hatteras (Lawrence and Hoffman 1993).

As previously mentioned the Lower Coastal Plain consists of three marine terraces found at different elevations: Wicomico, Talbot,

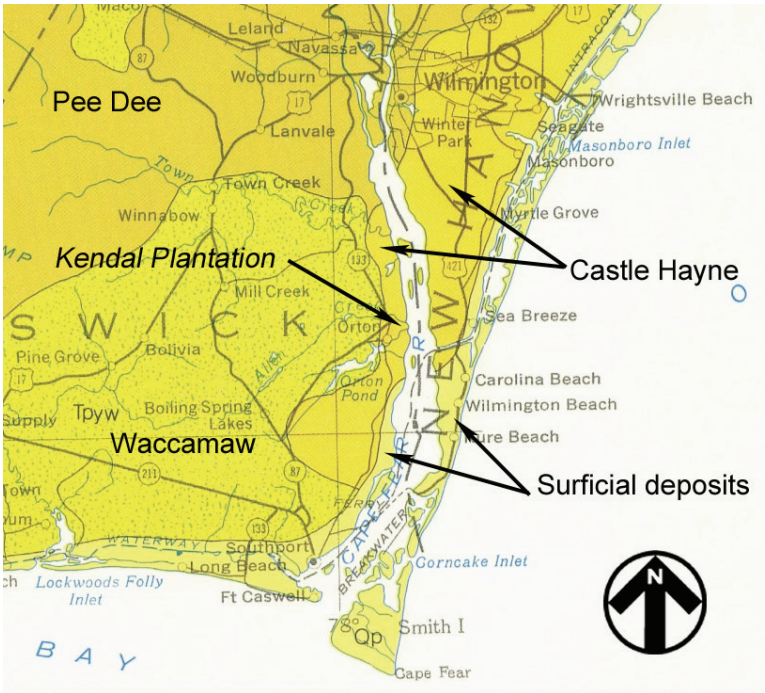

Figure 7. Geology surrounding Kendal Plantation (adapted from *Geologic Map of North Carolina*, 1985).

and Pamlico. Thus the lower coastal plain landscape is characterized by progressively younger scraps or paleoshorelines and the intervening terraces that gradually slope toward the ocean. Surprisingly, while relatively shallow, coastal geology is both complex and poorly studied.

Figure 7 does not show surficial Pliocene and Pleistocene formations, focusing instead on the older, underlying subcrops. The Kendal site is situated on the Eocene Castle Hayne subcrop formation. Other eroded subcrops include the Pee Dee (or Peedee) and Waccamaw formations.

Pee Dee is an Upper Cretaceous formation that is about 37 miles wide in the Cape Fear vicinity. It overlies the Black Creek formation and in areas is overlaid by a variety of more recent deposits. It consists of sands and limestone deposits with sand beds and marine clays (Richards 1950:10-13).

The Waccamaw straddles the Pleistocene-Pliocene boundary and consists of fossil bearing sands, with silts and clays. Waccamaw marl can be found along the Cape Fear and has been mined in the Winnabow area (Berry 1947:7). Generally the Waccamaw is overlaid by Pleistocene deposits.

In general, all of the Pliocene-Pleistocene-Recent beds consist of coarse sands, gravelly sands, shell gravels, and clays. These resources are significant for early brick production and some marl or limestone might even have been available for lime burning; however, workable stone was exceedingly rare.

Underlying these surface soils are primarily metasedimentary rocks and felsic metavolcanic rocks. There are only minor areas of mafic metavolcanic, metabasalt, or metagabbro rocks (Lawrence and Hoffman 1993:10).

Recent work by Abbott and his colleagues not only helps redefine the coastal geology to focus on sequence stratigraphy and the underlying changes in facies but also has examined the availability of lithic resources (Abbott et al. 2011). They make the claim that the Coastal Plain "is a dynamic, complex terrain, with great potential to yield a variable lithic landscape for human use" (Abbott et al. 2011:2-10). This certainly seems to be the case for the Upper Coastal Plain where quartz and metavolcanic stones are readily available (Abbott et al. 2011:2-39). The same situation, however, does not appear in the Lower Coastal Plain. There surficial gravel deposits are not as common and source materials may be less predictable and less reliable.

Nevertheless, in the vicinity of Kendal, quartz appears to be the most common material, followed by quartzite and chert (Abbott et al.

2011:2-27).

Soils

All of the soils in Brunswick County are formed by coastal plain sediment or by sediment deposited by streams flowing through the County. Kendal plantation is found on the Baymeade-Blanton-Norfolk Soil Association. This association consists of nearly level to gently sloping, well drained and moderately well drained soils that have a loamy subsoil on the uplands. While many such areas in the county have been under agriculture, the soils tend to leach nutrients and are susceptible to wind damage. The plantation's rice fields consist of the Bohicket-Newhan-Lafitte Soil Association. These are nearly level, very poorly drained soils having a clayey subsoil or that are mucky throughout; they are typical of tidal flats.

As the soil survey map (Figure 8) reveals, all of the upland soils around Kendal are Blanton fine sands, 0-5% slopes. These are moderately well drained soils formed on slightly convex divides near drainages. The typical soil profile consists of an A horizon of gray (10YR 5/1) fine sand about 0.4 foot in depth. It overlies an E horizon about 0.75 foot in depth of light gray (10YR 5/4) fine sand. This in turn sits on an E/Bh horizon to a depth of about 2.3 feet below grade. This consists of a yellowish-brown (10YR 5/4) fine sand. Below this is the E' horizon to a depth of 4 feet that consists of a light yellowish brown (2.5YR 6/4) fine sand. Surface runoff on these soils is slow, although permeability is rapid. Available water capacity is low (Barnhill 1986:13).

Clay comprises 7% or less of typical Blanton soils and organic matter is generally less than 1% (Barnhill 1986:114). The Blanton soils tend to be acidic (pH of 4.5 to 6.0) and have no risk of seasonal flooding. The seasonal high water table may be 5-6 feet below the surface (Barnhill 1986:117).

While seasonal flooding is not an issue, there are areas in the vicinity of Kendal that are subject to inundation. In particular, the low area to the west is likely to be flooded during storm events.

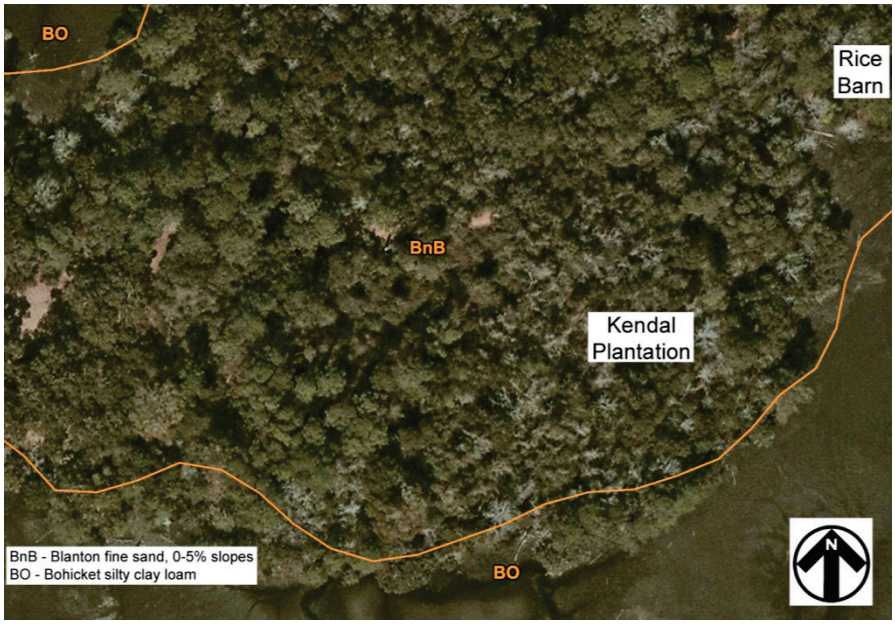

Figure 8. Soils in the immediate vicinity of Kendal.

The rice fields around the plantation are identified as Bohicket silty clay loam. These soils are found on tidal flats just above sea level. Typically, the surface layer is a dark gray silty clay loam about 1.2 feet in depth. Below this is a dark silty clay. Soils tend to be alkaline, both runoff and permeability are slow. The soils have daily tidal flooding to depths of about 3 feet. Consequently, salinity levels are generally high, 4 to 8 mmhos/cm. Soil reaction may range from alkaline to acidic (pH 6.1 to 8.4), and clay may comprise upwards of 60% of the soil (Barnhill

1986: 114).

Climate

Brunswick County borders the Atlantic Ocean and the Cape Fear River from Wilmington to its mouth. The climate is therefore oceanic, heavily influenced by the Gulf Stream and ocean breezes, typically from the south-southwest. Consequently, the winter temperature is warmer than would be otherwise expected. Very cold weather is infrequent and of short duration, with the winters being mild and freezes infrequent. Summers are long, with high temperatures, but the sea breezes moderate the heat near the coast.

A nearly identical description of the climate was offered by Scotus Americanus, who observed that the "summers are warmer than in Virginia, but the winters are milder and shorter" and "the heat would be intolerable, were it not for the cool breezes, which come from the sea (Scotus Americanus 1773:13-14). The winters "are seldom severe enough to freeze any considerable body of water, and affect only the mornings and evening, when the air is felt as sharp as in the Highlands" (Scotus Americanus 1773:13). Brickell offered similar observations, noting that the climate "is not so Hot in the Summer as other Countries to the Eastward" (Brickell 1737:24).

In the summer the average temperature is 78°F and the average high is 86°F. The average winter temperature is 47°F and the average daily minimum is 37°F. The average relative humidity is about 60%, although the dawn average is about 85%.

The region's climate with its moderate winters and hot, humid summers influenced not only crops, but also the health and politics of the inhabitants. The Brunswick summers likely caused the Barbadian and Carolina immigrants to feel that they had resettled in the tropics, perhaps reinforcing the view that slavery was inevitable (Donnan 1928).

Early reports, such as Robert Horne's *A Brief Description of the Province of Carolina*, reported the Cape Fear climate to be better than that of Virginia since Cape Fear was "freed from the inconstancy of the Weather, which is a great cause of the unhealthfulness" found to the north. The climate was described as "most temperate" with the summer "not too hot, and the Winter is very short and moderate, best agreeing with English Constitutions" (Horne 1666).

Later accounts question this rosy view. In 1763 Anglican missionary John MacDowell complained, "this is a dismal climate & when one gets sickly here, I have hardly ever known an instance of his recovering" (quoted in Wood 2004:90). Janet Schaw described the residents with "short waists and long limbs, sallow complexions and languid eyes" (Andrews and Andrews 1921:153). Scotus Americanus noted that the summer heat, combined with stagnant air and heavy rainfall, produced "agues, fluxes, and intermitting fevers" (Scotus Americanus 1773:15).

While the association between malaria and the mosquitoes wasn't understood, early settlers fully recognized the nuisances around them. Brickell described the "musheetoes (in the Indian Language called Toquani)" as a "small, but pernicious and troublesome . . . and are so mischievous, and plentiful in some places . . . especially on the Marshes and low Grounds . . . that scarse any one can live there" (Brickell 1737:162-163).

Nearly as troublesome were the "sand-flie" found in "Sand-banks, and near the Rivers," as well as the "Sea Ticks . . . scarce as large as a small pin head" that "stick so fast in the Skin, that it is impossible to pluck them out, and are apt to occasion Inflammations, Fevers, or inveterate Sores" (Brickell 1737:164, 166).

Wood conducted an analysis of demographic disruption by examining extant wills of Brunswick and New Hanover counties before 1776. He found a strong similarity to the conditions known to prevail in Colonial South Carolina. He found, "only slightly more than one-half of the testators had a spouse, almost two-thirds were childless, and almost one-quarter

lacked a male child to serve as a traditional patrilineal heir" (Wood 2004:93).

The climate also influenced architecture, contributing to the development of "single houses" in both Barbados and Charleston. The essential characteristics included two or more stories of the same plan with a central stair hall. The structure was one room wide, typically fronting the street. On its long side was a piazza. These features created spaces that caught breezes, created privacy, and promoted fire protection in the urban setting (e.g., Severens 1988; Waddell 1977).

trends using bald cypress tree-ring data for the Carolinas and Georgia (Anderson 1994:277-289 provides a useful introduction and application to late prehistoric peoples in the Savannah River valley). The research reveals regionwide, decade-scale episodes of spring drought and wetness were likely a prominent feature of the southeast climate over the past 1,000 years. While not widely investigated, these fluctuations represent departures of 10 to 15% above or below the mean and likely had major socioeconomic and environmental implications (Stahle and Cleaveland 1992).

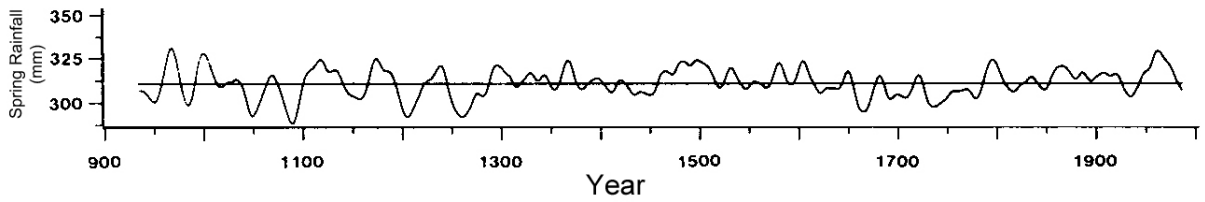

Figure 9. Reconstructed statewide Spring (April-June) rainfall for North Carolina from A.D. 933 to 1985 smoothed for 30 year periods (adapted from Stahle and Cleaveland 1992:Figure 3).

Turning to the country plantations, Fick observes that at least from the early eighteenth century planters generally constructed their residences facing south. For most planters their country house was a seasonal residence. Winter was thought to be the only healthy time in the coastal area, so the southerly orientation allowed the porch and front rooms to be warmed by the sun, leaving the rear of the house for storage and service functions (Fick 2005:359-360). Residences were generally rectangular of two or more stories and were raised on a brick foundation (Fick 2005:361).

Average rainfall is about 40 to 50 inches, with between 24 and 27 inches falling during the warm season (Kincer 1922). Today the average rainfall is about 55 inches (Barnhill 1986:82). Thunderstorms occur about 45 days a year, mostly in the summer. About 32 inches, or 60%, usually falls during the growing season of April through September.

Stahle and Cleaveland (1992) have conducted extensive research on precipitation

Figure 9 reveals that beginning about 1650 and continuing to about the Revolution, North Carolina had below normal rainfall. These conditions likely affected both Native American food supplies, as well as those of the early settlers. While there were fluctuations during the nineteenth century, rainfall tended to normal to above normal.

We have documentation of several notable historic droughts. In 1852 the drought around Wilmington was so severe that low river levels precluded shipments ("Review of the Wilmington Market," *The Daily Journal*, Wilmington, NC, June 3, 1852, pg. 2). This drought was apparently unbroken since in early summer 1853 the newspapers reported "accounts of the long continued and really alarming drought" with gardens in the Wilmington area "pretty much ruined ("Alarming Drought," *The Daily Journal*, Wilmington, NC, June 22, 1853, pg. 2). In late summer 1866 another severe drought was reported, although it was viewed as "our salvation; that miasma cannot exist without moisture, and the long, hot and dry season

Table 1.
Significant Brunswick County Hurricanes
(Barnes 1995, Ludlum 1963)

Date	Damage
June 13-16, 1586	4-day storm brought to an end Drake's Roanoke Hundred settlement
September 15, 1752	Destroyed much of Johnston in Onslow County, including the court house.
September 6, 1769	Extensive damage to Brunswick, New Bern, and Edenton; storm tide of 20 feet reported.
August 22-23, 1806	Great damage at Smithville; tides of over 20 feet.
September 3-4, 1815	Streets in New Bern under 6 feet of water; many structures destroyed. Damaged extended inland to Fayetteville and Raleigh.
June 3-4, 1825	New Bern flooded; 20 ships driven ashore at Ocracoke Island and 27 driven ashore near Washington.
August 24-25, 1827	Tidal surge of 10 feet in many areas, 12 feet in Washington. Much destruction in Edenton and Wilmington.
August 19, 1837	Wind and flood damage while rice was in blossom; tides 6 feet above normal.
September 17, 1876	Minimal hurricane causing damage to Smithville, Brunswick, and Wilmington; trees down and bridges lost.
September 9, 1881	Severe hurricane made landfall at Smithville; property damage in the Wilmington area estimated at $100,000.
September 11, 1883	Sustained winds of 93mph at Smithville; severe crop damage and 53 known deaths.
August 25, 1885	Smithville suffered winds of 98+mph; damage at Smithville estimated to be $100,000.
August 27, 1893	72-mph winds in Wilmington; "river tide was the highest ever known;" 3 to 8 inches of rain.
October 30-31, 1899	Intense damage to Southport, Wilmington, and Wrightsville Beach; tides 5 feet above normal in Southport with damage to houses.
September 17, 1906	Only 50-mph winds in Wilmington, but buildings washed away
August 1, 1944	Cat. 1 landfall at Southport; trees and power lines downed.
October 15, 1954	Hurricane Hazel, Cat. 3/4 storm with flood tides of 18 feet and winds of up to 150mph.

continuing through June and July literally destroyed the noxious effluvia which usually poisons the atmosphere during the summer months" (*The Daily Journal*, Wilmington, NC, August 19, 1866, pg. 2).

Another serious drought occurred in 1869. In late July the newspapers reported that the "Cape Fear at this point for many days past has been unusually brackish" since the local drought caused "tributaries to fail in contributing a sufficient supply of fresh water to neutralize the effects of the salt water continually flowing in from the sea" ("Brackish," *The Daily Journal*, Wilmington, NC, July 29, 1869, pg. 3). By late September the water so low that boat traffic was halted (*The Daily Journal*, Wilmington, NC, September 24, 1869, pg. 3).

The area today has a growing season of 265 days, considerably longer than in 1918 when the growing season was only 230 to perhaps 240 days (Reed 1922). In 1937 the growing season was being reported as 241 days (Perkins and Goldston 1937:3). In spite of the shorter growing season during the historic period, Scotus Americanus (1773:13) observed that "many tender plants, that do not stand the winter of Virginia, flourish here."

Thus, the combined rainfall and temperate climate creates a climate that is supportive of a range of Southeastern crops. For example, rice requires about 25 inches of rain and a growing season of about 180 days. Corn requires about 22 inches of rainfall and 150 days of frost-free weather.

No discussion of the region's climate is complete without at least a brief mention of the tropical storms, or hurricanes, that periodically buffet the coast. These storms occur in the late summer and early fall, the period critical to antebellum cotton and rice growers. The storms, however, are capricious in occurrence and those along the coast lived in fear of the next storm.

Brickell described these "great Storms and Squals of Wind," explaining that they can be "so very violent, that they make Lanes through the Woods by tearing up Trees by the roots." Early settlers also understood the signs of hurricanes arriving days in advance, with the clouds that "hang down" and "scarce a breath of Wind"

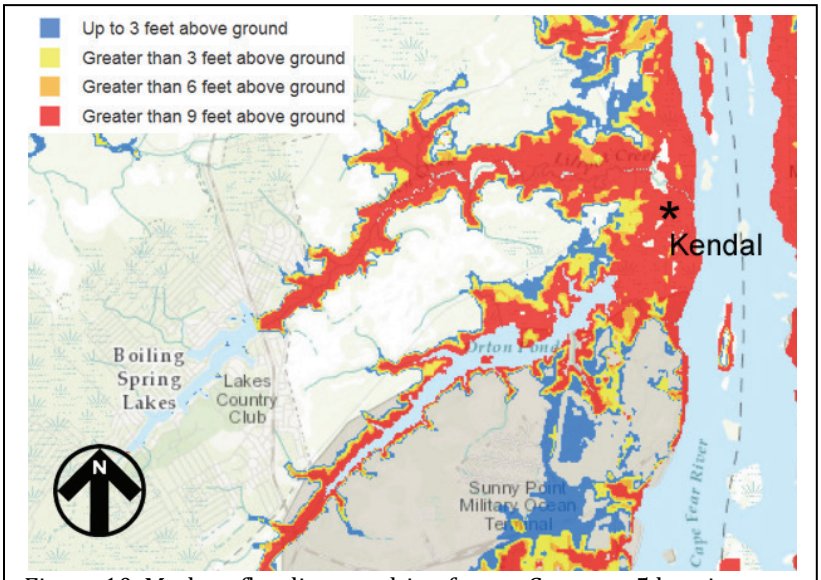

Figure 10. Modern flooding resulting from a Category 5 hurricane.

(Brickell 1737:25).

One of the most severe of the early storms was the September 1769 hurricane that swept through the area from Smithville (today Southport) northward to New Bern:

> The fury of its influence was so violent as to throw down thousands and I believe from report hundreds of thousands of the most vigorous trees in the country, tearing some up by the roots, others snapping short in the middle. Many houses blown down with the Court House of Brunswick County. All the Indian corn and rice leveled to the ground and the fences blown down, add to this upwards of twenty saw mill dams carried away with many of the timber works of the mills, and lastly scarce a ship in the river that was not drove from her anchor and many received damaged. . . . In short, my Lord, the inhabitants never knew so violent a storm (letter from Governor Tryon to Lord Hillsborough, September 15, 1769, quoted in Lundlum 1963:49).

Hurricanes on the North Carolina coast today are measured against the damage of Hurricane Hazel in 1954. After the storm, the Weather Bureau issued a report:

> All traces of civilization on that portion of the immediate waterfront between the state line and Cape Fear were practically annihilated. Grass covered dunes some 10 to 20 feet high along and behind which beach homes had been built in a continuous line 5 miles long simply disappeared, dunes, houses, and all (quoted in Barnes 1995:90)

Wilmington fared better than the beaches, although there was much flooding of waterfront warehouses and the city was without power for three days (Barnes 1995:94).

Storm surge maps show that Kendal would not be inundated during a Category 1 or 2 storm, although it would become significantly isolated, with water levels upwards of 6 feet in the marsh. A Category 3 hurricane would flood the site with as much as 3 feet of water and a worst case Category 5 storm would result in 9 feet or more of storm surge (Figure 9). Examination of Table 1 suggests that flooding of this extent, while rare, has occurred.

Paleoclimate and Sea Level

Early efforts to reconstruct regional climate shifts include the research of Kukla (1969) and Bryson (1965). While there are differences even at this level, it is possible to force a generalization. There may have been a cooling and mild period following the Climatic Optimum around 4,000 B.C. This mild period may have

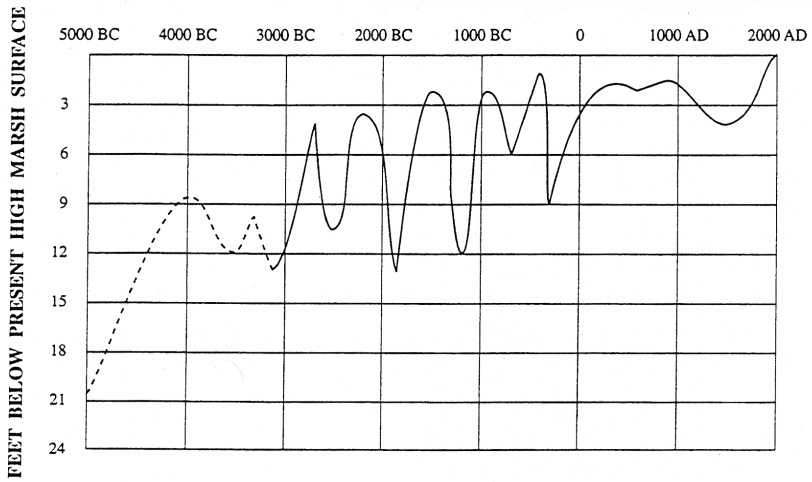

Figure 11. Sea level change curve for South Carolina (adapted from Brooks et al. 1989).

ended about 1,400 B.C. and was perhaps followed by a cold period until 600 B.C. when Kukla suggests a warming trend occurred. Climate may then have improved from A.D. 400 until the beginning of the "Little Climatic Optimum" about A.D. 800. The synthesis of this work suggests that changes have been generally minor, usually amounting to only a few degrees difference in temperature over a span of several generations.

Gunn (1997) has elaborated on this, providing more detailed studies applicable to the Southeast. He notes that climatic conditions in the transitional Late Holocene produced more equitable seasonal insolation. The decline of the sea levels at 3,000 B.C. marks the collapse of the Altithermal. Sea levels maintained their low levels through about 2,000 B.C. Coasts became favored occupation areas and this suggests a reduction in tropical storms, probably occurring as a result of the continuous depletion of ocean heat (Gunn 1997:146).

Gunn classifies the period from about 2,000 B.C. to 600 B.C. the Early Late Holocene. There was a return to higher sea levels after 2,000 B.C., but these levels were not stable and began, instead, a period of oscillations. Gunn (1997:146) classifies this period as one of "global, century-scale instability." He points out that even a small increment in sea level change had the potential to cause extensive ground surface condition modifications. At his Hilton Head Island example, he observes that only a one meter sea level rise made the Osprey Marsh site, situated 3-meters AMSL, marginally habitable (Gunn et al. 1995). It was during this period that large coastal sites were abandoned and settlement shifted toward the fall line. It may also suggest more active hurricane seasons, making the coastal zone less stable and attractive.

Work by Brooks et al. (1989) for the South Carolina coast suggests a number of fluctuations during the Holocene (Figure 10). Their data suggests that sea levels peaked at 4.5 feet below the present marsh surfaces about 2,200 B.C. and then began to decline. By about 1,800 B.C. the levels were perhaps 13 feet below the present marsh surface. Then sea levels began rising again, surpassing previous levels by about 1,500 B.C. As Gunn has suggested, it was this steady rise in sea levels that flooded coastal Early Woodland sites, making the area less hospitable and ending permanent coastal habitation.

Similar detailed work is not currently available for North Carolina, although recently Kemp et al. (2011) provide new sea level reconstructions for the past 2,100 years based on salt marsh sedimentary sequences. Their research reveals four phases of sea level change after glacial isostatic adjustment. The North Carolina sea level was stable from at least 100 B.C. until A.D. 950, during much of the Middle Woodland and the very early Late Woodland. Sea level then increased for the next 400 years at a rate of about 0.6 mm per year, followed by stable or slightly falling levels through the end of the nineteenth century. Beginning sometime during the late nineteenth century and continuing throughout the twentieth century, sea levels have risen at an

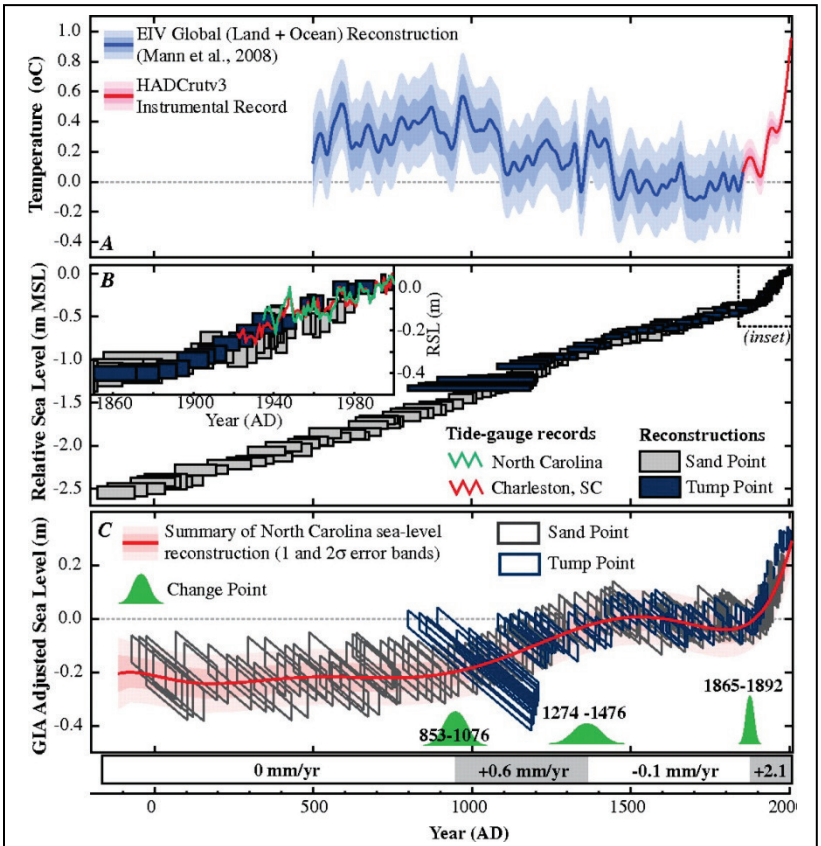

Figure 12. Sea level change for North Carolina (taken from Kemp et al. 2011).

average of 2.1mm per year.

Although there are significant differences between the North and South Carolina data, both document the sea level variations that should be expected during the late Holocene. Lower stands may have extended marsh along the Cape Fear and reduced salinity levels, while higher stands may have flooded some smaller creeks and lower marsh areas with an increase in salinity levels.

Vegetation

Just as early explorers such as Horne described the Cape Fear as healthful, the area's vegetation was generally viewed as both bountiful and fruitful. While Horne (1666) didn't elaborate on the native plants, he reported that the soils and climate allowed virtually any plant to "thrive very well" while the marsh meadows provided "excellent food for Cattle, and will bear any Grain being prepared."

Brickell also commented on the "delightful Savannas or Meddows, with their Green Liveries . . . fine Tulip Tree, Laurel and Bays, equalizing the Oaks in bigness and growth, likewise the Myrtle, Jessamine, Wood-bines . . . shadow and interwave themselves with the lofty Timber, yielding a very pleasant and delightful Prospect" (Brickell 1737:10).

Küchler (1964) identified the potential natural vegetation of the Brunswick County area as his Southern Mixed Forest, although in close proximity were larger areas of Oak-Hickory Pine Forest and Pocosin.

The Southern Mixed Forest, described as a tall forest of broadleaf deciduous, evergreen, and needleleaf evergreen trees, is dominated by beech, sweet gum, southern magnolia, slash pine, loblolly pine, white oak, and laurel oak. The adjacent Oak-Hickory-Pine Forest is a medium tall to tall forest of broadleaf deciduous and needleleaf evergreen trees. The Pocosin areas were low, open forests of needleleaf evergreen trees (mostly pond pine) and broadleaf evergreen low trees (primarily gall berry).

Shantz and Zon (1936) identified the plantation area along the Cape Fear as having a natural vegetation of Longleaf-Loblolly-Slash Pines. While incorporating 10 different pine species, the most common was the longleaf pine. They commented that the forest not only provided the bulk of America's timber production, but also was the source of naval stores. They also commented that the sandy soil and rapid evaporation gave the forests an "open parklike character" with the ground covered by coarse grasses or low shrubs (Shantz and Zon 1936:14).

To the west and along the Cape Fear in a few locations were Cypress-Tupelo-Red Gum or Riverbottom Forests. Ashe (1894:24) commented that there were nearly 20,000 acres of "excellent cypress" along Juniper Creek and Green Swamp.

Also present in these areas were yellow and overcup oaks. Three situations were noted: glades, ridges, and back sloughs. The back sloughs remain under water for most of the growing season and are dominated by cypress and tupelo gum. The glades are bottoms subject to occasional overflow, but are not consistently under water. Forests of cypress, tupelo, water ash, cottonwood, and bays are found in those drier areas. With poorer drainage the tupelo is replaced by pond pine or black gum. The glades are often irregularly divided by low ridges, which comprise the third situation. These low elevations support forests of red gum, ash, red maple, and honey locust.

These discussions do not adequately focus on the role, or importance, of longleaf pine (*Pinus palustris* Mill.). At the time of European settlement it has been estimated that longleaf pine was dominant on over 741 million acres and was found on another 17 million acres of mixed stands (Van Lear et al. 2005:150). Croker (1987:3) is more conservative, suggesting that the longleaf pine was dominant on about 60 million acres. Ruffin (1861:254), repeating Michaux, reported these pines extending over an area more than 600 miles in length and 100 miles in breadth. The trees were 60 to 70 feet in height with a diameter of 15 to 18 inches for two-thirds of their height, with some trees being much larger.

These forests provided abundant resources for Native Americans, whose occupation did not materially change the forest or its ecology. In fact, their frequent burning of the woods improved hunting and promoted species such as the deer and quail.

The longleaf pine forest was a "fire climax" type, meaning that it was maintained by regular fires of low-to-moderate intensity and severity. Because the interval between fires was in the range of 1-3 years, fuels did not accumulate to levels that would result in damage to the dominant species. These fires were necessary to prevent the longleaf pine and its associated herbaceous understory from being replaced by other vegetation (Crocker 1987:3; Van Lear et al. 2005: 152).

Initially Europeans maintained the fire climax forest since it was beneficial to their needs, including hunting and grazing. Even the early production of naval stores seems to have done little to change the forest ecology (Croker 1987:7).

Brickell provides a good description of naval store production prior to the Revolution:

> The Planters make their Servants or Negroes cut large Cavities on each side of the Pitch-Pine Tree (which they term Boxing of the Tree) wherein the Turpentine runs, and the Negroes with Ladles take it out and put it into

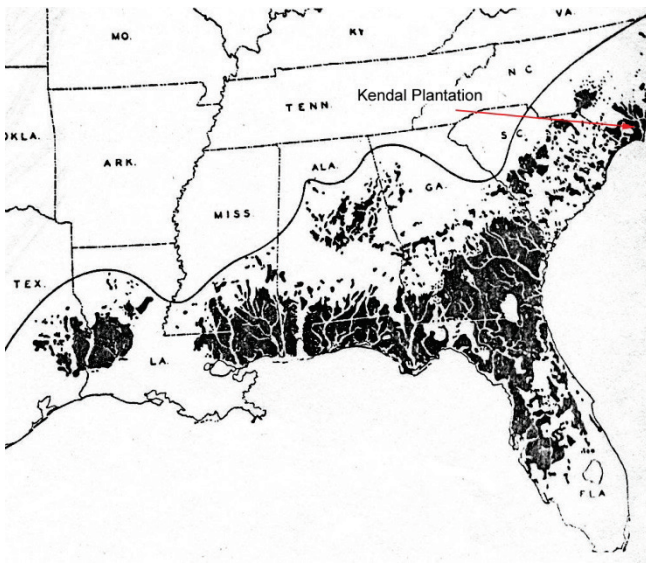

Figure 13. Longleaf pine in the southern United States. The shows the extent, the dark areas show major stands at the arrival of the Europeans (adapted from Wahlenberg 1946).

> Barrels : These Trees continue thus running most commonly for three Years, and then decay, but in process of time fall to the Ground, which is what they call Light-Wood, of which their Pitch and Tar is made, (viz.) The Planters . . . especially in Winter, make their Negroes gather great quantities of this Light-wood, which they split about the thickness of the small of a Man's Leg, and two or three Feet in length; when they have got a sufficient quantity of it in readiness, they set their Kilns on some rising Ground or Earth thrown up for that purpose, in the center whereof they make a hollow place, from whence they draw a Funnel some distance from the Kiln. Then they take the Light-wood which they pile up with the ends of each, placed slanting towards the center of the Kiln, which is generally made taper from the Ground, afterwards they cover it very secure with Clay, Earth, or Sods, to keep in the Flames, after this is done they set it on fire at the Top . . . . By this means the Tar runs into the center, and from thence into the Funnel, where they attend Night and Day (with Ladles to put it into Barrels prepared for that purpose) till the Kiln is quite burnt out, which is generally in eight and forty Hours or less, according to the dimensions of the Kiln. . . . The Planters generally know very near what quantity of Tar each of their Kilns will produce, according to their dimensions, for which reason they are always provided with a sufficient Number of Barrels for that end.
> The Pitch is made of the Tar, which is done in the following manner. They have large Furnaces made in several parts, and more now than ever, by reason of a late act of Parliament made in the Reign of his present Majesty, which obliges every Person or Persons that burn Tar-kilns in his Majesties dominions in America to make half of the first running into Tar, and the other half into Pitch, the penalty being a forfeture of the whole. With this second running they fill their furnaces, and so place a fire underneath it till such time as it begins to boyl, then they set it on fire and burn it to the consistence of Pitch (Brickell 1737:256-266).

Other sources report that tar was converted into pitch by the addition of crude turpentine with the mixture then boiled to create tar (Ashe 1894:73).

Brickell explained that very few of the owners bothered to make rosin as the process was "troublesome" requiring distilling turpentine in an "Alembick or a Copper Vesica" and collecting the rosin at the bottom of the vessel. Apparently it was far more common to ship the crude turpentine to England, Philadelphia, and New York for distillation (Ashe 1894:18, 74).

Moreover, rosin manufactured from North Carolina pines competed poorly with French turpentine, thought to be less odorous and more uniform in quality. Consequently, American rosin was worth very little, often as low as 25¢ a barrel – below the cost of handling (Ashe 1894:74).

After the American Revolution, naval stores continued to be gathered by tapping living trees. A cavity, called a box, was cut in the base of the tree about 10 inches above the ground in order to collect gum. In early spring, the bark was removed and two V-shaped cuts were made into the wood. Gum would ooze out and collect in the

Table 2.
Naval Store Production in North Carolina

	Lumber Production (M board ft)	Turpentine (50 gallon barrels)	Rosin (500 lb barrels)
1768-1773			351,485
1840			593,451
1880	243,075		1,758,488
1890	514,692	67,785	366,503
1895		46,553	205,137
1900	1,286,638	25,541	181,743
1903		16,511	89,667
1905		20,000	65,000
1907	1,622,587	18,300	95,000
1908		14,600	74,000
1909		15,600	46,500
1910		1,100	40,000
1913		3,750	16,986
1914		3,650	13,200
1917		900	3,350
1918		875	3,000

Data from Fernow (1899); Gamble (1921); Kellogg (1909); Lee (1951:65).

box. Additional cuts were made weekly to keep the gum flowing. When the box was full, a crew would collect the oleoresin. At the end of the season, in the fall, the gum would crystallize on the face of the tree. This, too, was collected, although it was far less valuable than the gum (Croker 1987:9).

Carolina tar and pitch gradually lost favor in England. Users said that it tended to burn the cordage more than Baltic products, probably because the burning in North Carolina was carried on so rapidly and at such high temperatures that wood acids were formed in large quantities. American products also lost favor as being "earthy, the receptacle being carelessly made, and were packed in insecure, leaky barrels" (Ashe 1894:75).

Ruffin observed that agricultural improvements were generally neglected for the "pursuit of the turpentine harvest" (Ruffin 1861:255). While he understand the reasons, including the poor lands and great profits, he bemoaned that this served to "limit agricultural labors to the narrowest bounds . . . [and] prevent almost every effort for improving the soil."

The nineteenth century brought loggers into the forests and many acres were cut, but the worst damage was to occur in the late nineteenth century with the introduction of the railroad into the virgin forest. There was a growing need for turpentine as a solvent for India rubber and production was found to be economically viable. Often turpentiners worked the trees before they were cut and in 1893 there were eight distilleries in Brunswick County (Ashe 1894:79).

By the end of the nineteenth century Charles H. Herty and W.W. Ashe developed a system using shallow chipping with a cup and gutter. This reduced waste and damage to the trees and made collection easier (Figure 14).

There has never been a complete, reliable, and comprehensive set of statistics regarding the naval store industry. But it appears that

Figure 14. Charles Herty demonstrating the new technique for collecting turpentine (from Poe 1907:8968).

production peaked in the early postbellum and declined over the next several decades. Outland (2001) describes the rise and fall, aptly describing the industry as a "suicidal harvest." This is clearly revealed in Table 2.

Little thought was given to regeneration of longleaf pine. Most viewed the forest as a non-renewable resource to be mined like iron ore. Local tax policies encouraged loggers to "cut out and get out." Although the forests along the Cape Fear appeared to be more resilient than many others, with trees being worked for 40 or 50 years, there were still 98,000 acres of abandoned turpentine orchards in Brunswick County by 1893. In the 1892-1893 season only 10,000 boxes were being cut (Ashe 1894:86-87). By the 1930s the vast longleaf forests of the Southeast were depleted and loggers moved west to log the virgin stands of Douglas fir, ponderosa pine, and redwood (Croker 1987:13).

While annual burning continued, it was more intense after the lands were cut over because of the heavier fuel loads from logging slash (Van Lear et al. 2005:153).

By the early twentieth century forest policy makers began to implement a policy of fire exclusion (Croker 1987:17, Van Lear et al. 2005:154-155). Many foresters adopted this practice, seeking to prevent any fire at all in forested areas. While prescribed burns were occasionally conducted, they were done on only a very small portion of forest acreage and many saw little difference between a forest fire and a proscribed burn – all fire was viewed as bad (Croker 1987:17).

While there were regeneration efforts during the Depression with the CCC replanting longleaf pine seedlings, there was almost no natural regeneration. Small seedlings are easily killed by fire and feral hogs destroyed the few that survived (Van Lear et al. 2005:153).

The forest that developed was vastly different from the original longleaf pine lands. Croker notes:

> Often the stands were poorly stocked and sometimes nothing but scattered "mule tail" pines overlooking a wilderness of grass and stumps. . . . hardwoods, other pine species, and razorback hogs prevented regeneration of longleaf pine on millions of acres (Croker 1987:18).

While research was conducted to help regenerate longleaf pine forests, owners were prejudiced against the efforts and instead removed longleaf pine, planting the forests in slash and loblolly pines (Croker 1987:26). In the decade between 1955 and 1965, the longleaf pine forest was reduced from 13 to 7 million acres and it was predicted that the species might disappear from southern forests by the early 1970s. Fortunately, extensive Forest Service research, including at the Croatan District on the North Carolina coast, began to turn the tide against the removal of longleaf pines (Croker 1987:32). A reliable natural regeneration system has been developed (Croker 1987:33) and it is better understood how many species rely on longleaf pine for their survival (Van Lear et al. 2005:155-157).

Today, Brunswick County vegetation consists of a patchwork of various ecosystems mixed with agricultural fields and urban development. On upland areas are remnant longleaf pine savannahs, mixed pine and hardwood forests (consisting of loblolly pine, sweetgum, maple, hickory, white oak, water oak, and willow oak), pine flatwoods (with uneven-aged loblolly pines in the overstory and deciduous plants in understory), pine plantations, and pine scrub (longleaf pine, turkey oak, and wiregrass).

Lowland areas consist of floodplain forests (cypress, black gum, green ash, water oak, willow oak, and hackberry), pocosins (peat soils dominated by evergreen shrubs, pond pine, and wax myrtle), and Carolina Bays where vegetation may range from that found in pocosins to various bays.

Also present are Maritime Forests, wetlands, and stream edge areas with distinct vegetation systems. Wetland areas ranging from sea grass meadows to coastal salt marshes to freshwater marshes are also present.

The environment at Kendal plantations represents this patchwork with ecosystems ranging from the wetland vegetation of Orton Pond to upland areas of loblolly plantation to large areas of freshwater impoundment used by wildlife. Recently, however, there have been extensive modifications returning much of the vegetation to an earlier stage. The loblolly plantations have been removed in order to regenerate longleaf pine ("Work at Orton Will Encourage Longleaf Pine Growth," *Star News*, Wilmington, NC, June 10, 2011).

Animal Resources

Early reporters provided spectacular accounts of the wildlife along the North Carolina Coast. Meredith explained that "fowl" was common including,

> Parraquets in Summer, and greater Plenty of Turkeys than ever I saw in Pennsylvania. Here are Foxes, Wolves, Wildcats. Possums, Raccoons, and Panthers always, and Bears sometimes in great Plenty; also Plenty of Deer, but Beavers here are none, nor any Ground-Squirrels, tho' plenty of Grey and Flying Squirrels: Alligators are very numerous here but not very mischievous. . . . (Meredith 1922:26-27).

Brickell focused on local dietary patterns, observing that the diet of the early settlers "consists chiefly of Beef, Mutton, Pork, Venison in Abundance, Wild and Tame Fowl, Fish of several delicate Sorts" (Brickell 1737:38).

He particularly focused on domestic livestock, including cattle, sheep, and pigs:

> Their method of killing, is generally to shoot them in the Fields, or in the Penfolds; then they cut off the Head and Feet, and take out the Intrails, which they throw away as useless, except the Fat, (which they carefully preserve.) After this manner they continue killing all the Year, as they have Occasion. If the Cattle be suffered to live to a proper Age, their Beef proves as large and fat as any in the neighbouring Colonies. They kill vast Quantities of Beeves in October, and the other cool Months, especially when they intend them for Salting and Exportation, for at those Seasons they are in their prime of Flesh, and best preserved. The Exportation of this Commodity is one of the greatest Branches of their Trade. . . . . There are great Numbers of those Cattle wild, which continually breed in the Woods, (so are there of Horses and Mares) here you shall see great Droves feeding promiscuously in the Savannas amongst the Deer, fifty or Sixty Miles distant from any Inhabitants (Brickell 1737:52)
>
> The Sheep thrive well, having two or three Lambs at one Yeaning; they are never suffered to ramble in the Woods (as the other Cattle are) but are kept in Inclosures in the Plantations, from whence they will come every Evening to the Planters Houses, having no Defence against the wild Beasts (and especially the Wolves, their mortal Enemy) at Night they are put up in their Penfolds made of Timber, which every Planter has for that Purpose to defend them

> from all manner of wild Beasts . . . . Their Wool is fine, and a good Commodity here. They seldom kill any of their Lambs for the Market, but generally preserve them to a greater Age; neither are the native Planters so fond of Mutton (which is of a middling Size) as the Europeans generally are (Brickell 1737:54).

> The Swine are more numerous here than in any of the English Provinces; and the Pork exceeds any in Europe for Goodness. The plenty of Acorns, Nuts, and other Fruits, which the Woods naturally afford, make their Flesh of an excellent Taste, and produces great quantities of them; some Planters possess several hundreds, and vast numbers are to be met with in the Woods, which are every persons Property that can kill them ; for no one claims them as his own, except they bear his own Mark or Brand, and it is so with Horses and Cows, that are wild in the Woods. The Planters export vast quantities of Pork to the Islands in the West Indies, such as Barbadoes, Antegua, and several other places where Provisions are scarce, for such Commodities as they have occasion for (Brickell 1737:55).

Bicknell describes a great many fish found in North Carolina waters, including the "Spanish Mackarel" which was a "voracious Fish" that easily caught with a hook and line (Brickell 1737:227)and Red and Black Drum,

> there are greater numbers of them to be met with in Carolina, than any other sort of Fish. Those that are disposed to fish for them, especially every new Flood, catch as many Barrels full as they please, with Hook and Line, for at that time they will catch them as fast as they can throw their Bait into the Water, which is generally a soft Crab, and so Salt them up and Transport them to other parts that are scarce of Provisions (Brickell 1737:229).

Other common fish included bass; mullets, taken by gigs or nets; sheeps-head, whose flesh was "delicate" and "well relished;" shad, although filled with bone were "sweet and nourishing;" sea water trout; and herrings, which were readily caught during March and April, salted, and packed in barrels (Brickell 1737: 230-235).

Scotus Americanus reported that both fresh and salt water fish were common, being sold "for a trifle" by coastal fishermen. "Oysters too of a fine flavor" were readily available, even in the Wilmington markets. These same markets also sold a variety of meats, from the "squirrel and opossum to the bullock." Beef and pork was sold from 1 d. to 2 d. a pound, pullets at 6 d., chickens at 3 s. a dozen, geese at 10 d., and turkeys at 18 d. Deer were sold at 5 d. to 10 10 d. (Scotus Americanus 1773:21-22).

Rice Production

Colonial

Wood provides a compelling argument that during the colonial period rice played a very limited role in the Lower Cape Fear. The available colonial merchant accounts for the region provide no significant reference to rice (Wood 2004:182). Table 3, showing colonial exports from the port of Brunswick, suggest that little rice was being produced, especially when compared to other commodities such as naval stores. A much later list, dating to 1775, shows exports from North Carolina to Jamaica. While North Carolina shipped 1,716,295 feet of boards and scantling; 3,893,000 staves, shingles, and headings; and 1,305 barrels of pitch, tar, and turpentine, only 36 tierces of rice were shipped (British Colonial Office, "A List of

Imports into the Island Jamaica from North Carolina for the Year 1775).

There is also commentary suggesting that what rice was produced on the Lower Cape Fear was of poorer quality than that of South Carolina (Wood 2004:183). Literature available for one rice producer, Hugh Meredith, reveals that while he predicted large returns, these never materialized and by the late colonial period he complained that "My Crop of Rice comes much short" (quoted in Wood 2004:184).

Governor Martin in a 1772 letter to the Marquis of Downshire, reported, "a spirit of industry and improvement dawning in this Province exemplified by the beginnings that are making by several planters on Cape Fear River to raise rice" (Colonial and State Records of North Carolina, vol. 9, pg. 270). A year later Martin's letter to the Earl of Dartmouth reported, "the experiments of Rice . . . that I had the honor some time ago to inform your Lordship were making in the Southern parts of this Colony have failed this year, almost totally, owing to the extreme drought of the summer" suggesting that even this late rice was still considered something of an "experiment" (Colonial and State Records of North Carolina, vol. 9, pg. 687).

Table 3.
Exports from Brunswick

	1768		Jan 1772 - Jan 1773	
Commodity	Quantity	% of NC Total	Quantity	% of NC Total
Naval Stores (barrels)	63,265	49	59,006	50
Sawn Timber (feet)	2,328,075	74		
Shingles (pieces)	1,504,000	25		
Staves (pieces)	139,340	8		
Indian Corn (bushels)	966	1		
Rice (pounds)	84	100		
Indigo (pounds)	646	100		

1768 data from Merrens 1964
1772 data from Lee 1965:155

Even as late as just prior to the Revolution, the detailed accounts existing for Benjamin Heron reveal that while he owned a large, and very profitable, plantation, 37% of his returns came from tar and 17% came from turpentine. While he was one of the few planters on the Lower Cape Fear at the time with the resources to invest in rice, only 6% of his return came from this product (Wood 2004:204-205).

Clifton, however, cites a variety of colonial newspaper advertisements that suggest rice may have been planted. For example, in 1751 Lilliput was advertised as having "at least two hundred Acres of Marsh, and Swamp, very good Rice Land, fronting on the River." Further north, Spring Field was advertised as containing 150 acres of "very good Rice Land" (Clifton 1973:366). Of course, we know that many newspaper ads spoke as much about what could be developed as they did about what was already present. Thus, having very good rice land doesn't mean the land was actually producing rice – it could be only a teaser to entice prospective purchasers.

By the end of the colonial period, in 1790, Clifton reports that Schawfields, the plantation of Robert Schaw, about six miles up the Northwest branch, contained fifty acres of rice land, twenty of which had been ditched. By 1798, General Hugh Waddell's plantation, Castle Haynes, had seventy acres of rice fields (Clifton 1973:366). These late accounts are perhaps more trustworthy. Regardless, Clifton himself notes that based on recorded rice exports, it is unlikely that there were more than 500 acres actually in production along the entire Lower Cape Fear. Some portion of this production may have been from interior swamp or upland fields, rather than tidal fields along the Cape Fear (for a discussion of upland and interior swamp production see Trinkley et al. 2003:13-42).

Although indigo required less labor and capital than rice, it still required far more labor than most Lower Cape Fear planters could muster and it therefore appears to have played a minor role. Wood notes that few inventories mention the tools specific to indigo production (Wood 2004:185). Regardless, whatever expansion of indigo that may have occurred was probably cut

short by the American Revolution and the loss of the British bounty.

While huge slave populations would have allowed production of rice or indigo, such large populations were not uniformly present in the Lower Cape Fear. Owners found tar, pitch, and lumber more profitable than fields of corn, rice, or indigo (Merrens 1964:131, Wood 2004:186). In addition, unlike field crops, navel stores could be produced at almost any time of the year and this allowed very effective use of slave labor, especially by the owners of relatively small numbers of slaves (Merrens 1964:89). Consequently, naval stores accounted for about 82% of the Lower Cape Fear's exports (Wood 2004:179). Even where the slave resources existed for rice production, Wood suggests that planters found other resources – like naval stores – were simply more profitable (Wood 2004:207).

Antebellum

Washington's (1828) queries to Carolina rice planters is especially interesting not only for its early period, but also for the variation as a result of many different planters responding. Nevertheless, Ruffin (1848) provides a reasonable synthesis of the process, which is largely repeated by DeBow (1852).

The fields of a tidal rice plantation were constructed on land that had been ordinarily overflowed by tides:

> When reclaimed they are furnished with a sufficient dam to exclude the tide-water, and a "trunk," or framed culvert, furnished with a door at each end swinging upon long levers, which are attached to sturdy uprights, so as to admit or exclude the tide at pleasure—retain or discharge it, after being admitted. The large enclosure is subdivided by "cross-banks," or dams, into fields of convenient size, containing variously from fourteen to twenty-two acres. In constructing the banks, large ditches (five to eight feet wide,) are excavated to the depth of five feet, leaving between the ditch and bank, a margin of twelve feet or more. These serve to drain the field. From one of these ditches to another, in one direction, and at the distance of 37½ to fifty feet apart, are cut smaller ditches or "drains," eighteen inches wide, and three feet deep. Thus thoroughly reclaimed, and completely drained, the swamp, if well seeded, will produce abundantly from the first (Ruffin 1948:15).

In preparation of planting the land would be plowed or hoed; the stubble might be turned under or burned. The field would be leveled and planting would begin sometime between the middle of March and the middle of April. Trenches for the seeds would be opened up about 15-inches apart and about 2 bushels of seed would be sowed per acre. The seed might be lightly covered with soil, or more commonly what was known as "clayed" rice or rice that had clay applied to it, would be planted. This clayed rice would not float when water was applied to the fields and thus was not covered with soil.

Planters had a variety of opinions regarding appropriate seed rice. Some believed that rice from the north was better, others believed the rice should be either from the north or south, while others felt that it really made no significant difference. All, however, agreed that appropriate seed rice should be heavy, well formed, not damaged by processing, and should be free from volunteer or red rice. It appears that relatively few planters during the antebellum were raying rice – a process of screening to remove weeds and damaged grains.

A sprout or point flow was then applied to the field for about two weeks. It was reported that this protected the seed from birds, rid the fields of trash, and would set the seed. After that the fields

were drained. When the crop was five to six weeks old it might receive it first hoeing in order to remove grasses. Alternating water and hoeing would occur during the season, with planters typically hoeing at least twice and sometimes as often as three times.

Joint water would be put on the fields at the last hoeing and would remain there until the grain was mature, usually in about two months. Each planter had their own means of judging when the rice was ready for harvest, but they all involved the rice ripening from the bottom of the stalk upwards. The rice would be cut with a sickle or hook. Tasks for the African American slaves ranged from a quarter an acre per day up to three-quarters of an acre.

The cut rice would be laid on the stubble to cure. The following day, once the dew was off, this rice would be gathered up, tied in sheaves and then packed in rice flats that would carry five to seven acres of rice production, and taken back to the barn yard. There it would be stacked in small ricks to cure. In the barnyard the rice would be separated from the straw by flailing to produce what was called rough rice (rice removed from the straw, but not yet hulled).

The next step was milling, which removed the indigestible hulls from the grains of rice. In the antebellum the rough rice would be placed in a wooded mortar and it would be pounded by hand using a wooden pestle. By using a tapping and rolling motion, a skilled slave could produce 95% unbroken, whole rice, while a less skilled or tired slave could easily shatter half of the rice. It was at this stage that rice would be separated into "whole rice" that was exported, "middling rice," which were partially broken grains and put aside for use by the planter, and "small rice," or small broken grains that would be given to the slaves. Milling also produced a small amount of rice flour that required immediate use or it would spoil.

A second pounding was typically done to remove the inner skin, or bran. This produced a white rice and without the fatty bran the rice was less likely to turn rancid during transit.

After pounding the rice was winnowed in order to remove the rice grains from their associated trash. Afterwards the rice would be packed in barrels.

Planters estimated two to three 600 pound barrels of rice to the acre was a good yield and expected each slave to harvest about 10 barrels.

Postbellum

In spite of a wide range of planting idiosyncrasies seen from one planter to the next during the antebellum, the basic process of planting, growing, and harvesting rice hardly changed along the Carolina coast for over 100 years. When planting was resumed after the Civil War the process was the same, except that labor had to be paid. Thus, the outline of rice cultivation offered by Alexander (1893) and Sprunt (1883) is very similar to antebellum practices. In many cases differences are the result of labor costs.

Sprunt (1883:203) explains that cleaning ditches was done every third year, while the smaller drains were cleaned after every plowing. The fields would be plowed and stubble turned under shortly after the rice was harvested. This prepared the fields for the next year's crop and also helped reduce the problem of volunteer rice. He comments that the work was usually done by oxen, although there is evidence that many plantations also used mules.

Planting time in the Wilmington area was about March; plows and harrows went over the fields and afterwards

> The "plow turns" should be broken up with the spade, sinking the spade as deep as the plow had gone, say eight inches; an able-bodied man will break up in this, and thoroughly, a surface of fifteen hundred square feet in a day. The field should be well drained, however. The hoe follows to cut up and break the remaining clods and level the

> surface. The more the soil is comminuted, and the surface brought to a common level, the better. The trenchers then come in with hoes made for the purpose, and trace out with great accuracy the drills in which to sow the seed, fourteen, thirteen or twelve inches apart from centre to centre. They will average . . . three-quarters of an acre to the hand in a day's work (Sprunt 1883:204).

Drills tended to be only 3-inches in width, making it easier to hoe out any grass that might come up outside this narrow row. He described how the sowers, almost always women, "with great care, yet with wonderful facility and precision, string the seed in the drills, putting two and a quarter bushels to the acre" (Sprunt 1883:204). Given the skill required, he advised against assigning a task, but noted that two or three can be done with proficiency by most.

Sprunt goes on to note that the seeds may be covered with soil, but if they are not, then the seed "must first be prepared by rolling it in clayed water" – the same techniques used during the early antebellum. By the twentieth century some planters began to also tar their seeds to reduce the potential of birds eating the seed in the field. Bond and Kenney note this was not a certain protection since, "birds have been killed whose craws were filled with the black grains, and whose flesh itself tasted of the tar" (Bond and Kenney 1902:66).

If the seeds were not covered with soil, Sprunt reports that the fields were flooded for five or six days to encourage the rice to sprout and then drawn off in order to prevent the small seedling from floating off. Once the rice was well rooted "in the needle state," the field was again flooded (Sprunt 1883:205).

Bond and Kenney (1902:66) note that immediately after planting and the seeds covered, the fields are flooded by what was called the "sprout flow" and this was allowed to stand for six to eight days and then drained off. Called the "sprout flow" this protected the seeds and allowed germination. When the plants were up and the individual rows could be plainly seen, water – called the "stretch flow" – was again placed on the field. Within two or three days the plants were nearly six inches in height and the planter would begin to gradually lower the water to about four inches and kept on the fields for 13 to 30 days, depending on the soil, the condition of the plants, and the temperature. This water was still called the "stretch flow" and when finally drawn completely off, the rice entered the period of "dry growth" which might last 40 to 45 days.

Sprunt noted that prior to the period of dry growth some planters put down water to wash out ditches and had hands clean the ditches to ensure good flow. About a week after draining, the fields should be dry and the first hoeing was conducted. After another 15 to 18 days the crop would be hoed again. Each of these was done with small hoes to prevent damage to the rice. Sprunt (1883:207) indicated this dry period to be about 90 days and then described the use of a "lay-by" flow where the fields were again slowly flooded – some planters keeping the water shallow and others using a greater depth.

During the following 60 to 70 days the water was frequently changed in order to keep it fresh, but it was never entirely drawn off until the rice was ready for harvest. To accomplish this he noted that planters adopted:

> two trunks – one to admit fresh water at every flood tide, and the other to void it with the ebb, so that twice every twenty-four hours there is obtained a slight current through the field. This besides lessening the infection of the atmosphere (miasmata) by stagnant water, keeps the roots of the plant cool and healthy, though it postpones the ripening of the rice some five or eight days. Meantime, should any grass have escaped the previous

> hoeings and weedings, it will show its crest before the rice matures and be plucked up by the roots. All white rice will be stripped off by hand (Sprunt 1883:207-208).

Sprunt described the harvest as occurring before most observers would find the rice quite ripe – for rice sown April 1 the harvest would generally begin between September 1 and 10. The water was first drawn off and by the next morning it was being cut by hand, being stacked on the stubble just as it was during the antebellum. After the next day's dew had evaporated the rice was gathered up, tied into sheaves, and taken to the threshing yard and again stacked (Sprunt 1883:208).

Bond and Kenney observe that the harvest occurred "when the straw barely begins to color, when the lower part of the head (about one-eighth) is still 'in the milk'" (Bond and Kenney 1902:67). If rice was cut too late, when entirely ripe, the quality was inferior and the quantity was significantly reduced by the loss resulting from handling. The cutting occurred about 10 to 12 inches off the ground and otherwise the description was in uniformity with Sprunt. They do explain that workers were typically paid about $2 an acre for the work of cutting, tying, and hauling the sheaves.

Table 4.
Rice Production in Brunswick County

Year	Pounds	% of NC Total
1840	949,755	34
1850	2,687,415	49
1860	6,775,286	89
1870	748,418	36
1880	1,163,850	21
1890	1,251,497	21
1900	1,215,814	15
1910	351,135	69

Production declined precipitously immediately after the Civil War and one account reports that

> of the old planters on the Cape Fear river, who had the temerity to undertake the planting of rice with the free labor as it existed in 1865, '66, '67, and '68 *not one succeeded*. The rice planters, with the exception of small fields here and there, cultivated by negroes for themselves, were almost entirely abandoned for eight or nine years ("Rice Culture," *The Daily Review*, Wilmington, NC, August 23, 1882, pg. 1; for similar complaints see Bannister, Cowan and Company 1869:114).

Clifton (1973:389) notes a rebound in 1880 when a 100% tariff was imposed on foreign rice, allowing domestic rice to sell for upwards of 4½¢ a pound – sufficient to make production viable.

Nevertheless, problems continued to mount and production was largely stagnant. In the 1880s there were major rice production developments in Louisiana, coupled with hurricanes in 1893, 1894, 1898, 1906, 1910, and 1911 (Clifton 1973:392; see also Table 1). Planters complained about indifferent labor and the associated high costs,

> since the emancipation of the slaves, the cost of agricultural labor in the South has increased more than one-hundred percent. In the rice districts . . . females obtain from fifty to seventy-five cents [a day]. Males from sixty cents to a dollar-twenty-five per diem – this without the efficiency to be expected from free labor. These laborers in some localities openly refuse to undertake tasks, easy under a sterner system, and essential to rice cultivation ("Rice

Culture," *The Daily Review*, Wilmington, NC, August 24, 1882, pg. 1).

Clifton (1973:393) reports that the 1909 crop, reported in the 1910 census, was the last crop produced on the Cape Fear. No rice production was reported by either the 1920 or 1930 census reports.

Other Crops

Cotton was never a dominant crop in North Carolina as it was in South Carolina and prior to the Civil War there was considerable fluctuation in the amount produced (Anonymous 1896:158). Its production in Brunswick County was minor until after the Civil War when both acreage and yield increased, peaking in 1920. In general, American agriculture prospered during World War I and cotton prices were typically higher than they had been in years. Southern agriculture, however, contracted after the war, as European farmers recovered. Although most sectors of the economy recovered relatively quickly, "agriculture did not ever fully recover," and in the "years following 1920, the cotton industry experienced little, if any, prosperity" (Dimsdale 1970:5).

One of the disruptions in North Carolina agriculture was the arrival of the boll weevil. At the door to Savannah in 1917, the weevil had spread through much of South Carolina by 1919 and by 1922 had covered most of North Carolina as well. Planters paid their tenants a penny per weevil in an effort to slow the spread and millions of pounds of arsenical dusts (primarily calcium arsenate) were applied. In spite of these efforts losses ranged between 30 and 60% of a crop (Haney et al. 1996). By 1930 cotton production in Brunswick County was about a quarter what it had been a decade earlier.

Corn has been described as the "great staple crop of the State, and almost its chief reliance alike for breadstuffs and for export" (Bannister, Cowan and Company 1869:25). Perkins and Goldston likewise comment on the steady increase in production. They suggest that the jump seen in 1930 was likely the result of "restrictions placed on the acreage devoted to tobacco and cotton" (Perkins and Goldston 1937:5).

Table 5.
A Few Major Brunswick County Crops

Year	Indian Corn (bu)		Sweet Potatoes (bushels)		Peanuts (bushels)		Rice (lbs)		Cotton (400 lb bales)	
	Brunswick	NC	Brunswick	NC	Brunswick	NC	Brunswick	NC	Brunswick	NC
1840	36,357	29,893,763					949,755	2,820,388	20	129,815
1850	63,229	27,941,051	101,017	5,095,709			2,687,415	5,465,868	7	73,845
1860	99,118	30,078,564	131,669	6,140,039			6,775,286	7,503,976	1	145,514
1870	56,211	18,454,215	129,168	3,071,840			748,418	2,059,281	119	144,935
1880	46,329	28,019,839	111,779	4,576,148			1,163,852	5,000,101	244	880,598
1890	81,519	25,783,623	128,659	5,665,391	15,120	421,138	1,251,497	5,846,404	382	886,201
1900	118,140	34,818,860	208,256	5,781,587	37,527	8,460,489	1,215,814	7,892,580	621	541,266
1910	123,633	34,063,531	206,212	8,493,283	79,713	5,980,910	351,135	511,065	884	665,132
1920	44,429	40,998,317	181,165	7,959,786	30,693	5,854,689	-	-	1,456	858,406
1930	173,346	35,608,833	205,479	6,716,596		225,153	-	-	384	764,328

Peanuts were reported for the first time in the 1890 census and historic production peaked about 1910. Bannister, Cowan and Company (1869:3), however, report that peanuts, grown on the light coastal sands, were a common crop prior to the Civil War and upwards of 200,000 bushels were shipped to the north.

Sweet potatoes have been an important crop from the antebellum, when they were grown both for enslaved Africans as well as for livestock. Yields in Brunswick fluctuated after the Civil War, but generally remained steady. Bannister, Cowan and Company (1869:28) comments that sweet

potatoes were not being adequately marketed to the north.

The rise of truck crops or market gardening is discussed at length by Anonymous (1896:181-185), noting that the early season and readily available train service was promoting North Carolina vegetables in northern markets. The author comments that, "the growth of early vegetables in the open ground has developed to a wonderful extent from the small beginnings on the Atlantic Coast Line railroad near Wilmington" (Anonymous 1896:183).

This same author also describes advances in the culture of flowering bulbs, observing that eastern North Carolina excels "in the growth of the tuberose, narcissus, freezia and amaryllis, while the upland sand lands of the long lead pine belt will become the home of the lilies, and hyacinth, and gladiolus, through the Narcissus will do equally well there" (Anonymous 1896:186).

Brief Prehistoric and Protohistoric Synthesis

While the focus of this research is on the eighteenth, nineteenth, and very early twentieth century occupation of Kendal Plantation, excavations have produced a small assemblage of prehistoric artifacts. This isn't surprising, considering the topographic setting and the variety of different ecological zones in close proximity. Consequently, a brief overview of North Carolina coastal prehistory will be provided to help readers better understand these Native American remains. Figure 15 offers a generalized view of North Carolina's cultural periods.

Paleoindian Period

The Paleoindian Period, most commonly dated from about 12,000 to 10,000 B.P., is evidenced by basally thinned, side-notched projectile points; fluted, lanceolate projectile points, side scrapers, end scrapers; and drills (Coe 1964; Michie 1977). Oliver (1981, 1985) has proposed to extend the Paleoindian dating in the North Carolina Piedmont to perhaps as early as 14,000 B.P., incorporating the Hardaway Side-Notched and Palmer Corner-Notched types, usually considered Early Archaic, as representatives of the terminal phase. This view, held by Coe for a number of years, has considerable technological appeal. [1] Oliver suggests continuity from the Hardaway Blade through the Hardaway-Dalton to the Hardaway Side-Notched, eventually to the Palmer Side-Notched (Oliver 1985:199-200). While convincingly argued, this approach is not universally accepted.

Goodyear (2006) briefly reviews the literature surrounding the Redstone type, observing that "based on the fluting technique, Redstones can be related to a post-Clovis, instrument-assisted method where a punch or pressure flaker was placed in the basal concavity to precisely remove the characteristic long flutes" (Goodyear 2006:100; see also Goodyear 2010). In contrast, Clovis point manufacture uses percussion in bifaces reduction and basal thinning or fluting.

Goodyear also believes that Redstones differ from Clovis in not only their fluting technique, but also in function. He believes Clovis points were used for piercing-cutting, while the Redstones were used for piercing-penetrating (Goodyear 2006:101). This may relate to the changing pattern of faunal exploitation since those using Redstones were no long hunting mammoths and mastodons, but were relying on elk and bison.

Goodyear suggests a sequence of Clovis – Redstone – Dalton, with a major population reduction during the period that Redstones were used, but conditions were ameliorating by the time Dalton points became popular (Goodyear 2006:101-102).

Recently Daniel and Moore (2011) have begun a detailed survey of Paleoindian points found in North Carolina. Two primary coastal plain types, Clovis and Redstone, have been identified. As of 2011, 281 points had been identified, with 60 of these found in Coastal Plain counties (although none were reported from

[1] While never discussed by Coe at length, he did observe that many of the Hardaway points, especially from the lowest contexts, had facial fluting or thinning which, "in cases where the side-notches or basal portions were missing, . . . could be mistaken for fluted points of the Paleo-Indian period" (Coe 1964:64). While not an especially strong statement, it does reveal the formation of the concept. Further insight is offered by Ward's (1983:63) all too brief comments on the more recent investigations at the Hardaway site (see also Daniel 1992).

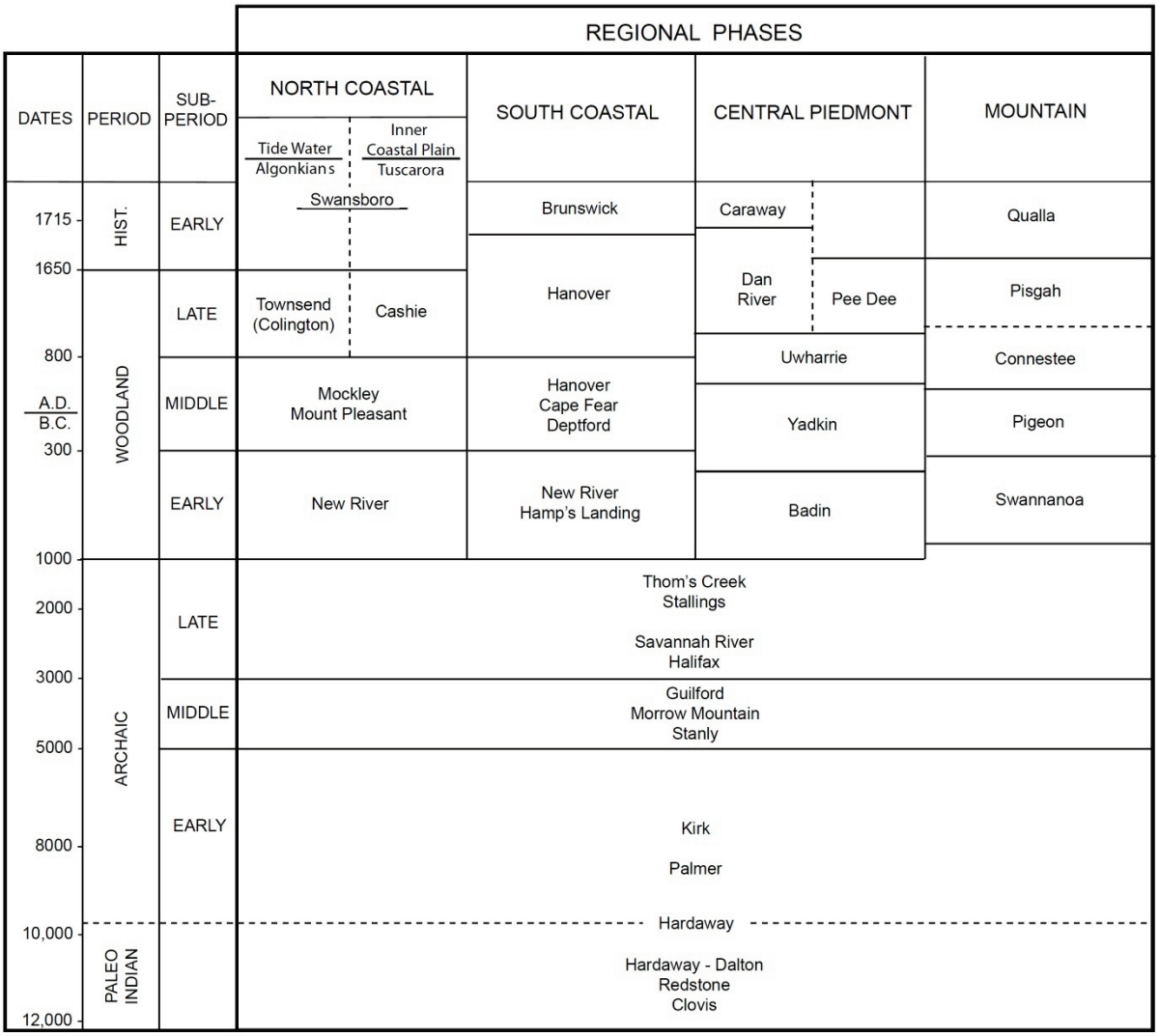

Figure 15. Regional sequences for North Carolina (adapted from Coe 1964, Daniel and Moore 2011, Herbert 2009, and Phelps 1983).

Brunswick County). The low density of coastal plain points is attributed to not only potential site inundation resulting from rising sea levels, but also the relatively intact coastal plains soils, compared to the deflated piedmont soils where artifacts become more visible.

North Carolina has yet to produce an in situ Paleoindian assemblage. Daniel and Moore, however, point to the Pasquotank assemblage on the edge of Great Dismal Swamp in Pasquotank County where "one of the few Clovis assemblages in the Southeast" is found. Consisting entirely of surface materials, the assemblage includes one intact and two broken fluted points, as well as "end scrapers, side scrapers, *limaces* [leaf-shaped, bi-pointed blades], and a graver [and] a *pièce esquillèe* [a stone fragment that shows repeated bipolar percussion blows and is characterized by crushed working edges with sharp perpendicular corners]" (Daniel and Moore 2011:3-4). Most of these materials are of a probable green rhyolitic tuff, although some chert is also present. Both of these materials are likely from sources 80 to 200

miles distant.

Relatively little is known about Paleoindian subsistence strategies, settlement systems, or social organization. Generally, archaeologists agree that the Paleoindian groups were at a band level of society, were nomadic, and were both hunters and foragers. While population density, based on isolated finds, is thought to have been low, Walthall suggests that toward the end of the period, "there was an increase in population density and in territoriality and that a number of new resource areas were beginning to be exploited" (Walthall 1980:30).

Archaic Period

The Archaic Period, which dates from 10,000 to 3,000 B.P.[2], does not form a sharp break with the Paleoindian Period, but is a slow transition characterized by a modern climate and an increase in the diversity of material culture. Associated with this is a reliance on a broad spectrum of small mammals, although the white tailed deer was likely the most commonly exploited animal. Archaic period assemblages, exemplified by corner-notched and broad-stemmed projectile points (Figure 16), are fairly common, perhaps because the swamps and drainages offered especially attractive ecotones.

Loftfield's (1979:54) data suggests that there was a noticeable population increase from the Paleoindian (with five identified components in his study) into the Early Archaic (where at least 42 components were isolated). This corresponds with findings by other researchers (see, for example, Ward 1983:65). This has tentatively been associated with a greater emphasis on foraging. Diagnostic Early Archaic artifacts include the Kirk Corner Notched point. Palmer points may be included with either the Paleoindian or Archaic period, depending on theoretical perspective. As the climate became hotter and drier than the previous Paleoindian period, resulting in vegetational changes, it also affected settlement patterning as evidenced by a long-term Kirk phase midden deposit at the Hardaway site (Coe 1964:60). This is believed to have been the result of a change in subsistence strategies.

Settlements during the Early Archaic suggest the presence of a few very large, and apparently intensively occupied, sites which can best be considered base camps. Hardaway might be one such site. In addition, there were numerous small sites which produce only a few artifacts — these are the "network of tracks" mentioned by Ward (1983:65). The base camps produce a wide range of artifact types and raw materials which has suggested to many researchers long-term, perhaps seasonal or multi-seasonal, occupation. In contrast, the smaller sites are thought of as special purpose or foraging sites (see Ward 1983:67).

Middle Archaic (8,000 to 6,000 B.P.) diagnostic artifacts include Morrow Mountain, Guilford, Stanly and Halifax projectile points. Middle Archaic diagnostic artifacts were found to occur on 60 of the 196 sites found by Loftfield (1979). Phelps (1983:25) also notes that the gradual increase from Paleoindian to Archaic in the Coastal Plain seems to peak during the Middle Archaic Morrow Mountain phase.

[2] The terminal point for the Archaic is no clearer than that for the Paleoindian and many researchers suggest a terminal date of 4,000 B.P. rather than 3,000 B.P. There is also the question of whether ceramics, such as the fiber-tempered Stallings ware, will be included as Archaic, or will be included with the Woodland. Oliver, for example, argues that the inclusion of ceramics with Late Archaic attributes "complicates and confuses classification and interpretation needlessly" (Oliver 1981:20). He comments that according to the original definition of the Archaic, it "represents a preceramic horizon" and that "the presence of ceramics provides a convenient marker for separation of the Archaic and Woodland periods (Oliver 1981:21). Others would counter that such an approach ignores cultural continuity and forces an artificial, and perhaps unrealistic, separation. Sassaman and Anderson (1994:38-44), for example, include Stallings and Thom's Creek wares in their discussion of "Late Archaic Pottery." While this issue has been of considerable importance along the Carolina and Georgia coasts, it has never affected the Piedmont, which seems to have embraced pottery far later, well into the conventional Woodland period.

There is good evidence that Middle Archaic lithic technologies changed dramatically. End scrapers, at times associated with Paleoindian traditions, are discontinued, raw materials tend to reflect the greater use of locally available materials, and mortars are initially introduced. Associated with these technological changes there seem to also be some significant cultural modifications. Prepared burials begin to more commonly occur and storage pits are identified.

The available information has resulted in a variety of competing settlement models. Some argue for increased sedentism and a reduction of mobility. Others argue for relatively stable and sedentary hunters and gatherers "primarily adapted to the varied and rich resource base offered by the major alluvial valleys" (Ward 1983:69; see also Ward and Davis 1999:63). Others suggest increased mobility during the Archaic. Sassaman (1983) has suggested that the Morrow Mountain phase people had a great deal of residential mobility, based on the variety of environmental zones they are found in and the lack of site diversity. The high level of mobility, coupled with the rapid replacement of these points, may help explain the seemingly large numbers of sites with Middle Archaic assemblages.

The Late Archaic, usually dated from 6,000 to 3,000 or 4,000 B.P., is characterized by the appearance of large, square stemmed Savannah River projectile points (Coe 1964). These people continued to intensively exploit the uplands much like earlier Archaic groups with, in North Carolina, the bulk of our data for this period coming from the Uwharrie region.

A progression from Savannah River Stemmed to Small Savannah River Stemmed to Gypsy Stemmed to Swannanoa from about 5000 B.P. to about 1,500 B.P. Oliver (1985) also notes that the latter two forms are associated with Woodland pottery. This reconstruction, however, is not universally accepted.

In addition to the presence of Savannah River points, the Late Archaic also witnessed the introduction of steatite vessels (see Coe 1964:112-113; Sassaman 1993), polished and pecked stone artifacts, and grinding stones. Some also include the introduction of fiber-tempered pottery about 4000 B.P. in the Late Archaic. This innovation is of special importance along the Georgia and South Carolina coasts, but seems to have had only minimal impact in North Carolina.

Although fiber-tempered pottery has been known from southeastern North Carolina since at least the late 1950s when it was collected from 31CB4, it was not formally defined until South's 1960 survey of the coast (South 1976). Initially it was assumed to be limited to the South Carolina border area, but by the early 1970s Phelps was identifying specimens from the Greene County area (Phelps 1983:26). By the 1980s fiber-tempered wares were recognized from at least 38 sites scattered throughout the coastal plain of North Carolina. Phelps notes, however, that only what might be called Stallings Plain is found, suggesting that "the full-fledged ceramic series with its decorative types did not extend into the South Coastal region" (Phelps 1983:26). The pottery is typically associated with Savannah River Stemmed points, steatite pottery or disks, and grooved axes. It is found throughout the North Carolina coastal plain and onto the inner coastal plain (Herbert 2009).

There is evidence that during the Late Archaic the climate began to approximate modern climatic conditions. Rainfall increased resulting in a more lush vegetation pattern. The pollen record indicates an increase in pine which reduced the oak-hickory nut masts which previously were so widespread. This change probably affected settlement patterning since nut masts were now more isolated and concentrated.

Woodland Period

As previously discussed, there are those who see the Woodland beginning with the introduction of pottery. Under this scenario the Early Woodland may begin as early as 4,500 B.P. and continue to about 2,300 B.P. Diagnostics would include the small variety of the Late

Archaic Savannah River Stemmed point (Oliver 1985) and pottery of the Stallings and Thoms Creek series. These sand-tempered Thoms Creek wares are decorated using punctations, jab-and-drag, and incised designs (Trinkley 1976). Herbert (2009:156) finds Thom's Creek isolated to the southern coastal plain in North Carolina, primarily in Brunswick and Columbus counties.

Also potentially included are Refuge wares (Waring 1968) which are difficult to distinguish from Thom's Creek (see, for example, Herbert 2009:156-157).

Some, however, would have the Woodland beginning about 3,000 B.P. and perhaps as late as 2,500 B.P. with the introduction of pottery which is cord-marked or fabric-impressed and suggestive of influences from northern cultures. Regardless, it is between 4,000 and 3,000 B.P. when Phelps (1983:26-27, Figure 1.2) notes that the coastal plain can be divided into a northern and southern region. Our attention will focus on the southern region, although Figure 15 includes both regions.

Along the southern coastal plain a northern-influenced ware which Loftfield (1976:149-154) terms New River is associated with the Early Woodland. This pottery is tempered with coarse sand making it feel sandy to the touch.[3] The pottery, according to Loftfield may be "thong-marked" (i.e., simple stamped), cord-marked, net-impressed, fabric-impressed, and plain (often smoothed).

Little is known about possible cultural associations, although it has been suggested that the subsistence economy was based primarily on deer hunting and fishing, with supplemental inclusions of small mammals, birds, reptiles, and shellfish. This is based on the continuation of a generalized Late Archaic pattern, which may or may not be appropriate.

Also present is a marl-tempered pottery called Hamp's Landing which is recognized well into South Carolina (see, for example, Adams and Trinkley 1993). Herbert reports primarily Early Woodland dates, but cautions that dating is not secure and surface treatments of check-stamped, perpendicular cord-marking, and rigid fabric-impressing are typically associated with the Middle Woodland (Herbert 2009:121). Consequently, Hamp's Landing pottery may be representative of Middle Woodland developments.

Finally, there appears to be a low incidence of Deptford pottery that Herbert (2009:125) suggests is contemporary with the end of the Early Woodland New River and Hamp's Landing pottery. Cable and his colleagues (1998) take a different approach, merging Deptford and Cape Fear and identifying three phases, each defined by different paste characteristics and the relative frequency of surface treatment types.

Somewhat more information is available for the Middle Woodland, typically given the range of about 2,300 B.P. to 1,200 B.P. Deptford pottery continues to be found, but the period is marked on the southern coast by the appearance of what is called Cape Fear pottery. This is sand and grit-tempered pottery that is dominated by cord-marking. It is spread over a large area ranging from central South Carolina through the North Carolina sandhills and coastal plain. Herbert (2009:130) provides a brief overview of the different approaches that have tried to bring order to the range of Middle Woodland sandy paste pottery that is found throughout the region.

Toward the end of the Middle Woodland the grog-tempered Hanover series appears. Herbert suggests, at least for the sandhills, that in earlier Hanover there is more sand than grog, while later examples are primarily grog with only minor amounts of sand (Herbert 2009:142). In addition, cord marking is gradually displaced by fabric-impressing. This Middle Woodland Hanover

[3] In North Carolina, as in South Carolina, type descriptions tend to be loosely written with attributes poorly defined. To further complicate typological issues, there are few petrographic or chemical studies of these wares. Consequently, descriptive references such as "sandy," "coarse," and "fine" are meant only as general statements.

pottery is certainly related to the Wilmington and St. Catherines series found further south in South Carolina and Georgia. Moreover, Hanover is thought to extend into the Late Woodland along the south coast of North Carolina.

On the north coast the prevailing Middle Woodland pottery is the Mount Pleasant series which seems to be contemporaneous with Cape Fear and at least early Hanover. Phelps (1983:35) believed Mount Pleasant and Cape Fear were equivalents:

> the Cape Fear ceramic types described by South (1976:18) are essentially similar to the Mount Pleasant series and Haag's [1958] "grit-tempered," and both of these have been included in the Mount Pleasant definition to provide a comprehensive ceramic horizon across the Coastal Plain (Phelps 1983:35).

Herbert (2009:131) also notes that Mount Pleasant seems similar to the Middle Woodland Vincent series in the Roanoke Rapids area and the Stoney Creek pottery from the Potomac River valley in Virginia – suggesting that the pottery has a very large areal extent.

Also present on the north coast are examples of Mockley ware, a shell-tempered cord-marked and net-impressed pottery originally defined from Virginia.

Further inland the prevailing Middle Woodland pottery is Yadkin, clearly distinguished from other sandy-paste wares by the presence of abundant angular or crushed quartz temper (Coe 1964:30, 1995:54). Cord-marked and fabric-impressed sherds are common, although some check-stamping is also present, presumably transferred from Deptford contexts. Herbert (1009:125) also identifies a net-impressed pottery as Yadkin and Coe (1995:54) reports a simple-stamped Yadkin ware from Town Creek.

One of the few distinctive features of the coastal plain (and sandhills) Middle Woodland[4] appears to be the presence of low sand burial mounds. One of the most thorough overviews is offered by MacCord (1966), although Wilson (1982) offers a fresh review and a detailed assessment of one such mound. Artifacts are typically sparse, consisting of platform pipes, an occasional cord marked, sand-tempered sherd, celts, shell beads, copper beads, and a few triangular projectile points. Human remains include cremations, bundle burials, multiple burials, and flexed burials. The frequency of secondary burials suggest that a number of individuals were interred only after some form of reduction. Further complicating analyses, the human remains are frequently in very poor condition (the probable result of the acid soils and loose sands).

Wilson's (1982) study of the McFayden Mound, Bw°67, is particularly interesting since she was able to roughly calculate the life expectancy of the population — 19.9 years from birth. While this estimate seems low when compared to other prehistoric populations it is close agreement with that found at more Northern ossuaries. It was also possible to reconstruct the population size which is, of course, dependent on the number of years of deaths represented in the mound. Relying on ethnohistoric data, Wilson suggests a population size of around 200 individuals, a seemingly reasonable estimate for Woodland models which might focus on macro-bands.

[4] Their association with the Middle Woodland, in many cases, is tenuous. Phelps, in fact, notes that he places them with his discussion of Cape Fear "because their content and occurrence elsewhere in the eastern Woodlands area" (Phelps 1983:35). There are some good reasons to suggest that they span a greater time period, perhaps into the Late Woodland. Wilson (1982:161-162), for example, presents some relatively strong evidence that at least one mound, Bw°67, may date as late as A.D. 1300. This is supported by the presence of a stone pipe comparable to those of found at Uhwarrie phase sites, the presence of Adam's Creek pottery (possibly proto-historic), and cranial measurements which strongly resemble Piedmont Siouan populations.

Some have suggested that this elaboration of burial customs suggests changes in social organization and that it also implies a more sedentary lifestyle. This, in turn, has led to discussions of possible horticultural activities during the Middle Woodland.

In some respects the Late Woodland (1,200 B.P. to 400 B.P.) may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500-700 years. From the vantage point of the Middle Savannah River Valley Sassaman and his colleagues note that, "the Late Woodland is difficult to delineate typologically from its antecedent or from the subsequent Mississippian period" (Sassaman et al. 1990:14).

In fact, along the southern coast of North Carolina it appears that Hanover pottery continues into the Late Woodland. It is apparently replaced by burnished, corncob marked, and brushed Brunswick pottery. This is a type that was described by South (1976) based on locally made low-fired pottery found at Brunswick Town. This assemblage may reflect a mixture of colonowares, representing primarily African-American made pottery similar to that found in South Carolina with wares produced by protohistoric and historic Indian groups.

From the north coastal area Phelps suggests that "from A.D. 800 onward archaeological assemblages of the Late Woodland period in the North Coastal region can be related to ethnohistoric information and studies, thus providing the relative comfort of social and linguistic identities and the use of the direct historical approach" (Phelps 1983:36). In the north Phelps has done a superb job identifying the Carolina Algonkians (on the coast) and the Tuscarora (on the interior). The Algonkians are associated with the Colington phase and the associated pottery is shell-tempered with fabric-impressed, simple-stamped, plain, and incised surface treatments (Phelps 1983:36, 39-43; see also Gardner 1990). Herbert suggests using Townsend instead, as it describes identical wares from

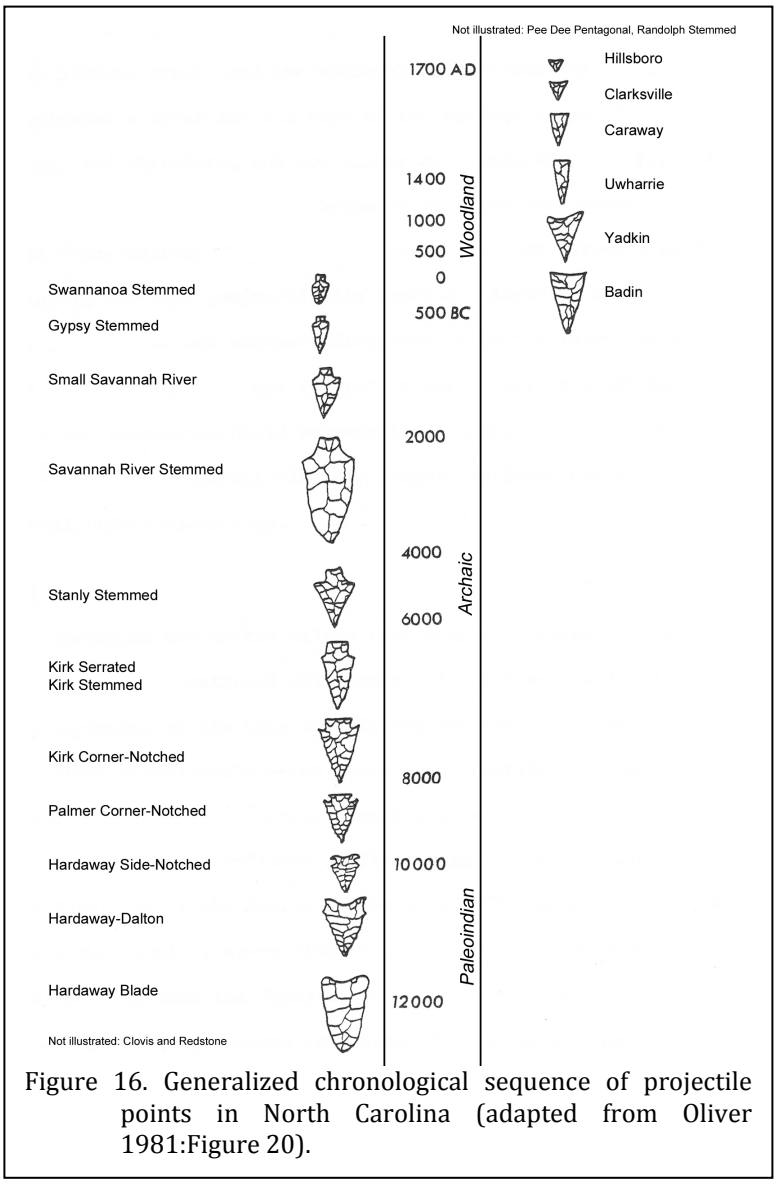

Figure 16. Generalized chronological sequence of projectile points in North Carolina (adapted from Oliver 1981:Figure 20).

coastal Virginia and southern Maryland (Herbert 2009:142). White Oak, reported for the south coast in small quantities, appears identical, although White Oak and Colington had somewhat different surface treatments.

The inland Tuscarora appear to have been producing the Cashie series pottery, which is tempered with grit and pebbles and has fabric-impressed, simple-stamped, incised, and plain surfaces (Phelps 1983:37-39, 43-47).

For the south coastal region information is considerably less secure and ethnohistoric placement is confounded by a seeming mix of Siouan, Algonkian, and perhaps even Muskhogean linguistic and cultural traits. South offers a brief synopsis of enthohistoric data for the south coast (1976:5-8; see also South 1972) and associates these mixed groups with his Oak Island complex, which Phelps (1983) adopts. Loftfield found similar evidence, although he chose to designate the material White Oak (Loftfield 1976:157-163). Perhaps the best evidence associating the Oak Island wares with a specific ethnic group is the research conducted at a New Hanover County ossuary where the skeletal population was identified as Siouan (Coe et al. 1982).

Herbert (2009:145) suggess that the Swansboro series, found in the north coastal area, may be related to the Yeocomico series found on the Virginia coast, perhaps representing a colonoware from this region. It may also represent a continuation of the shell-tempered Townsend series.

While the projectile points for the most of the Archaic were stemmed, triangular forms dominate the Woodland, with a gradual reduction in size (see Figure 16).

Both McReynolds (2005) and Abbott et al (2011) identify metavolcanics and quartz as the most common raw materials in the south coastal plain. McReynolds (2005:23-24) sees the proportion of metavolcanic materials decline from the Early Archaic through the Late Woodland. Abbott and his colleagues find that while quartz and metacolvanics are both very important, the variety of "other" raw materials increases from the fall line to the coast, especially in close proximity to the Cape Fear River. In contrast, as one moves away from the Cape Fear, the importance of metavolcanics increases from the fall line toward the coast (Abbott et al. 2011:2-29).

Protohistoric Period

Mintz and his colleagues comment that while much progress has been made understanding the prehistoric archaeology of coastal North Carolina, the proto-historic and historic Native American occupations have received very little attention (Mintz et al. 2011:8-1). A surprisingly similar picture is provided by Ward and Davis (1999:272-275). In fact, of the approximately 27 villages shown on John White's maps, not one has been definitively located and investigated.

In the south coastal region South (1972) summarized what little was known about the Cape Fear and Waccamaw, the two groups that seems most clearly associated with lower North Carolina coast. Presumably these groups correlate with what he and other archaeologists have identified as the Townsend/White Oak/Oak Island ceramic complex of plain, cord marked, fabric impressed, and net impressed shell tempered pottery.

The earliest contact was by Verrazano in 1524 (Lee 1965:69), followed by Hilton in 1662 who noted their number at about 100 and described them as "very poor and silly Creatures" (Lee 1965:70). Hilton returned in the fall of 1663 and was again well received by the Cape Fear, visiting their village of Necoes (Salley 1959:45-46). He purchased the river and surrounding lands from Wattcoosa (also Wat Coosa) and other chiefs (Milling 1969:206). As a result of an insult, Hilton also describes how he "pulled down" a hut, and broke pots, platters, and spoons. Foods mentioned included acorns, corn, and fish. By this time the Cape Fear also possessed both cattle and pigs, abandoned by an earlier New England settlement.

Figure 17. Portion of the 1640 *Virginia partis australis, et Floridae partis orientalis, interjacentiumque regionum Nova Descriptio*. While numerous Native American villages are shown in Albemarle region, the southern coast is shown as entirely vacant.

Apparently the Cape Fear developed a taste for beef since they also stole cattle from the 1664-1667 settlement of Charles Town on the West Bank of the Cape Fear (Lee 1965:50).

While Figure 17 shows the Cape Fear area vacant in 1640, a later plan by Nicholas Shapley (1662) shows a possible Cape Fear village, "Sachoms P." at the mouth of "Indian River" or Town Creek on the south side of the Cape Fear River (Lee 1965:73). A more available version is that copied by John Locke in 1662. Unfortunately Locke misidentified the original "James Bates" to "James Fort," drawing a mighty fortress flying a flag. Otherwise this copy clearly shows the Indian village in its correct location.

In 1664 a group of "adventurers" from Barbados, led by John Vassall, settled in the proximity of "Sachoms P." about 20 miles upstream on Town Creek, calling the new settlement Charles Town (Lee 1965). These Englishmen had extensive, and generally poor, dealings with the Cape Fear Indians. By 1666 Indians throughout the region "knewe wee were in actuall warre with the Natives att Clarendon and had killed and sent away many of them" (quoted in Lee 1965:50).

A small contingent of Cape Fear participated with the colonists during the Tuscarora War (1711-1715). It was during this time that a South Carolinian, Landgrave Thomas Smith, acquired lands on what is today Baldhead Island. Lee suggests the land was not intended for cultivation, but rather for a trading post beyond the regulatory reach of South Carolina (Lee 1965:78).

A census conducted by South Carolina in 1715, completed just prior to the following Yemassee War (1715-1717), identified the "Cape

Fears" about 200 miles northeast of Charleston. They had five villages, 76 men and 130 women and children (South Carolina Records, B.P.R.O., vol. 7, pg. 238-239).

During the Yemassee War, Colonel Maurice Moore attached the Cape Fear villages in North Carolina (Wood 2004:17). He apparently took many prisoner, although he was allowed to keep (and sell into slavery) only 80 (Lee 1965:80-81). After the war, Lee believes that only the northern Hatteras, Machapunga, Poteskeet, Chowanoc, Heherrin, and Tuscarora retained their tribal identities (Lee 1963:46).

While lacking in documentary evidence, there is local legend that the Cape Fear Indians burned Orton about 1725 (Sprunt 1958:7-8). Another account, dating to at least the 1840s, has Indians being defeated at Sugar Loaf (now in Carolina Beach State Park on the east side of the Cape Fear) by Moore also about 1725 (Sprunt 1958:8-9).

While possible, Milling (1969:226) also reports that the Cape Fear retired to South Carolina after the 1715-1717 Yamassee War and were serving as scouts in the vicinity of Port Royal and eventually moving inland of Charleston (see also Swanton 1946:103, Lee 1965:83). By 1749 the remnants were complaining to the South Carolina Council that they had been "abused and driven from their hunting grounds."

The group appears to have been so weakened that they gradually disappeared. Hugh Meredith in 1731 reported that there was "not an Indian to be seen" in the vicinity of Brunswick and that other tribes "have almost totally destroyed those called Cape Fear Indians and the small remains of them abide among the thickest of the South Carolina inhabitants, not daring to appear near the out Settlements" (Meridith 1922:28). This is supported by South Carolina enacting a law in 1749 to protect the group from their white neighbors (Swanton 1946:103).

Lee (1965:82-83) reports that the last were living with the Pedee in South Carolina. Swanton (1946:103; see specifically Ramsay 1858:292) repeats the view that at the end of the eighteenth century there were 30 Cape Fear and Pedee living in the area of St. Stephens and St. Johns under "King Johnny." Ramsay notes that in 1858, "all this remnant of these ancient tribes are now extinct, except one woman of a half-breed" (Ramsay 1858:292).

The History of Kendal

During our 2012 reconnaissance survey of Orton and Kendal plantations, we provided historical background for both plantations (Trinkley and Hacker 2012). This current study focuses on Kendal, but expands on that original background, providing additional details that had not been fully researched at the time. While this review is certainly more complete, it is not being offered as a definitive history.

Origin of the Moores

Almost nothing is known of the personal life of the Moore family patriarch, James Moore (c. 1640-1706). A review of a variety of immigration lists and ships registers, such as Hotten (1874), Brandow (1983), Coldham (1993), and Filby (1988) fail to reveal the origin or mode of entry for James Moore.

As early as 1936 Mabel Webber, an early and respected South Carolina genealogist, reported, "it has been found impossible to get any proved information concerning the native place of this Moore family," but nevertheless suggests he "came here from Barbadoes" (Webber 1936:1). Nearly 40 years later this same view was still held by Baldwin (1985). Even the state's legislative biography takes the view that Moore, "Indian trader and adventurer, emigrated from Barbados to South Carolina" (Edgar and Bailey 1977:466).

This "conclusion" seems based entirely on circumstantial evidence. For example, the Moores were quickly associated with the "Goose Creek faction," a group of Barbadian planters that settled in the Goose Creek area of South Carolina and became known for their opposition both to the Proprietors and to religious dissenters (Buchanan 1989:166). They also engaged in a variety of illegal activities, including Indian slave trading (Heitzler 2005:63-74). James Moore was also closely tied to Sir John Yeamans, who lead the first group of settlers from Barbados to South Carolina.

Edelson suggests that these individuals rose to power largely because of their experience in farming practices, merging British, American Indian, and Caribbean practices. This experience was combined with the slaves, indentured servants, and capital resulting from sugar planting (Edelson 2006:50).

Unfortunately, some authors have resorted to questionable scholarship to support their view of Moore's Barbadian roots. For example, Thomas (1930:92) lumps Moore in a list of "others from Barbadoes" using a circular citation from the *South Carolina Historical Collections*, volume 5, which notes only James Moore's defense of Margaret Lady Yeamans as attorney. A detailed analysis of early errors is provided by Bull (1995).

If from Barbados, one would assume some trace would be found in Barbados. But there is none. In fact, Campbell goes so far as to make the definitive statement that James Moore "has no claim to be included in the list of Barbadians who became Governors of South Carolina" and that Moore "was [not] connected with a Barbadian family." He does allow that "it is possible that he called here on his way to South Carolina early in 1677, and he probably visited the island in 1684" (Campbell 1993:126, 151; see also Buchanan 1989:170). A careful examination of wills, marriages, and baptisms on Barbados also fails to identify any evidence of James Moore (Sanders 1979, 1982, 1984).

Some have suggested the names Kendal and Orton can be traced back to Barbados (see, for example an article in *The Daily Review* [Wilmington, NC] on May 28, 1888, that claims

"Orton and Kendall, names brought here from the Barbadoes"). We have been unable to identify any evidence of an Orton Plantation on Barbados. There was, however, a Kendall Plantation in St. John which appears to have been cobbled together from small landowners by William Hilliard and was originally called Buckland (Campbell 1993:94). It was enlarged over time and eventually acquired by James Kendall when it was renamed Kendall, after his father, Thomas Kendall who was Governor of the island from 1690 to 1694 (Campbell 1993:136). Campbell provides a portion of a modern plan of the plantation, showing the "Kendal Factory" or sugar mill. There seems to be no historical association with any Moores.

Figure 18. Portion of the South Lake District on the west coast of England, showing Kendal and Orton.

Those proposing a Barbadian origin generally also assume that James Moore was from Ireland, again with virtually no supporting evidence. For example, McGee (1851:27) claimed James Moore entered Carolina after the Williamite war [1] and asserts the Moores "claimed relationship to the Drogheda family." [2] Battle (1903a) recites a diary entry of General Joshua Swift who commented:

> The ancient family of Moor, descended from Governor James Moor of South Carolina, were residing on the banks of the Cape Fear. Alfred, recently a judge in the United States Supreme Court, and his sons Alfred and Captain Maurice, informed me that this family was that of Drogheda in Ireland, and that the rebel, Roger Moor, celebrated as the defender of Irish independence in the century before the last, was of the same family (Battle 1903a:108).

Thus the Moore family reported its descent from Roger Moor (Roger O'Moor, Rory O'More). [3] Efforts at tracking this descent, however, have not been successful. In fact, O'Callaghan details that "Colonel Rory O'More, or

[1] This was a conflict between Jacobites (supporters of the English Catholic King James II) and Williamites (supporters of the Dutch Protestant Prince William of Orange) over who would be King of England, Scotland and Ireland. Ultimately, the Jacobites were defeated, bringing Ireland under Protestant rule.

[2] Drogheda is a port town in County Louth on the east coast of Ireland. The Moores were Earls of Drogheda, and Charles Moore, the heir of the 3rd Earl, represented Drogheda in Parliament until his death in 1714.

[3] Irish rebel (see Bagwell 1895:176-178 for details).

O'Moore, by his marriage with Jane, eldest daughter of Sir Patrick Barnwall, of Turvbey, and Grace-Dieu, in the County of Dublin, had 1 son, Charles, (Colonel of Foot, under King James II., slain, at the battle of Aughrim, without issue,) and several daughters" (O'Callaghan 1885:63). Thus, there is virtually no possibility that the Moore family of James Moore descended from Rory O'Moore, since that line ended with the death of Charles O'Moore.

In addition, James Moore, and his descendants, were staunch Anglicans (Buchanan 1989:216; Weir 1983:76). Roger, son of James Moore, was unsympathetic to Irish immigrants, working diligently (and apparently successfully) to prevent their entry (Tiffany and Lesley 1901:31). Combined, this argues against any strong Irish roots.

Recently, a different lineage has been identified, proposed by Brown over a century ago, but largely ignored. Brown suggests that the Moores of this study:

> descended from Henry Moore, third Viscount Drogheda, by his wife Alice, daughter of William, Lord Spencer, of Wormleighton, by Lady Penelope Wriothesley, daughter of Henry, third earl of Southampton and third treasurer of the Virginia Company of London (Brown 1895:456-457).

This information is confirmed by Bridges (1808:373), an article in *The Gentleman's and London Magazine* (Anonymous 1784:682), and by Cracroft's Peerage (http://www.cracroftspeerage.co.uk/online/content/drogheda1661.htm).

Yet another claim is made that James Moore was a son of "Sr. Francis Moore of Ireland, grandson of John Moore, Esq. and great grandson of Sr. Roger Moore" (letter from Robert Wilson, President of the Huguenot Society of South Carolina, September 27, 1897, quoted in DuPont 1980:164-165). This, however, is disputed by O'Neill (2005) based both on birth dates and on dissimilar coats of arms.

Nevertheless, an English ancestry would certainly explain the strong Anglican roots. It might also explain the origin of the Orton and Kendal plantation names, originating in the South Lake District of Cumbria, England (see Figure 18). This view was actually espoused by James Sprunt ("A Colonial Plantation: Notes on Cape Fear History," *The Southport Leader* (Southport, NC), October 5, 1893, pg. 3). Moreover, Roper argues that the Barbadian-Carolina connection has been overstated. While "migrants from the islands did comprise a sizeable element in the colony's population," most of the ruling elite, including the "Goose Creek Men," *were from England* (emphasis added, Roper 2004:6).

As a consequence, the origins of the Moore family are unknown. There is no good evidence for origins in either Barbados or Ireland and the evidence pointing to England has not been thus far explored in detail. It is, however, virtually certain that James Moore was not a descendant of Rory O'Moore.

James Moore in South Carolina

The first mention we have of James Moore in South Carolina occurs on February 15, 1674 at which time the Council heard:

> the matter of the Complaint of Abel Aldridge against James Moore attorney of Margaret Lady Yeamans adm'x of Sir. Jno. Yeamans, dec'd, it appears by the accounts between the said parties now produced before the Grand Council that the said Sir Jno. Yeamans in his life time was indebted to the said Abel Aldridge in the sum of 48 s:6d ster. Which said sum the said James Moore hath (before the Grand Council" undertaken to pay the said Abel Aldridge (Cheves 2000:463).

Webber suggests that, "as attorney for Lady Margaret, he certainly was twenty-one at least, and more likely nearer twenty-five" and this provides most researchers with support for suggesting his birth was about 1650 (Weber 1936:2).[4]

In addition to suggesting English roots for the Moore family, Brown (1805:423, 456-457) also suggests that James may have had a brother, John, who remained in Carolina only a short while before moving to Philadelphia, with his descendants quickly migrating to New York. Webber, in fact, recognized that there "were several persons bearing the name Moore who came to this Province shortly after it was settled" although "so far, no connection them has been proved" (Webber 1926:156). She specifically mentions John Moore, a Proprietor's Deputy and Secretary of the Province. This John Moore arrived in October 1683, held 300 acres, but eventually moved to Philadelphia. Buchanan notes that John Moore was one of three individuals who fled South Carolina in order to avoid suits against them by Governor James Colleton (1686-1690) for the issue of illegal imprisonment and banishment orders (Buchanan 1989:200).[5] This seems far more likely than the alternative view that Moore moved to Philadelphia to establish an Anglican Tory party in opposition to the Quakers (O'Neill 2005).

Another promoting John Moore as a brother of James Moore is Robert Wilson (in DuPont 1980:164-165), who suggests that John was the elder brother. A similar position is taken in an undated and unsigned note specifying that "Hon. John Moore . . . went first to South Carolina from England about 1680 with James Moore (who is supposed to have been his brother)" (South Carolina Historical Society, File 30-4 Moore).

O'Neill categorically denies such a relationship, noting,

> That they were not [brothers] is proven by a letter (circa 1850) from Thomas William Channing Moore to Rev. Dr. Francis Lister Hawks, who was compiling a history of the Carolinas, in which he states: "I did not find any evidence to show that this John Moore was related to Gov. James Moore. He [John] was of English, and not Irish family" (O'Neill 2005).

He also cites unpublished research by British genealogist Bridget Larkin which fails to identify a baptism for a James Moore by the parents of John Moore.

The failure to find evidence in 1850, however, is not particularly convincing, especially when further buttressed by assumptions of different ethnic origins for which there is no proof. Likewise the failure to find a baptismal record is yet another example of a "fallacy of negative

[4] Sir John Yeamans married as his second wife Margaret, the widow of Col. Benjamin Berringer of Barbados. It is alleged that Yeamans alienated his friend and business partner's wife and then murdered Berringer in January 1660. Margaret married Yeamans in April 1661. She accompanied or followed Yeamans to Carolina, arriving at least as early as March 1673. Prior to his departure from Barbados, Yeamans made his will, dated May 20, 1671. Yeamans established a plantation at the junction of the Wappo Creek and Ashley River where he had a palisade "country house." Yeamans assumed the Carolina governorship in April 1672. He served until his death in Carolina between August 3 and 13, 1674. Yeamans' will, which had been left in Barbados (where it was probated on December 1, 1674), was not probated in Carolina until September 14, 1675, although Lady Margaret was already identified as his Executrix. Lady Margaret also had already had a warrant issued for 1,070 acres in her own right, followed by a grant on February 15, 1675. By April 1677 Lady Margaret had married Captain William Walley (almost certainly the William Whalley for whom James Moore was working). Walley had previously had warrants for a town lot in Charleston and a plantation tract (Brandow 2008:639-640; Read 1910; Salley 1973:164-165, 256; Smith 1918:153, 155; Thomas 1930:86-87).

[5] The others fleeing South Carolina with John Moore were Robert Quary and Robert Daniel.

proof." But a simple statement that "there is no evidence" means precisely what it says – no evidence, leaving us with the only correct empirical procedure – to find affirmative evidence (see, for example, Fischer 1970:47-48).

Thus, while such efforts represent interesting and worthwhile starts – they are just that, only beginning efforts that require far greater research efforts.

Lesser (1995:149) notes that in 1677 Moore appears as the manager of William Whalley's plantation in the Goose Creek area, suggesting that he served as an overseer or manager prior to accumulating his own property.

Whalley (sometimes Walley) was the third husband of Lady Margaret Yeamans. They married sometime between April 1675 and July 1677 (letter from P.F. Campbell to Agnes Baldwin, January 15, 1994, South Carolina Historical Society, Barbados File, 30-8-172). Whalley was a Barbadian, identified in the 1679-1680 muster rolls. Therefore, there is clearly a strong social tie between Lady Yeamans, her third husband, William Whalley, James Moore, and Lady Yeamans' daughter Margaret, whom Moore married.[6]

Webber (1936:3) suggests that Moore's marriage to Margaret Berringer (b. 1660), the posthumous daughter of Colonel Benjamin Barringer, occurred about 1675 or later. There is sound evidence that James Moore married Margaret as her name appears in various records. Curiously, Brown (1895:457) claims that Moore married Yeamans' daughter Anne.[7] This is repeated by Davis, basing his conclusion on Brown (Davis 1934:24), going on to suggest that James may have married as many as three times so that "his sons, James and Maurice were children by a first marriage; Roger and maybe others by his marriage with Ann Yeamans, and still others by his marriage with Margaret ---" (Davis 1934:24). The proposition of two wives is also supported by Buchanan (1989:170).

A fairly detailed account of this has been developed by E.M. Shilstone of the Barbados Museum and Historical Society and Virginia S. White (South Carolina Historical Society, Moore 30-4 vertical file). It is predicated on James Moore (II) being born in 1667 and Margaret Berringer being born in 1660 – making it impossible for James to be her son. While Margaret Barringer's birth date seems reasonable, the very early date for James is not. A birth date of c. 1682 seems more reasonable since we know that he entered politics in 1706 and was a Captain in the militia in 1707.

While we cannot entirely refute the idea of multiple wives (and such a practice was common), there is little support for the idea. Nevertheless, it demonstrates how additional investigations are desperately needed on this "shadowy" figure in early Carolina history.

It appears that James Moore began acquiring land at least by 1681, when he received a warrant for 1,600 acres of land (Salley 1973:247-248). His 1683 grant for 2,400 acres formed his Goose Creek Boochawee Hall and Wassamassaw Plantations.

Table 6 lists warrants and grants for land in James Moore's name. It must, however, be interpreted cautiously given the ambiguity of South Carolina land policies. Salley (1973:i-xiii) explains the often changing proprietary instructions, as well as problems resulting from lost books and irregular procedures. It is likely some of the warrants are repeated by formal grants.

Regardless, it appears that land acquisition began slowly, ceased for several years,

[6] Yet another connection is Margaret Jackson, the midwife who attended the birth of all Margaret Berringer's children and who, upon Berringer's death went with Yeamans and his new wife to Carolina (letter from P.F. Campbell to Kinloch Bull, Jr., June 11, 1995, South Carolina Historical Society, Barbados File, 30-8-172; see also Lesser 12995:285).

[7] This view was even earlier discussed by Poyas (1855:17).

Table 6.
Land Acquisition by James Moore

Date	Acres	Notes	Source
April 25, 1681	1,600		Salley 1973:247-248
July 4, 1682	2 town lots	with Maurice Mathews	Salley 1973:280
September 20, 1683	2,400	island plantation, formerly Bouchaw and Wapensaw	Colonial Grants (Copy Series) v. 38, pg. 220
December 9, 1684	1,850	due for arrival of 37 servants August 6, 1684	Salley 1973:380
February 15, 1693	1 town lot		Salley 1973:442
July 15, 1683	2,400		Salley 1973:317-318
March 13, 1694	1 town lot	Charles Town Lot No. 33	Colonial Grants (Copy Series) v. 38, pg. 254
March 24, 1694	100	purchased from Paul Grimball March 24, 1694	Salley 1973:447
April 4, 1694	1 town lot		Colonial Grants (Copy Series) v. 38, pg. 103
April 5, 1694	200	arrival rights Edward Jones, Thomas Lane, and Thomas Kith on Moore's account	Salley 1973:451
May 16, 1694	100	Berkeley County	Colonial Grants (Copy Series) v. 38, pg. 263
July 4, 1694	50	purchased from Paul Grimball July 4, 1694	Salley 1973:462-463
July 4, 1694	50		Colonial Grants (Copy Series) v. 38, pg. 149
July 23, 1696	1 town lot		Salley 1973:556
September 9, 1696	1 town lot		Colonial Grants (Copy Series) v. 38, pg. 305
October 7, 1696	1.5	on Ashley River marsh	Salley 1973:561
October 28, 1696	2,400		Colonial Grants (Copy Series), v. 38, pg. 320
April 10, 1698	610	Berkeley County near Cooper River, head of Shembee Creek	Colonial Grants (Copy Series) v. 39, pg. 527
May 5, 1702	50	Berkeley County	Colonial Grants (Copy Series), v. 38, pg. 453
May 5, 1702	290	Berkeley County	Colonial Grants (Copy Series), v. 38, pg. 453
March 14, 1704	500	Craven County	Colonial Grants (Copy Series), v. 38, pg. 495
September 1, 1704	180	Berkeley County	Colonial Grants (Copy Series), v. 38, pg. 455
October 8, 1704	570	Port Royal County	Colonial Grants (Copy Series), v. 38, pg. 470
1704	½ of plnt.	plantation of John Berringer, Barbados	Buchanan (1989:170)

and culminated in the early to mid-1690s, gradually tapering off in the early eighteenth century. This suggests the gradual accumulation of wealth, followed by acquisition of additional lands, tapering off as Moore turned his attention to other matters. At least some of the lands, such as a block of land in Charleston, were perhaps speculative since they weren't developed until acquired by Isaac Mazyck and partitioned for sale in the 1740s (Poston 1997:336).

Moore held a variety of political positions, being a member of the Grand Council, a proprietary deputy (1682-1683), a member of the First Assembly from Berkeley County, Receiver General, Chief Justice, and was eventually Governor (Edgar and Bailey 1977:466-467; Webber 1936). There is, however, a very widespread agreement among historians, in the words of Lesser (1995:149), "Moore . . . vigorously promot[ed] his own interests even when they ran counter to the interests of the proprietors" who he was serving.

Several authorities (for example, Edgar and Bailey 1977:466) assert that Moore was initially involved in the Indian trade – an activity that virtually consumed Carolina during the proprietary period. McCrady observed,

> The first fortunes in Carolina were made in the Indian trade, a trade which the Proprietors jealously endeavored to appropriate to themselves. Guns, powder and shot, beads, trinkets, bright-colored cloaks, blankets, and rum were exchanged for skins and furs of wild animals and other Indian pelfry. With the exception of rice, the furs and skins obtained from the Indians continued to be the most valuable commodity in the colonial trade as late as 1747 (McCrady 1897:345-346).[8]

This, however, tells an incomplete story. Furs were a very small proportion of the trade since southern animals did not produce high quality pelts. Most of the trade was in skins, generally

[8] In fact, in 1699, the earliest year for Clowse (1971:Table 3) provides statistics, only 2000 barrels of rice were shipped from Charleston, compared to 64,488 deerskins.

through an agreement with the aggressive Westos. Clowse (1971:64) notes the Westos were the "cornerstone" of the Carolina trade policy through at least 1680.

By 1677 the proprietors declared that they had the exclusive right to Indian trade. The policy was unenforceable and brought immediate conflict with settlers, who recognized the trade as the quickest route to wealth. In truth, skins did not produce great wealth; the most valuable commodities in trade were Indian slaves (Clouse 1971:83-84).

Unfortunately, there are no detailed accounts of those exporting deerskins. However, for the period after James Moore's death, Warner Moore (1972) reports that there were no members of the Moore family among the 664 individuals and firms that exported deerskins during the 41 years between 1735 and 1775. While family members may have consigned skins to a trading firm, it is far more likely that their trade was in human flesh, not animal skins.

Roper provides a detailed analysis of the role that the Goose Creek men, including James Moore, played in creating war with the Westo Indians in 1677-1680 in order to enslave the Indians and, just as importantly, ensure predominance in future trade dealings (Roper 2004:62-65). Afterwards the proprietors created a commission, headed by Mathews, to oversee Indian affairs. Roper notes that, "unfortunately, this appointment, as the Lords belatedly realized, put the foxes – who acted with "much greater regard to the Private Profits [than] Benefit to [the] Publick" – in charge of the proverbial hen house" (Roger 2004:65).

During this period the proprietors also attempted to confront the common trade with pirates and "freebooters" fostered by James Moore and John Boone (Buchanan 1989:176). Governor Robert Quary (1685) was dismissed for "succumbing to the common temptation of trading with pirates" (Buchanan 1989:180). His replacement, Governor Joseph Morton (1685-1686) attempted to control the Goose Creek men, but failed. He was dismissed by the proprietors and was ordered arrested for trade with pirates in March 1687 (Buchanan 1989:183).

In November 1683, Moore, along with Maurice Mathews, were removed as deputies by the proprietors, who explained,

> Mr. Maurice Mathews & Mr. James Moore have most Contemptuously disobeyed our orders about sending away of Indians & have contrived most unjust wars upon ye Indians in order to ye getting of Slaves & were Contriving new wars for yt purpose wch sort of Insolent Disobedience could not be tolerated in our Deputies without rendering our Government contemptible (Salley and Sainsbury 1928:226-227).

Several years later, in 1685, then Governor Joseph West was again ordered by the proprietors to not reappoint James Moore (along with Maurice Mathews and Arthur Middleton) to the Grand Council because of their slaving activities.[9] These three then formed an anti-proprietary party labeled the "Indian Dealers" later known as the "Goose Creek men" (Roper 2004).

Charleston was tossed briefly into chaos in April 1692 when the *Loyal Jamaica*, thought to be a pirate vessel, appeared at the entrance to the harbor. Twenty-one individuals were aboard and sought to settle in Carolina. They were allowed to remain with two local citizens posting sureties for their good behavior. James Moore, with Capt. Edmund Billinger, posted the required bond for John Watkins (Dalcho 1820:22-23; McCrady 1897:259-261).[10]

[9] It was also in 1685 that John Moore was replaced as secretary, although he returned to government service less than five years later, only to once again be removed by the proprietors, at which time he "fled the province" to Philadelphia (Lesser 1995:137).

[10] It is worth noting that Hughson provides an

Efforts to reform Carolina's government were stymied by James Moore, described by Gallay as the "talented, forceful, and headstrong arch-foe to the proprietors who let no one stand between himself and profits from the Indian trade" (Gallay 2002:93).

In 1693 the proprietors confronted James Moore, and his allies Andrew Percival and Robert Quary, over their refusal to pay the required quitrents. Unwilling to tolerate the offense, the proprietors directed the governor to appoint an attorney general in order to prosecute Moore (Anonymous 1857:130; Roper 2004:57). Moore made a proposal to pay a year's quitrent and his arrears over the course of three years, which the proprietors accepted, warning the governor that if Moore "flyes from it and delays to pay" the governor was ordered to use English law to "distrain" or seize his property. They warn that if "any tells you that ye Laws of England are not in force in Carolina" that person should be indicted for high treason (Salley and Sainsbury 1931:99-100). In May 1694 Moore had come to terms with the proprietors (Anonymous 1857:136).[11]

His difficulty in paying quitrents, and future financial issues, may be reflected in the 1694 assessment of St. James' Goose Creek Parish's inhabitants. While the original document is today lost, a considerable portion has been preserved by Poyas (1855:36). Col. James Moore is reported to have had property valued at £361. In comparison, Thomas Smith's property was valued at £2,773, Capt. George Chicken had property worth £1,820, and Arthur Middleton's property was valued at £4,003. Even the overseer James Ogilby had property valued at £218.

Moore may have engaged in a variety of activities, including the management of plantations for absentee owners. In 1697 John Strode, a Barbadian merchant, instructed his son, Hugh Strode, a "Carolina m'cht attorney to settoe with Cap. Jas. Moore in mannagm't of my plant'n affairs" (Cheves 2000:243).

In 1699 the proprietors were faced once again with Moore's trickery when he sought to obtain exclusive mineral rights to an Appalachian silver mining enterprise, depriving the proprietors of their mineral rights (Lesser 1995:149). The deceit was identified, but it seems likely the real interest in the region was related to slaving, not silver.

Nevertheless, in September 1700 Moore was elected governor by the Grand Council. Weir notes that Moore's staunch Anglican beliefs alarmed the colony's religious dissenters, but they took some comfort in the fact that Moore seemed more concerned with acquiring wealth than religious matters (Weir 1983:76). In spite of this, Moore and other High Anglicans viewed Native Americans as incapable of being civilized or adopting Christianity; "Indians were to be used and exploited for both personal and imperial aims" (Gallay 2002:231).

Moore expressed what has been described as a "lust for Spanish plunder" that pushed him to insist on attacking Spanish St. Augustine. Weir notes that he was making preparations even in advance of Queen Anne's War[12] and it seems likely that he was also

explanation for Carolina's support of piracy, "when the colonists found that they could neither buy nor sell save in an English market, at prices arbitrarily fixed by English merchants, they were quite willing to tolerate the lawless traders who could afford to sell the products of the world's markets at the lowest prices, since they cost them nothing more than a few hard blows which they enjoyed rather than considered a hardship. It paid the colonists to incur the risk of losing their outward-bound cargoes, which were never during this [early] period of any very great value, when by this toleration they were enabled to buy in the cheapest market the world had ever known" (Hughson 1894:17).

[11] Gibb (1996:245), discussing the situation in Maryland, observes that planters essentially leased their lands and their plantations were subject to escheatment under a variety of conditions. He suggests this may have affected their views of land ownership. A similar situation may have existed in Carolina.

[12] Extending from 1702 to 1713, Queen Anne's War was the second of the French and Indian Wars and the

interested in the Indian slaves that could be acquired through such a war.

There is still some indication that Moore continued to practice law since in 1700 Nicolas Trott, by then in London, gave Moore his power of attorney to handle his Carolina properties (Cheves 1901:205n).

As Governor, Moore was initially unsuccessful in gaining support for an Indian trade policy or to have the colony's defenses strengthened. Moore dissolved the assembly and called for new elections (Edgar and Bailey 1977:467). Once war was declared the South Carolina House voted to send, and fund, an expedition to capture St. Augustine under the leadership of James Moore in September 1702.

In the words of Weir, "the expedition turned out to be a fiasco" (Weir 1983:81). Although the English had a superior force, the Spanish and their Indians withdrew into the coquina walls of the fort. The English discovered that ordinary shot penetrated the limestone like "a knife into a cheese" causing little damage. Moore sent to Jamaica for siege mortars and explosive shells, while the Spanish sought assistance from Havana. Spanish reinforcement arrived first, compelling Moore to burn his own ships and withdraw overland.

Weir reported that the ship owners were distressed to lose their ships and the assembly was shocked at the cost of the expedition – which failed to succeed in capturing St. Augustine, although the city outside the walls was sacked and burned. The House initiated an investigation and the dissenters were viewed by Moore as being "obstructionist" in refusing to pay for the expedition.

The long-term result was significant financial distress. Costs were far in excess of appropriations and the Carolina treasury was indebted for £4,000 sterling. In an effort to pay off this debt Carolina printed its first paper money - £6,000 in what were called "Country bills" ranging from £20 down to 50 shillings. The bills paid 12% interest to make them "valuable among the people" and Hewitt compares them to general obligation bonds or a promise to pay the holders of the currency out of future tax revenues (Hewitt 2001:60).

Initially the bills solved many of Carolina's financial problems. However, over time the property taxes levied to collect the funds necessary to retire the currency became a considerable burden since Carolina's property owners were unaccustomed to paying such taxes. In addition, the worth of the currency was predicated on Carolina paying off the bills. By 1707, however, the colony abandoned interest payments and declared the paper money legal tender. By 1712 the outstanding debt was at least £20,000, which Hewitt notes "would take years to extinguish, even at high tax rates" (Hewitt 2001:62).

In 1704, Governor Nathaniel Johnson, a good friend of Moore, requested that Moore confirm the colony's "Friendly Indians to our interest, as well as Encouraging our friends, and destroying our enemies." Moore was instructed "to endeavor to gain by all peaceable means possible the appalaches to our interest." This was an official sanction to return to Florida and to restore his tarnished image. The Assembly, however, was still mindful of the financial disaster of the first Florida incursion and so refused to provide funds for the expedition.

This refusal mean that plunder and slaves would be the only way to pay for the expedition and made any diplomatic solution virtually impossible (Galley 2002:144-145). In addition, as Galley observes, "Moore had found a way to recoup his damaged reputation from the Saint Augustine expedition, obtain slaves, and earn kudos for fulfilling the Crown's and the colony's interests by raiding the Apalachee missions." (Galley 2002:145).

American phase of a larger European conflict known as the War of the Spanish Succession. It pitted England and its Indian allies against the French and their Indians.

Afterwards Moore published a pamphlet, *An Account of What the Army Did, Under the Command of Col. Moore, in his Expedition Last Winter, Against the Spaniards and Spanish Indians* (Carroll 1836:2:573-576). Although certainly intended as boosterism and to help restore his reputation, Weir notes that many felt the publication served chiefly to indict himself for the atrocities committed in the war. Weir notes that,

> Slaughtering and torturing both Indians and whites, Moore and his men plundered church silver and other objects of value as they laid waste the extensive mission system of the area. When they withdrew, they took with them about 1,000 Indians. Some of these became slaves; the others settled along the lower reaches of the Savannah River below modern Augusta. Moore reported that the Apalache was "now reduced to so feeble and low a condition, that it can neither support St. Augustine with provisions nor . . . frighten us" (Weir 1983:81).

This view is echoed by Landers, who notes the Carolina forces, combined with Yamassee allies and black cattle-hunters "slaughtered thousands of mission Indians and carried many more thousands into slavery" (Landers 1990:6-7).

Very shortly after the 1704 assault on the Apalachee missions, the Cherokee were complaining that Moore had granted commissions to a number of individuals "to set upon, assault, kill, destroy, and take captive as many Indians as they possible [sic] could." They went on to claim, probably with considerable justification, that Moore had "already almost utterly ruined the trade for skins and furs, whereby we held our chief correspondence with England, and turned it into a trade of Indians or slave making, whereby the Indians to the south and west of us are already involved in blood and confusion" (quoted in Mooney 1902:32).

Johnson reported that "James Moore . . . is said to have stocked his plantation with Indian slaves" after his Florida incursions (Johnson 1822:514). More recently Ramsey observes that "the first decade of the eighteenth century saw by far the greatest influx of Indian slaves, due in large part to the expeditions of Governor James Moore against St. Augustine in 1702 and the Apalachee missions in 1704" (Ramsay 2001:168). He estimates that by 1703 Native Americans comprised fully 10% of the enslaved labor force. By the end of the decade, Indians accounted for over a quarter of those enslaved in Carolina. Throughout this period women and children comprised a substantial portion of the slave population.

Roper comments that, "slave labor provided the pragmatic means to translate the "blank slate" of the "New World" into those benchmark landed estates that self-styled persons of substance pursued on both sides of the ocean" (Roper 2004:12). At this early period the enslavement of indigenous people by the "Indian dealers" or "Goose Creek Men" was essential to their pursuit of status. Afterward, Galley observes that the Goose Creek men no longer relied on Indian trade, as rice began to create a sufficient profit to establish status and "secure their position at the top of the hierarchy (Galley 2002:233).

Edgar and Bailey (1977:468) report that Moore died of distemper, possibly yellow fever, sometime between October 1, 1706 when two warrants for John Wright were delivered to Moore (Salley 1973:633) and November 6, 1706 when his will was proved. Webber (1936:3) reports that the will "long since" disappeared and it is, in fact, not to be found in the WPA Wills (Easterby 1950). Nevertheless, she was able to locate an abstract.[13] The will was dated November 1, 1703 and Moore gave his wife, Margaret, "Wassanissah" (Wassamassaw) Plantation, slaves, and two Indian men for life (or until she remarried). Upon her

[13] Curiously, this abstract was held by the "Flagg family of New York, who are descended from the family of John Moore," perhaps providing additional support for James and John being brothers.

Figure 19. Signatures and seals of James Moore (I) at the top (1702), James Moore (II) in the middle (1719), and Roger Moore at the bottom (1750). All are based on the Moore Coat of Arms (swan with upraised wings)shown below. On the right from Gregg (1975) and on the left from the South Carolina Historical Society (File 30-4, Moore). Signatures and seals courtesy of the S.C. Department of Archives and History and N.C. Department of Archives.

death these were to go to his children. In a codicil he left his wife the choice of his horses for her riding, as well as the furniture and stock of cattle on his plantation.

James, the eldest son, was to receive two-ninths of the personal estate. Sons Jehu, Roger, Maurice, John, "Nanthanyell" and daughters Ann Davis, Mary, and Rebecca were to split the remainder of his estate. If any were to die under the age of 21 or before they had lawful issue, their share was to be equally divided among the rest. Daughter Margaret Schenckingh was to receive £20 to purchase mourning clothes. Moore appointed his "kind friend" Job ---, his cousin John Berringer, and his son James as his executors, giving each £10 for a mourning suit.

This will is of some interest since there are several children on the family tree that are not found in the will. Absent are Elizabeth (who married Bernard Schenckingh and had issue) and Joseph (who married Ann Hodges).

It is worth noting that Madam Margaret Moore, James Moore's wife, received a warrant for 500 acres in 1706 "Joyning to her plantation on Wassanissa" (Salley 1973:636). In addition Le Jau visited the Moore household shortly after James' death, remarking,

> in him the Clergy has lost a true friend and the Country a very great Support. But it is not possible for me to forebear declaring the kind usage I received of the Lady the Coll [Colonel's] Widow and the Family (Klingberg 1956:18).

Elsewhere Le Jau opines, "Col Moor whose reputation has been so wrong fully Stained in a Libell" (Klingberg 1956:27). Clearly there were some who were either unaware of Moore's devotion to slave trading or did not find it objectionable.

Webber indicates the inventory for Moore's estate, taken on March 15, 1707, amounted to £1,865.7.3 and included 16 men, 17 women, 10 boys, 21 girl slaves, 370 head of cattle, 60 hogs, and 98 sheep. This seems to be a very modest estate for one of Colony's most commanding figures. There is no hint at agricultural production, such as rice, although the abundant cattle suggest ranching as a major activity.

Webber identified the 1709 act concerning Moore's will (Grimké 1790:73), but says only that "for some reason, the will was invalid." It is therefore worth detailing the Act. Read and ratified on November 5, 1709, the Act reveals that at the time of Moore's death he was heavily in debt, not only to the proprietors, but to "Sundry Inhabitants & others in Very Large and Considerable Sums of money." The debts were so significant that if his personal estate were seized and sold, it would "not pay and Discharge the Said Debts." In addition, Moore's various lands were thought to be of "very Little use and benefit, as they Lie unimproved." This of course provides further evidence that little, if any, cultivation was occurring.

Consequently the act ordered that the lands be placed in the hands of three trustees in order to "Preserve the Personal Estate consisting Chiefly of Negro and Indian Slaves almost Intire for the greater and more apparent interest and Profit of the said Children." The named trustees were Col. Thomas Broughton, Capt. Lewis Passquereau, and John Guerard and they were to sell the lands, applying the proceeds against Moore's debts, with any surplus going to the personal estate to be split equally among the children (described as "equally, fairly, and indifferently shared, Divided and parted to and Amongst").

Moreover, the Act ordered that the "Negro & Indian Slaves to be fed and employed by the said James Moore [the eldest son] on the Plantation Called Bonds Branch at Boochaw." Proceeds of this plantation were also to be used to pay off the debts after payment of expenses, and would eventually be divided among the children (S.C. Department of Archives and History, Series 165001, Legislative Acts, Box 3, Act 28, 1709).

Other records indicate that a March 27, 1710 audit of James Moore's accounts as "public receiver" or Receiver General, showed he was indebted to the proprietors in the amount of £2,300 (S.C. Department of Archives and History, Register of the Province, Conveyance Books, vol. G, pg. 62, 104-107). While not clearly articulated, this suggests that Moore was receiving money from various sources, comingling it with his own, and not routinely transferring funds to the proprietors.

The list of debts includes an additional £700 to Passquereau and Company, £400 to Thomas Smith, and an additional £728 to 10 individuals. This brought his debts to £4,128 SC currency.

The Act provides a dimension of James Moore character that was not apparent in the other records available.

We get a sense that Moore was not actively involved in agricultural activities. The large herd of cattle is suggestive of exporting beef to the West Indies and ranching was certainly profitable during this early period (see, for example, Starr 1984).[14]

Slaving does not seem to have an especially profitable activity for Moore, or else there are economic factors that remain unknown to us. The £2,300 debt to the proprietors is astonishing and it is surprising that previous historians have not devoted more attention to this financial scandal. It is perhaps the "Libell" mentioned by Le Jau.

[14] In 1712, the earliest year for which there seems to be records, 1,241 barrels of pork and 1,963 barrels of beef were exported from Charleston. In comparison only 1,865 sides of leather were reported (Clowse 1971:Table 3).

Regardless, Moore had extended himself to the point that his debts were over twice his personal estate. Although we have found no surviving accounting, it seems likely that after paying these debts, there was very little inheritance for Moore's children or wife. This may provide a simple motive for all but James Moore leaving Carolina for the Cape Fear.

James Moore's Children

Wood discusses the networks and social interactions of the Cape Fear region, claiming "almost one whole generation of Moores" left South Carolina for Brunswick Town and the Cape Fear region. He claims that only four of the 10 children never moved to North Carolina, "but three of these, Jehu, Anne, and Margaret, died before settlement in the region was fully underway" (Wood 2006:60). He claims that James was the only one to remain steadfast in South Carolina since "he could expect to inherit more land in South Carolina than any of his siblings."

As we will discuss, James did stay in South Carolina, although it was likely debts, not inheritance, that tied him to Carolina. It does seem likely that Jehu died young, although he apparently lost his life visiting his family in North Carolina. Ann and Margaret stayed in South Carolina, presumably because of their husbands' strong local ties.

Both Mary and Rebecca moved to North Carolina rather late, in the mid-1730s and only after their first husbands died and they remarried individuals with stronger ties to Cape Fear. Maurice and Roger went to North Carolina in the 1720s and stayed there, establishing firm roots. John eventually went to North Carolina, but very late in his life and he barely established roots before his death. Finally, Nathaniel moved to North Carolina, possibly with Maurice and Roger, but after his death his widow returned to South Carolina.

Thus, while Wood's thesis is important, it seems that he overestimates the force that Cape Fear had on the Moore family. Instead of a mass exodus, it was a gradual movement, and at times the move wasn't permanent. Each of James Moore's children, except Roger, will be briefly discussed below.

James Moore (II)

A birth date about 1682 in Charleston, South Carolina, seems reasonable.

As mentioned, James Moore (II) inherited the remnants of his father's property in Goose Creek, probably including his African American and Native American slaves, and sought to pay off the sizeable debts left him.

He commanded South Carolina troops against the Tuscarora Indians in 1713. His military career saw promotions from a captain in 1707 to a colonel in 1713, to a lieutenant general during the following Yemassee War in 1715. As in the case of the Spanish expeditions, South Carolina issued bills of credit to finance the wars (Buchanan 1989:234).

By 1719 there were rumors of an impending Spanish attack and this provided the excuse for anti-proprietary forces to "invite" then Governor Robert Johnson to assume authority on behalf of the King. Refusing to do so, the Assembly illegally elected James Moore (II), hero of the Tuscarora Wars, as "provisional governor." In England this was viewed as a "rebellion" and the Board of Trade reported to the King in 1721 that intervention by the crown was required due "to the great disorder" of Moore's government (Buchanan 1989:245; Weir 1983:101-102). Moore served until the first Royal Governor, Francis Nicholson, arrived in 1721. He was subsequently elected to the First Royal Assembly (1721-1724) (Edgar and Bailey 1977:469).

He died on March 3, 1724 in the Goose Creek area and at the time owned 43 African Americans (Anonymous 1857:279; Edgar and Bailey 1977:468). He was survived by his wife, Elizabeth Beresford and six children (James, Jehu, John, Margaret, Mary, and Elizabeth). He apparently recovered from his father's financial reversals, leaving an estate valued at £7,684

which included a "sett of mathematical instruments, and a sett of surveying instruments" (quoted in Kaminer 1926:60).

Jehu Moore

Almost nothing is known about Jehu Moore. It has been proposed that he was the brother, in 1720, that was captured or killed by Spanish privateers on his way from Carolina to visit his brother (which one is uncertain) (Anonymous 1857:252; Gregg 1975:184).

Maurice Moore

The birth date of Maurice Moore is not known, but as he was a minor when his father made his will in 1703, it is likely he was born between 1682 and 1686. He participated in the 1712 Tuscarora campaign with his brother, James Moore (II), apparently choosing to stay in the Albemarle area at the conclusion of hostilities.

He married Elizabeth, the daughter of Alexander Lillington and widow of Samuel Swann. This marriage solidified his connections with Edward Mosely and John Porter, who were also married into the Lillington family (Lee 1965:91). They had three unnamed daughters, as well as one whose name is known, Elizabeth. With the death of his wife Elizabeth, he married Sarah Porter and had three additional children, including Maurice, James, and Mary Rebecca (Gregg 1975:189-190).

By the 1720s he may have been in the Cape Fear area, owning a plantation on Old Town Creek in the vicinity of the failed 1665 settlement (Gregg 1975:189).

With the threat of a Spanish invasion in 1743 South Carolina requested assistance and Col. Maurice Moore died June 6, 1743 at Edenton, North Carolina while raising a regiment. Gregg indicates that a will dated September 30, 1742 is missing.

John Moore

John Moore was active in Carolina's Indian trade and was also a member of both the Eleventh Assembly (1708-1709) under the proprietors and the Third Royal Assembly (1728).

On October 22, 1719 he married Justina Smith, daughter of the Second Landgrave Thomas Smith[15] and had three children (James, John, and Rebecca). He lived in South Carolina, dying in the Goose Creek area by the end of January 1729 (Edgar and Bailey 1977:470; Gregg 1975:190).

Gregg reports that Justina then lived on Pleasant Oaks Plantation, although it is uncertain under what circumstances. She died in Philadelphia where she was apparently visiting her aunt Sarah. While her will is found there, it speaks of her late husband being from Cape Fear and the document anticipates her daughter Rebecca and "negroe woman Alice" returning to Cape Fear (Gregg 1975:191). In 1734 we find Mrs. Justina Moore recently arriving in Charleston "from her Settlement at Cape Fear" with the intent of selling various properties (*South Carolina Gazette*, June 1, 1734).

It therefore seems that either John was living in both South and North Carolina or had perhaps only shortly before his death made a permanent transition to the Cape Fear region.

Nathaniel Moore

Nathaniel Moore married Sarah Grange on April 13, 1720 (Clute 1884:37), suggesting he likely was born ca. 1699. At her death he married [Mary] Elizabeth Webb (Waddell 1909:41; Gregg 1975:193). From his first wife he had four children (Maurice, Berringer, Schenckingh, and Nathaniel). An additional three were had with his second wife (Margaret, Elizabeth, and William).

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[15] Edgar and Bailey (1977:638) note that Thomas Smith, the Second Landgrave (1664?-1738), "throughout his career . . . had a tendency for wanting to settle political matters by mob action." He could be considered an extremist and malcontent. In 1734 he "designs about July next to go from this Province to Cape Fear, in order to setle his Lands there" and was seeking a buyer for his Goose Creek plantation (*South Carolina Gazette*, March 30, 1734). Apparently no purchaser was found.

Nathaniel Moore owned considerable property in the Charleston area, but he also owned several plantations in the Cape Fear area (Waddell 1909:20-21, 41), as well as a lot and house in Brunswick. By 1732 he was appointed a Justice of Peace for New Hanover, indicating that he was living in the region (Gregg 1975:194). In 1735 he joined with other large land holders in North Carolina, writing the Board of Trade of Great Britain concerning land grants. They complained that even large tracts of land were so "wretchedly poor" that any increase in quitrents would cause them to abandon the tracts, being unable to pay (Colonial and State Records of North Carolina, vol. 4, pg. 315).

By 1748, Nathaniel Moore had died and his widow remarried in South Carolina where she lived the remainder of her life. This suggests that Moore died perhaps by 1747. Moore is presumed buried in North Carolina, although no location has been identified.

Ann/Anne Moore

Ann Moore is reported to have been about 16 when she married Capt. David Davis of Goose Creek, but still a minor when her father died in 1703. Davis was an ardent Anglican (Klingberg 1956:40, 146) and was a Commissioner appointed to enforce Carolina's 1706 Church Act. He served in the Sixth (1702-1703), Seventh (1703-1705), Eighth (1706-1707), Ninth (1707), Tenth (1707-1708), Thirteenth (1711-1712), and Fourteenth (1713-1715) Assemblies (Edgar and Bailey 1977:186).

Ann's husband died in 1715, leaving her with six children (two unnamed, Margaret, John, Jehu, and Mary). When Margaret and John reached majority, Ann petitioned that her deceased husband's estate be partitioned (Charleston County Probate Book 1726-1727, pg. 1).

By 1727 Ann had died and her youngest child, Mary, at that time 14 years old, petitioned that John Grange of Goose Creek (who married her sister Margaret, becoming her brother-in-law), be made her guardian (Gregg 1975:191).

There is no indication that Ann ever lived in the Cape Fear area, although there are North Carolina land transactions for Jehu Davis (Gregg 1975:192).

Mary Moore

Like the other children of James Moore (I), there is little information concerning her early life. We know only that she was an unmarried minor in the 1703. She married Robert Howe, possibly about 1707 when he is known to have been of age and acquired 800 acres in the Goose Creek area (Edgar and Bailey 1977:337). Robert Howe served in the Fourteenth (1713-1715) and Fifteenth (1716-1717) Assemblies and was a member of the Goose Creek faction that opposed proprietary rule.

Mary had one child, Job. Her husband, Robert, died sometime prior to July 1724 when an inventory of his estate was made.

After Robert Howe's death, she married Thomas Clifford who served in Seventh Royal Assembly (1729) and the Ninth Royal Assembly (1731-1733) and owned property in Colleton and Berkeley counties. His first wife died in 1722, so he may have married Mary Moore in 1725.

By March 1735 Thomas and Mary had moved to the Cape Fear area and in 1738 Thomas Clifford obtained a grant for 640 acres in New Hanover. He died in the Cape Fear area in the summer of 1739. Clifford's will, dated Oct 9, 1735 described himself as "late of Charles Town in South Carolina, but at present residing in New Hanover Precinct, North Carolina" and left his entire estate to his "Loving wife, Mary" (Grimes 1912:124). When Mary died has not been determined.

Rebecca Moore

Rebecca Moore is thought to have been a twin of Roger Moore, based on family tradition (Gregg 1975:192 says this is based on "family record," but fails to provide any additional

details). If she was a twin, this suggests a birth of c. 1694.[16]

She first married Thomas Barker, presumably sometime after his 1713 conversion and baptism by Le Jau. Prior to this he was an Anabaptist, causing Le Jau to comment, "it is Impossible to relate all the Arts the Anabaptists of this Province has used to delude [Barker]" (Klingberg 1956:133). Barker served in the Fourteenth Assembly (1713-1715).

Barker died shortly after their marriage, apparently being ambushed with his mounted troops by a Yamassee war party near Goose Creek about 1715 (Edgar and Bailey 1977:51).

Rebecca subsequently married William Dry on May 23, 1720, apparently in South Carolina. Dry was a merchant and his marriage to Rebecca Moore allied him with planting interests. He was a member of the last propriety assembly (1720-1721), the Second Royal Assembly (1725-1727), Third Royal Assembly (1728), Fourth Royal Assembly (1728), Fifth Royal Assembly (1728), Sixth Royal Assembly (1729), Seventh Royal Assembly (1729), and Tenth Royal Assembly (1733-1736). Edgar and Bailey (1977:211) note that he was one of only two merchants that favored the printing of paper currency – a political stand that garnered favor with planters.

In 1734 Dry advertised his two plantations in the Goose Creek area for sale (*South Carolina Gazette*, Charleston, SC, March 2, 1734). By 1737 he sold 1,700 acres in Craven County to Robert Hume for £170, suggesting this sale was not of his major plantation; in fact, this property had been obtained only a year earlier (Charleston County DB Q, pg. 259; Colonial Land Grants, vol. 2, pg. 436). In 1741 Dry sold William McKensie two Goose Creek tracts, one for 430 acres and the other for 975 acres (Charleston County DB V, pg. 171, 178). Edgar and Bailey (1977:211; see also Gregg 1975:192), however, suggest that his South Carolina property was sold by 1736, the year that he moved to Cape Fear.

In North Carolina he obtained land grants for 930 acres and also continued his mercantile business. He served locally as a justice of the peace (New Hanover County, 1739-1740).

He and Rebecca had two children, William and Dorothy. William Dry died in North Carolina sometime between February 25, 1740, when he was appointed justice of the peace for a second term and October 5, 1740, when Rebecca qualified as his executor. His will has not been identified.

By 1745, however, his executor was identified as his son, William Dry, who issued a bond to Charleston merchant William Yeomans for payment of £125 debt (S.C. Department of Archives and History, Miscellaneous Records, Main Series, vol. 2G, pg. 148).

We have no information on when Rebecca died, although we presume it was in North Carolina.

Margaret Moore

Margaret Moore is thought to have been born about 1682, although almost nothing is known of her early life. Margaret married Benjamin Schenckingh sometime before 1703, but they remained childless.

Benjamin was born in Barbados in June 1678 and immigrated with his parents to South Carolina. He acquired 1,320 acres in the Goose Creek area and an additional 1,020 acres on the Santee River. On September 13, 1712 he acquired the 1,000 acres in Berkeley County known as Boochawe from David Davis (see Ann/Anne Moore) (Edgar and Bailey 1977:600). He served in the Seventh (1703-1705), Twelfth (1710-1711), Fourteenth (1713-1715), and Fifteenth (1716-1717) Assemblies, as well as a variety of

[16] A least one source (South Carolina Historical Society, File 30-4, Moore) identifies two Rebeccas – one that was a twin of Roger and who died in childhood and a second, born much later, that eventually married William Dry. We have found no convincing evidence to support either supposition, although very little research has been conducted in an effort to untangle this family tree.

local offices. While in the Assembly he took an active role in the overthrow of proprietary rule.

He and Margaret lived their lives in South Carolina. Benjamin died sometime between February 21, 1733 when he wrote his will and March 29, 1733 when it was proved. He was survived by Margaret, to whom he left two-thirds of this real and personal estate (Charleston County WPA Will Book 3, pg. 39). Nothing more is known of her or the ultimate disposition of their property.

Roger Moore in South Carolina

When James Moore (I) died, it appears that all of his children except James (II) were minors; Roger was about 12 years old. While Edgar and Bailey (1977:468) report that their brother, James (II), with whom they presumably lived, inherited Boochawee Hall, other records indicate he was left with “Bonds Branch at Boochaw” (S.C. Department of Archives and History, Series 165001, Legislative Acts, Box 3, Act 28, 1709).

Roger married Mary Raynor about 1715, suggesting a marriage when he turned 21. Mary was the daughter of George Raynor (also spelled Rayner and much earlier, Reiner), a mariner and merchant (Edgar and Bailey 1977:553).

Raynor was the Captain of the *Loyal Jamaica*, previously discussed, which in 1692 arrived in Charleston. His surety was posted by John Alexander and William Smith (McCrady 1897:261). On February 22, 1694 Samuel Lowe and John Harris, of Port Royal, Jamaica, merchants,

> executed their bond in the sum of £1000 to George Raynor, of Carolina, merchant, indemnifying him from suits or actions by themselves or any of their agents, or from Thomas Harrison, formerly Captain of the ship called the *Loyal Jamaica*, or any of his agents, by reason of his turning the said Harrison out of his command of said ship (Anonymous 1908:120; see also Carroll 1836:1:106).

As late as 1701 Governor William Penn complained to the Board of Trade that Massachusetts, New York, New Jersey, Maryland, Virginia, and Carolina were harboring Captain Kidd's pirates and that in Carolina "their Captain one Reiner now lives" (Anonymous 1857:213; see also Hughson 1894:46).

Raynor was granted Kiawah Island, a plantation of 2,700 acres, by the Lords Proprietors on March 29, 1699 (Salley 1973:585-586). Raynor sold half of Kiawah Island to Captain William Davis about a year after his initial purchase, on November 1, 1701 (South Carolina Historical Society, Misc. Deeds). The other half interest or moiety he passed to his daughter in his will (Charleston County RMC DB Y, p. 182).

Raynor also purchased three town lots (Nos. 176, 211, 212) in 1694, 1,020 acres of land on the west side of the Stono, and an island on the east side of the Stono in 1700 (Records of the Court of Ordinary of the Province of South Carolina 1692-1700, p. 21-22; Salley 1973:444, 485, 591).

Raynor’s land dealings suggest he engaged in speculation, implying that he arrived in Carolina with money. Nevertheless, he gradually integrated himself into respectable society and married (although no information concerning his wife has been found).

Roger and Mary’s marriage produced one child, George Moore, born in 1715. Mary died about 1720, presumably in Charleston.

The portion of Kiawah which passed from Raynor to his daughter remained in the Moore family through 1737, passing from Mary to her husband Roger to their son, George Moore (Charleston County RMC, DB Y, p. 182). As absentee owners it seems unlikely that they made any appreciable changes on Kiawah. Roger Moore

sold Kiawah Island to John Stanyarne in October 1717 (Charleston County RMC DB N, p. 119).

The transaction was technically illegal since Roger had only a life interest in the property, not fee-simple ownership (even though the proceeds were given to George). Consequently, George cleared the title on July 16, 1737 (Charleston County RMC DB Y, p. 182).

Roger, like his father before him, was an Anglican, serving as a church warden during Le Jau's work in the Goose Creek area (Klingberg 1956:185). When the Goose Creek Church was completed in 1719, Col. James Moore, Roger Moore, Mrs. Anne Davis, Benjamin Gibbes and John Gibbes were each given a pew while the rest of the pews were sold (Poyas 1853:176; Waring 1909:10).

While records of marriage and baptism may survive in the Society for the Propagation of the Gospel in Foreign Parts archives, none have been found in South Carolina, and Waring reports that, "the Parish Register has long been lost" (Waring 1909:44). Consequently, we have little information about Roger Moore's family activities. What we do have comes from the St. Philips Church Register, suggesting that the Moores may have spent most of their time in Charleston.

By 1717 Roger Moore was actively engaged in colonial politics, serving as a member of the Sixteenth Assembly (1717-1720), Seventeenth Assembly (1720-1721), First Royal Assembly (1721-1724), Second Royal Assembly (1725-1727), and the Third Royal Assembly (1728) (Edgar and Bailey 1977:472). Moore was also a signer of the 1716-1717 petition to the Crown against proprietary rule (Wright 1961).

Sometime during this period, probably about 1720, his first wife, Mary Raynor, died. On October 10, 1721, he married Catherine Rhett, the daughter of William Rhett (Salley 1904:152).This marriage produced four children: William (born October 12, 1723 in South Carolina), Sarah (born c. September 1728 in South Carolina), Mary (c. 1730), and Ann (c. 1732). Ann was almost certainly born in North Carolina; the location of Mary's birth place is uncertain.

Several sources also list a child, Roger (Colonial Dames of America 1910:398; Heyward 1903:38; South Carolina Historical Society, File 30-4, Moore). This individual apparently died young and we have no other information regarding him, although one source claims he was the first child of Roger and Catherine.

William Rhett was an exceptionally powerful man in Carolina, arriving from London in November 1694 when he was 28 years old (Edgar and Bailey 1977:554). Throughout his career Rhett was a merchant-sea captain, sporadically engaging in trade. His wife, Sarah Cook, managed the family's retail business. Rhett was reportedly not particular with whom he traded or how he obtained goods. Edgar and Bailey comment that,

> While Surveyor General of Customs (1716-1723) he tried to seize merchandise from a captured pirate vessel. In 1721 he was accused of illegally trading with the French and Spaniards . . . . Mrs. Rhett was accused of appropriating the property of minor children under her guardianship (Edgar and Bailey 1977:555).

In spite of his dubious behavior he held a variety of commissions, including colonel of the provincial militia, receiver general, vice admiral of the colonial navy, surveyor and comptroller of His Majesty's Customs for Carolina and the Bahama Islands, and lieutenant general and constructor of fortifications (Klingberg 1956:46). He served in the Eighth (1706-1707), Twelfth (1711), Thirteenth (1711-1712), and Fourteenth (1713-1715) Assemblies.

Rhett seemed to hold his proprietary commissions in disdain. He fought openly with Robert Daniel, the Lieutenant Governor, saying, "I'll kill the old Rogue . . . God damn me I will kill the Dogg" when Daniel ordered him off a captured

vessel (quoted in Weir 1993:93). After receiving a proprietary commission he was quoted an announcing, " this is but a Lords proprietors Government and I wou'd wipe my Arse with the Commission" (Weir 1993:97).

In 1719 as the proprietary government collapsed, Col. James Moore (II) became the interim governor (Weir 1993:101). Roger Moore was vehemently opposed to Proprietary rule and as a member of the Seventeenth Assembly (1720-1721) petitioned the king to assume control of the South Carolina colony. In spite of the familial connection James Moore wrote that Rhett was an enemy "to his country & detestable reviler of mankind." We have no information concerning the relations between Roger Moore and his new father-in-law.

Rhett was no more successful winning favor from the new Royal governor, Francis Nicholson, who arrived in Charleston in May 1721. Nicholson described Rhett as "a haughty, proud, insolent fellow and a cheating scoundrel." A court fined Rhett £400 for defamation, after which Rhett and Nicholson accused each other of smuggling. In the middle of accusations Rhett died of "apoplexy" on January 12, 1723 and was buried at St. Philips's in Charleston (Anonymous 1903; Edgar and Bailey 1977:556).

Meanwhile, Roger Moore deserted his anti-proprietary roots and joined with the proprietary factions unsuccessful efforts to regain control of Carolina (Edgar and Bailey 1977:472).

Table 7 reveals that just as Moore entered politics in 1717, it was then that he also began the acquisition of property in South Carolina. Unlike his father, however, Roger seems to have just as frequently sold parcels as he acquired them. One, such as the Forsters Creek tract in Berkeley, he held for less than two years. Other parcels, such as his Goose Creek plantation which he acquired in 1719, he held until 1727.

One of the earliest plantation records associated with Roger Moore was his registration of his cattle brand, the sign for "Venis as in the margin." Apparently either Moore or the recorder was not aware that the mark in the margin (♂) is the sign for Mars, not Venus (Secretary of State, Livestock Mark Books, 1695-1725, pg. 17).

Roger Moore also engaged in transactions that appear to have been specifically designed to assist his family. For example, in 1726 Roger assisted his brother Nathaniel providing a £500 bond to Isaac Mazyck to ensure an agreement (Charleston County RMC, DB E, pg. 180).

In addition, the buying and selling of property in South Carolina continued until 1747, just a few years before his death. Therefore, it is something of a misstatement to say that he abandoned South Carolina or sold his property and left. In fact, it appears that he maintained close ties to South Carolina throughout his life.

The only purchase of enslaved African Americans we have identified for Roger Moore occurred in 1720 when he acquired Venture, Jack Smith, Benger, Toby, Clabar, and Sarah (S.C. Department of Archives and History, Register of the Province, Public Register, Conveyance Books, vol. C, pg. 95). In 1722 he was still active in South Carolina legal affairs, being given a power of attorney by Hon. John Colleton of St. John's Parish, Barbados "to collect money due from his son or sons and to handle property in South Carolina" (S.C. Department of Archives and History, Register of the Province, Public Register, Conveyance Books, vol. B2, pg. 102).

For a man of substance there seem to be remarkably few legal actions preserved that involve Roger Moore. In 1717 Moore sued Elizabeth Harvey, the executor of her husband's estate for a debt of £14 current money. The case was "discontinued," probably meaning it was settled (Judgment Rolls, Court of Common Pleas, Box 10A, Item 79A).

Of greater interest, in 1720 Moore was sued by Samuel Eveleigh and Charles Hill, probably commission merchants, for £749.9.1½ for 240 barrels of tar and 46 barrels of pitch they claimed he failed to deliver to them at the Goose

Table 7.
Roger Moore as grantor and grantee in South Carolina

GRANTEE

Date	Acres	Notes	Source
March 3, 1717	350	conveyed by John Hodgson, Forsters Creek, Berkeley Co.	cited Charleston DB G, pg. 187
March 30, 1719	800	conveyed by Roger & Doborah Goff (Gough), Berkeley Co., £1,000 SC money	Charleston DB I, pg. 560
January 2, 1720	616	conveyed by Richard & Elizabeth Baker, Goose Creek, £600 current money	Charleston DB Ba, pg. 174
c. 1726	355, 100, 2,000, 1,500	conveyed by Richard Smith to Roger Moore and Thomas Smith, various locations	Renunciation of Dower Books, v. 1726, pg. 38
c. 1727	90	conveyed by Col. James Moore	cited Charleston DB F, pg. 374
before 1737	c. 2000	conveyed by Col. William Rhett, Black River	cited in Charleston DB S, pg. 1
January 12, 1737	62.5	granted to Roger Moore, Berkeley Co.	Colonial Land Grants, vol. 3, pg. 121
c. 1747	700	conveyed by Philip Gibbes of Barbados, Gibbes' Plantation	cited in Charleston DB 2i, pg. 130

GRANTOR

Date	Acres	Notes	Source
October 30, 1717	1,350	conveyed to John Stanyarne, moiety on Kiawah Island, £1,000	Charleston DB N, pg. 119
October 20, 1718	350	conveyed to Ann Davis, Forsters Creek, Berkeley Co.	cited Charleston DB G, pg. 187
November 2, 1720	1,020	conveyed to Alexander Hext, Colleton Co.	Charleston DB S, pg. 26
December 20 & 21, 1725	548	conveyed to John Marshall, Johns Island Colleton Co.	Memorial Books, vol. 1, pg. 417
January 17 & 18, 1727	1,346	L&R conveyed to Joseph Wragg, merchant, Goose Creek & St. Johns, £4,000 SC	Charleston DB F, pg. 383; Memorial Books v. 5, pg. 354
October 3 & 4, 1727	800, 90	L&R conveyed to Robert Hume, Goose Creek where now lives, £4,000 SC money	Charleston DB F, pg. 374; DB La, pg. 372
November 13 & 14, 1727	2,200	L&R conveyed to Zachariah Villeponteaux, St. Johns Parish, Berkeley County	Memorial Books, vol. 5, pg. 324
January 26 & 27, 1735	324	conveyed to William Middleton, NE side Ashley River, £162	Charleston DB S, pg. 426; Memorial Books, v. 7, pg. 98
December 1, 1747	200, 700	conveyed to Thomas Smith, Jr., Hilton Head Island and Goose Creek	Charleston DB 2i, pg. 130

Creek bridge. Accounts were presented and the jury awarded Eveleigh and Hill £79.2 – a relatively small portion of the original claim. This case is of special interest to us since it reveals that Roger Moore, prior to going to North Carolina, had experience in naval store production at his Goose Creek plantation. Assuming he transported his existing slaves into North Carolina, they would have been able to quickly duplicate this economic base.

The reasons that Roger Moore, and others in his family, left South Carolina are not likely to be fully understood since they left behind no explanation.

Historians have noted that beginning about 1720 South Carolinians were having trouble getting land. Colonial land policies in North Carolina bordered on anarchy. In 1724-1725 North Carolina's new proprietary governor George Burrington spent the winter exploring the Cape Fear region in an effort to create a development plan. In 1725 he began issuing grants to almost 9,000 acres in the Cape Fear area. Since this was in violation of the proprietor's wishes, his warrants could be held until such time as the proprietors stated the terms for the conveyance. Holders might then accept the terms or abandon the land, but in the meantime they could occupy the tracts (Lee 1965:93).

In addition, South Carolina faced a severe depression and taxes were raised steeply to generate money for the government. Adding to the debt load were military expenditures in fear of slave revolts, coupled with the requirement that all planters keep at least one white indentured servant for every 10 slaves he owned (Lee 1965:98).

While the proprietors struggled to maintain control in Carolina, they were significantly less interested in North Carolina where the treacherous coast made overseas exportation of tobacco and other staple crops difficult and costly.

There is compelling evidence that many in South Carolina left for the Cape Fear to avoid the taxes and strong central control of the colony's government in Charleston. In the Cape Fear they found a far weaker and centralized government with no or lower taxes (Wood 2004:20).

There were many Carolina merchants who felt that the Cape Fear provided a refuge for debtors, with North Carolina helping them defraud their creditors (Wood 2004:19). This view was summarized by Thomas Lowndes when he wrote the Board of Trade in 1724, "North Carolina which ever since t'was a separate Government has only been a Receptacle for Pyrates Thieves and Vagabonds of all sorts"

(quoted in Wood 2004:21). Another claimed that those in North Carolina paid tribute "neither to God nor to Caesar." Governor Spotswood of Virginia complained that North Carolina had "scarse any form of government" and was the "common sanctuary of runaways." By 1700 it had clearly established its reputation as "a place which receives pirates, runaways and illegal traders" (quoted in Hughson 1894:51).

Finally, it is likely that some venturing to the Cape Fear simply sought new opportunities. Wood quotes a period account that remarked some of these going to the Cape Fear, found they "like[d] it pretty well" (quoted in Wood 2004:17).

Roger Moore in North Carolina

The Move and Acquisition of Kendal

When the various deeds are carefully examined we may gain some insight on Moore's departure from Carolina. Two deeds dated January and October 1727 provide Catherine (Rhett) Moore with three months to renounce her dower, something that was typically done at the time the deed was conveyed (Charleston County RMC DB F, pg. 375, 382).[17] Perhaps Catherine was not in South Carolina at the time of the sales, opening the possibility that she may have been occasionally visiting North Carolina while Roger tended to affairs in South Carolina.

Less speculative is the May 1731 deed in which Roger Moore is identified as being "of New Hanover, merchant, attorney" (Memorial Books, Copy Series, vol. 5, pg. 352). A January 1735 deed identified Moore "of North Carolina" (Charleston County RMS, DB S, pg. 426). These suggest that sometime as early as 1731 Roger and Catherine Moore established their home in North Carolina, likely – as will be shown in the archaeological studies –at Kendal Plantation.

The first record we have in legal documents identifying Orton as Moore's residence is the July 19, 1746 deed from "Roger Moore, Esq. of Orton" to his son, George Moore, for eight tracts totaling 4,140 acres, including Blue Banks (New Hanover County Register of Deeds, DB C, pg. 169). In December 1747 a deed identifying "Roger Moore of Orton on Cape Fear River in the Province of North Carolina" was also recorded (S.C. Department of Archives and History, Register of the Province, Public Register, Conveyance Books, vol. 2i, pg. 130).

Moore nevertheless maintained attachments to South Carolina. In 1734 it was reported that "a Negro Man named Quash, belonging to Roger Moore Esq." who had "been run away between six and seven Years" had been captured in the Charleston area (*South Carolina Gazette*, March 23, 1734). The following year he advertised his intent to sell a variety of properties in South Carolina (*South Carolina Gazette*, September 13, 1735).

In 1736 Moore was advertising to settle the estate of Edward Smith (*South Carolina Gazette*, May 1, 1736) whose will had been proved the year prior. Roger Moore was sole executor and legatee of Smith and the will had been witnessed by Justina Moore and her husband John (Grimes 1910:344).

Certainly by 1745, the partial tax return for St. James Goose Creek (Morgan 1980) does not list a single member of the Moore family. This correlates with several deeds identifying that Roger Moore was in the Cape Fear area at least by July 1743 when he sold John Jean, collector of "His Majesties customs" in Brunswick "the Great Island" just below the mouth of Old Town Creek (New Hanover County Register of Deeds, DB C, pg. 30; additional deeds referencing Moore's location in the area are found at New Hanover County

[17] Under English common law every married woman was entitled to a life interest in one- third of the lands of which the husband was seized in fee at any time during their marriage. In order to convey free title in a property transfer, the married woman had to renounce this right.

Register of Deeds, DB C, pg. 27; New Hanover County Register of Deeds, DB C, pg. 104; and New Hanover County Register of Deeds, DB C, pg. 103).

This information ties in nicely with the situation described in *A New Voyage to Georgia by a Young Gentleman* (Anonymous 1737). Beginning in Georgia, events are recorded for the trip through South Carolina and into the Cape Fear area of North Carolina. In middle June 1734 the recorder visited Roger Moore, "the chief Gentleman in all of *Cape Fear*" (Anonymous 1737:43). At that time Moore was residing in a brick house,

> exceedingly pleasantly situated about two Miles from the Town [of Brunswick], and about a half a Mile from the River; through there is a Creek comes close up to the Door, between two beautiful Meadows about three Miles length. He has a Prospect of the Town of *Brunswick*, and of another beautiful Brick House, a building about half a Mile from him, belonging to *Eleaver Allen*, Esq. [Lilliput Plantation] (Anonymous 1737:43).

This description is certainly that of Kendal, today 1.9 miles as the "crow flies" from Brunswick Town, 0.5 mile from Lilliput Plantation, 0.4 mile from the Cape Fear River, and located between two marsh grass "meadows." Thus, by 1737 Roger Moore had built a brick house, firmly establishing himself in North Carolina. This is consistent with an occupation beginning ca. 1730.

Kendal was not initially owned by Roger Moore. Rather it was part of a 640 acre parcel deeded by the Proprietors directly to Maurice Moore on June 3, 1725 (Lee 1965:94; derivation cited in Brunswick County Register of Deeds, DB C, pg. 326 and New Hanover County Register of Deeds, DB E, pg. 242). Maurice held it only a few months before assigning the deed to his brother, Roger Moore on March 25, 1726 (Lee 1965:94; derivation cited in Brunswick County Register of Deeds, DB C, pg. 326 and New Hanover County Register of Deeds, DB E, pg. 242).[18]

The Land Policies that Made North Carolina Attractive to the Moores

The Cape Fear was dominated by pine barrens – areas that were almost entirely excessively drained sands that supported little besides the long-leaf pine. While there was a good profit in pitch, tar, and turpentine, the lands would support virtually no cultivation, long hindering the development of rice and other crops.

Wood comments that the distribution of land was particularly important in the development of the Cape Fear region. The system the proprietors – and later the Crown – had in place for land distribution should have allowed for fairly equitable distribution, preventing large concentrations, providing the government with revenue, and encouraging settlement by small planters. In spite of these plans, officials in London demonstrated themselves totally unable to enforce their rules (Wood 2004:49-50). Blatant opposition and disregard, coupled with Governor

[18] In contrast, adjoining plantation Orton was cobbled together from at least three grants or conveyances, including an initial 500 acres that Roger Moore obtained as a patent from North Carolina on March 30, 1728 (State File 88, BK 2, pg. 261). An additional 500 acres was sold to Roger Moore by his brother, Maurice Moore, on December 14, 1728 for the sum of £200 NC currency (State File 461, Bk 2P, pg. 272). The plantation was added to by the grant of a third parcel, an additional 2,000 acres on May 2, 1729 (State File 438, Bk 2, pg. 268). Thus, these three deeds create at least 3,000 acres of Orton bordering the Cape Fear and running from Brunswick on the south to Lilliput Creek on the north. This seems to incorporate the previously conveyed Kendal, but this may simply be an error in interpreting vague descriptions or it may have been an effort to ensure title to Kendal, which likely had been granted in violation of proprietary orders. Commentaries, such as that by DeRosset (1938:6), which suggest Orton was "originally granted to Roger Moore by the Lords Proprietors" seem to be built on legend.

George Burrington's administration (1724 – 1725, 1731 - 1734), allowed the Moores, Edward Mosely, and others to accumulate vast land tracts, while others were unable to obtain any land worth owning (Wood 2004: 51). Making matters worse, Burrington issued many warrants for land, but few actual patents from 1731 to 1734, further throwing the system into turmoil. It was also claimed that Burrington was distributing blank patents that could be filled in later.

Those lands for which patents existed were poorly surveyed and documented, leading to overlapping claims and disputed boundaries. It was also claimed that the Moores and Burrington even sought to make the Lower Cape Fear a separate colony, distinct from both North and South Carolina (Lee 1965:100, Wood 2004:150).

A later royal governor, Arthur Dobbs (1753 – 1763), complained that some surveyors simply examined the vegetation in the area of a needed survey "and at the fire side laid down their plan, if not joined to any neighbouring Plantation then named an imaginary Tree, a pine red white or black oak or hiccory etc and so enter beginning at a hickory and so name imaginary Trees at any angle and conclude as usual so on to the first station . . . You may judge what confusion that has & does create" (quoted in Merrens 1964:25).

When Governor Gabriel Johnson took office (1734-1752) he made the land fiasco a central theme in his administration. While patented land was supposed to require owners to pay quitrents or taxes to the Crown – a critical source of revenue for the function of the government – no one had ever been able to collect quitrents reliably. Moseley, the colony's treasurer – but not the collector of quitrents – made the matter worse by publically refusing to pay quitrents on his own property. Others took confidence in this because, "they are assured by Mr. Moseley and the Family of the Moores that the Quitt Rents are too high for the poor people" (although this doesn't explain why the rich were equally unwilling to pay their taxes) (Wood 2004:54). Johnson proposed that all patents issued after 1725 be invalidated. However valid his claims, such a move would have thrown property ownership into turmoil.

Not only were few paying their quitrent taxes, but the rich threatened to leave altogether. Wood quotes a claim that Roger Moore was making plans "to remove with his family to Virginia" (Wood 2004:55).

Faced with strong opposition, Johnson compromised and in 1739 the assembly passed a bill that allowed all patents to stand, but sought to improve the quitrent system, making it enforceable. The law, a very reasonable compromise, was struck down in London through the lobbying of Henry McCulloch who feared some of the disputed patents infringed on his own land. It was perhaps these events that caused King George to comment on "those pestiferous Moores" (Gregg 1975:187).Even though the law was never enacted, it did little to ameliorate the situation. Evidence of this can be found in two accounts.

In 1732 Roger Moore petitioned the Governor's Council for a warrant of 5,000 acres "he having a Claim thereto from the Number of persons his Family consisted of." The grant was issued, "Moore proving his Right" (Colonial and State Records of North Carolina, Minutes of the North Carolina Governor's Council, vol. 3, pg. 424).

It is thought that the Moores obtained their nickname "The Family" as a result of a 1735 letter to the Board of Trade regarding the patent controversy where the authors asserted the importance of the Moores to the region and assert their large family size of nearly 1,200 to explain their need for large amounts of land. It seems that this explanation created the derisive name "The Family" that sought to convey the sense of their power structure (Wood 2004:86). La Vere notes the Moore family eventually owned over 48,000 acres and dominated the region politically and economically (La Vere 2013:183). Price (1972) has identified Roger Moore as the wealthiest of North Carolina's Royal Councillors (upper assembly members), owning 59,155 acres of land and 253 enslaved Africans. The next wealthiest individual serving at roughly the same time was

Cullen Pollock with 150 slaves and 21,625 acres.

Wood notes that the Moores were also related to other planters, such as the Ashe, Swann, Moseley, Port, Davis, Jones, and Lillington clans. He notes:

> The Moores provide an instructive if exceptional example. As the most powerful family in the region, they articulated an elite model of behavior that many other family no doubt emulated. A close look at the Moores' family relationships also illustrates that contemporaries were correct about them in at least one respect: the Moores, like many other early settlers, clearly developed impressive and complex kinship ties in the Lower Cape Fear (Wood 2004:86).

A second example of the continuing disharmony is found in a 1735 petition to the Governor by George Gibbs against Roger Moore regarding land practices. Gibbs migrated to the Cape Fear area, obtained a warrant for land in 1728, moved his family, cleared the land, and paid quitrents. He intended to use the land "raising . . . Bread for . . . [his] family." He occupied the land for seven years and sought to improve it sufficiently that his three sons would each have a hundred acres of good land.

Gibbs then discovered that Roger Moore claimed to have a warrant for the land obtained from Governor Burrington long after the date of Gibbs own warrant. Gibbs claimed that "Mr. Roger Moores Covetous Eye" had been drawn to his land and had determined "he must and will have Land" regardless of Gibbs. Wood notes:

> Gibbs was clearly embittered that a man of Moore's wealth and means would, to swell his enormous landholding, threaten the Gibbs's family livelihood. To make matters worse, Gibbs knew he had fewer headrights with which to obtain land because his large family remained vastly outnumbered by Moore's slaves. Gibbs worried about having enough land to leave his sons, but "Mr. Moore is pleased to have so many Tracts of each of Sons which he pretends to hold by the rights of his Negroe's." Gibbs added, with savage irony, "I suppose he'll give none of the Land his Negro's." Gibbs must have spoken for many less-wealthy settlers in the Lower Cape Fear who felt abused and threatened by imperious behavior of "King Roger" Moore and others like him (Wood 2004:64).

In fact, Gibbs was not alone in claiming that Roger Moore was seizing land not belonging to him. In September 1735, a complaint was lodged that Moses Machons purchased land on the northwest branch of the Cape Fear, "seated and cultivated the same and had a large stock of Cattle and Hogs." He returned to London for business and died there unexpectedly. Roger Moore obtained a warrant for Machons property, converting it to his own. The Council agreed with Machons' descendants and a new warrant was granted to Clemt Machons (Colonial and State Records of North Carolina, Minutes of the North Carolina Governor's Council, vol. 4, pg. 57).

In another case Roger Moore petitioned for a patent of 500 acres, but the petition was rejected since the patent did not specify the bounds of the claim. At that same meeting another petition for land was rejected because Moore claimed ownership, and yet a third patent was disputed by Moore for a similar reason (Colonial and State Records of North Carolina, Minutes of the North Carolina Governor's Council, vol. 4, pg. 218-222).

In 1749 complaints were still being

lodged against Roger Moore. William Lithgow, a merchant, planter, and mariner,[19] purchased a plantation from Mr. Grey, only to discover that Moore,

> one of the Council was at the time of such sale cutting down timber & burning lightwood to make tar[.] Mr. Lithgow would not suffer Mr. Moore after he had made the purchase to carry off the tar upon which Mr. Moore did it by force and threatened to sue Mr. Lithgow for Barretry" (Colonial and State Records of North Carolina, Letter from the Board of Trade of Great Britain to John Russell, Duke of Bedford, vol. 4, pg. 934-935).

Moore attempted to have Mr. Lithgow arrested and sued for £2,000 sterling (for a synopsis see Wilde-Ramsing et al. 1992:15-16). The case was eventually thrown out, but it clearly demonstrates that Roger Moore learned much from his father and the other Goose Creek men, who "continually opposed constitutional government . . . and reforms that might have placed their activities under unbearable scrutiny" (Roper 2004:7).

The problem is also examined, from another perspective, by Nelson, who argues that during the proprietary and early royal periods North Carolina courts were dysfunctional. Beginning in the late 1720s the judiciary "fell apart,"

> The law in force in their colony was not a neutral and objective body of rules employed by the judiciary to achieve impartial resolution of disputes and just governance of the province. It had become plain, indeed, that the law had no capacity whatsoever to control the results in any matter in dispute. Rather, the law was a weapon that political actors, both on and off the bench, used in efforts to further their political agendas, promote their self-interest, protect their friends, and punish their enemies (Nelson 2010:2161).

This system seems to have promoted the agenda of Roger Moore and his family.

Brunswick Town

Maurice Moore was granted 1,500 acres on June 3, 1725. He immediately set aside 320 acres with a portion being divided into half-acre lots 82½ feet in width by 264 feet in depth (New Hanover County Register of Deeds, DB AB, pg. 188).[20] A total of 24 blocks were laid out, each with seven lots across and two lots deep. Roger Moore added additional land to the town (Lee 1952:239, South 2010:2).

It appears that Maurice Moore used slightly more than half of the 320 acres to lay out 336 half acre lots; Roger Moore added 20 lots to the northern edge of the town plan, making 356 lots. Many of these lots, however, were never sold. In June 1726, Maurice Moore made a plan of the proposed village and another was made by the assembly in 1745. Neither of these plans survive and the settlement is known from the 1769 drawing by C.J. Sauthier (Lee 1952:238-239; Figure 3).

Maurice Moore, as developer of the town, sought to make a profit. In order to accomplish this as quickly as possible while avoiding speculators, he stipulated that a habitable house

[19] Earlier, in 1742 Lithgow corresponded with fellow merchant Robert Pringle in Charleston, SC (Edgar 1972:325-326, 384).

[20] It is worth noting that while other North Carolina towns, such as Bath, Edenton, and Beaufort, were established very slowly, representing what Watson (2003:6) described as "tardy urbanization," Brunswick was formed almost immediately upon settlement of the area.

measuring at least 16 by 20 feet, be built within eight months.

Lots were identified for a courthouse, church, cemetery, markets, and common areas for the public. The location, below shoals in the Cape Fear River, ensured that large ships would be able to use the port – and the Moores actively lobbied to make the town an official port of entry by British authorities. The naming of the town was certainly part of that effort since the new English King, Georg I, was of the house of Brunswick-Hanover (Wood 2004:15). The North Carolina General Assembly recognized Brunswick in 1731, noting,

> We understand there is a Town already Established on Cape Fear River called Brunswick in New Hanover Precinct in respect to one of the Titles of the illustrious House of Hanover and we are informed it is like to be flourished place by Reason of its Excellent Situation for the Trade of those Parts (Minutes of the Upper House of the North Carolina General Assembly, Vol. 3, pg. 261).

The first lots sold were purchased by Cornelius Harnett, a tavern keeper, on June 30, 1726. The following year he obtained a license to operate a ferry from Brunswick across the Cape Fear, to link the town with the only road connecting northern colonies with South Carolina (Lee 1952:232). Contemporary travelers complained about the quality of this road, with one noting that it was "the most tedious and disagreeable of any on the Continent of North America" (quote in Wood 2004:119). Another described it as tiresome and disagreeable.

A list of property owners in Brunswick between 1725 and 1819 has been prepared by the Old New Hanover Genealogical Society (Anonymous 2003:14). The list includes Roger Moore, Maurice Moore, Sr., and Nathaniel Moore (all brothers and sons of James Moore), and William and George Moore (both sons of Roger Moore). Eleazer Allen, owner of nearby Lilliput Plantation was also a property owner. Other owners were Thomas Brown, Edward Jones and Jonathan Caulkins, all carpenters; John Chalkhill , purser of the *Scorpion*; Thomas Dick, a church carpenter; John Fergus, a surgeon; John McDowell, a minister; William Norton, a block maker; Christopher Wooten, a sailmaker; Edward Scott, Thomas Marnan, and Thomas Mace, all identified as mariners; and Richard Price, a brickmaker.

By 1729 Brunswick was designated as the seat of New Hanover Precinct, established that year. A courthouse was built, church and government elections would be held there, as would precinct court.

In 1731 the town was viewed as having great promise because of the excellent harbor, yet "at present [the town is] but a poor, hungry, unprovided Place, consisting of not above 10 or 12 scattering mean Houses, hardly worth the name of a Village" (quoted in Meredith 1922:14-15). Moreover, Brunswick quickly got a reputation for being "the most unhealthy place in the whole Province" and three customs collection officials had died there since 1734 (Watson 2003:16).

Problems began when George Burrington returned from England in 1731 as the first Royal governor. Watson describes Burrington as "quarrelsome and almost paranoid," and Burrington quickly fell out with the Moores and others in the Cape Fear region over land and quitrents – the same issues that plagued the Carolina government decades earlier (Watson 2003:8).

The situation did not improve upon the arrival of Governor Gabriel Johnson in 1734. He began challenging Brunswick as the appropriate location for the area's government – and by extension the authority of the Moores (Lee 1952:233, Wood 2004:151).

A few miles upstream the village of Newton (or Newtown or New Liverpool) began to develop about 1733. Promoters of Newton

Table 8.
Exports from Brunswick
(Merrens 1964 and Wood 2004)

	1768		1768-1772	
Commodity	Quantity	% of NC Total	Value (£ sterling)	% of Lower Cape Fear Total
Naval Stores	63,265 barrels	49	109,012	66
Sawn Lumber	2,328,075 feet	74	25,849	16
Shingles	1,504,000 pieces	25	-	-
Staves	139,340 pieces	8	5,122	3
Indian Corn	966 bushels	1	221	>1
Rice	84 barrels	100	1,294	>1
Indigo	646 pounds	100	549	>1

managed in 1736 and 1739 to require quitrents to be paid in Newton rather than Brunswick (Watson 2003:11). By 1740 Newton was incorporated as Wilmington and the seat of New Hanover government was transferred to Wilmington, as well as all port officials (Lee 1952:233).

Brunswick did not cede power gracefully. In fact, even the assembly was so divided that the supporters of Newton accused the Moores and their followers of having demonstrated, "such a violent, restless and arbitrary Spirit that We are sure it will not admit of a parallel in any Province of America from the first Settlement" (quoted in Wood 2004:152).

The conflict even spilled over to South Carolina when, in 1740, a "Gentleman in Brunswick, Cape Fear" wrote contesting benefits of Newton (*South Carolina Gazette*, June 14, 1740, pg. 2).

The Moores managed to have the port officials transferred back to Brunswick and all ships entering had to stop there to be cleared first. In 1745 the assembly enacted various laws governing the town and improving its appearance and establishing a local commission to oversee the law (Lee 1952:234). Part of this effort sought to clear title to lots. In 1736 Maurice Moore had given half of his interest in Brunswick to John Porter, exempting only two lots he owned (New Hanover County Register of Deeds, DB AB, pg, 188). By 1745 both men had died and a dispute over ownership had arisen among the heirs. To clear title, the assembly transferred ownership to a commission, allowing the sale of lots to proceed (Lee 1965:138).

The continuing, bitter rivalry between Brunswick and Wilmington is seen in the sale of Great Island by Roger Moore to John Jean in 1743. Moore's deed specified that Jean was not to allow storage of commodities on the island, fearing that it might compete with Brunswick. Should the provisions of the deed be violated, the property would revert to Moore (Lee 1965:166).[21]

When Brunswick County was established in 1764, Brunswick was made the seat of its government and the community obtained representation in the assembly. Woods notes that it took 30 years for this second county to be created since many residents opposed new counties because of the cost of new jurisdictions (Wood 2004:169).

Brunswick continued to be active in trade, being solicited by Charleston merchant Henry Laurens in 1757 (Hamer et al. 1970:495). In 1766 Laurens advised a ship's captain to sail to Brunswick or Wilmington for naval stores since the Charleston market was so slow (Rogers et al. 1976:68). In 1769 Laurens was opening direct trade with Brunswick for a "Load of Tar or other Goods upon the best Terms of Freight or purchase" (Rogers et al. 1978:568-569).

Lee notes, however, that most of the town's significant history is linked with the decision by the royal governors who chose to make their home in Brunswick from 1758 to 1770 (Lee 1952:234). Their residence, Russellboro, was not actually within the limits of the community, but was adjacent to the north. In 1770 the next to the last royal governor, William Tryon (1765-1771) had The Palace constructed in New Bern and moved there. Russellboro was

[21] It is ironic that by the middle of the nineteenth century a Moore descendant, Roger Moore IV, owned a house in Wilmington (Battle 1903a:36).

purchased by William Dry, who changed its name to Bellfont (Lee 1965:241).

Population estimates suggest that the village was never densely populated. Lee documents accounts indicating 10 to 12 houses in 1731, and only 20 families in 1754 (compared to 70 families in Wilmington). Sauthier's map indicates about 35 residential buildings in 1769 and just prior to the Revolution the town had a population of about 200 whites and 50 African Americans (Lee 1952:230).

Lee notes that, "the town became concentrated in the upper four squares along the river." The church was located just beyond this area and the courthouse and jail were built on lots diagonally across from the church (Lee 1952:239).

As previously discussed, archaeology has been conducted at the house that Roger Moore constructed in Brunswick. The lot was acquired from Maurice Moore for £50 currency in September 1736 (New Hanover County Register of Deeds, DB AB, pg. 132). The resulting frame structure, measuring 22 by 30 feet, was slightly larger than the minimum and was apparently rental property (South n.d.).[22]

In spite of the deed, the structure must have been standing by February 1736 when James Murray arrived and discovered that "there was no house there to be had except I build one; so was oblig'd to bring all ashore here [at Brunswick], where I have got a good convenient house [from Roger Moore] on rent" (Tiffany and Lesley 1901:24).

Murray, although a merchant, intended to acquire a plantation of his own, complaining of the prices for corn and meat, but also noting that all advice was not to purchase property unless you intended to live on it since the area was rife with "bad Attorneys & overseers" (Tiffany and Lesley 1901:27).

In spite of an effort to avoid local politics, by 1737 Murray commented that his "behavior and intimacy with some gentlemen was [so] disagreeable that he [Roger Moore] told me to turn out before I had ¾ of a year" in the Brunswick house (Tiffany and Lesley 1901:28-29).

As previously mentioned, some viewed North Carolina as a colony of debtors and certainly the general collapse of the colony's legal system tended to help those desirous of avoiding legal action. In 1742 Robert Pringle wrote Daniel Dunbibin of Wilmington about a debtor,

> Please to give me your Opinion of one John Marshall, Late of Hull, that I understand Lives now near Wilmington. He is Indebted by Bond to a friend of mine in Hull £100 sterling, who sometime agoe send me over a Letter of Attorney in Order to Recover the Money of him. I writ to Mr. John Faris about it sometime agoe, but find he does not seem dispos'd to doe any thing in it. I am therefore to desire the Favour that youll please to advise me if there is any Likelyhood of Recovering the Money of him, & if you will undertake it & accept of a Power of Attorney for that Effect (Edgar 1972:1:419).

Pringle wrote another colleague, William MacKay in 1745 about another debtor, Richard Caulton, an upholsterer who left Carolina "Considerably Indebted" and was then in Brunswick. Owing £168 SC money, Pringle provided affidavits and a power of attorney hoping to recover the debt (Edgar 1972:2:791-792).

[22] South also excavated the ruins of what he called Judge Maurice Moore's estate. Judge Maurice Moore was the son of Maurice Moore and the property was conveyed to him by his cousin, William Moore, in 1759 (South 2010:29). He does not state whether a structure predated this conveyance. Nathaniel Moore also acquired a lot by at least 1728. The house on that property measured 22.5 by 34 feet. Nathaniel held the property for only a few years, selling it in 1733 (South 2010:119-120).

In December 1747 Henry Laurens visited Roger Moore and subsequently wrote to enlist his aid in recovering a debt owed Laurens by his uncle, Augustus Laurens. Laurens provided Moore with his power of attorney, as well as documents proving the debt (Hamer et al. 1968:88-90).

By March 1748 Laurens was writing another colleague who was having a similar problem collecting from an individual who had "eloped" to North Carolina. Laurens offered to send the colleague's power of attorney to Roger Moore, but questioned whether it was worth the effort:

> Whether sending a Power to No. Carolina would be of any service to you or not I will not pretend to say, but you may form some Judgment from the following Story. A Person in my debt near Three hundred Pounds Sterling absconded from hence about 2½ Years ago & went to that Province. A power of Attorney was immediately sent after him & he was arrested, & judgment obtain'd but nothing further done; in November Last I went my self to Cape Fear, where I found my Debtor in good Circumstances, sufficient to pay twice the Sum above mention'd. However to get clear of the affair I made him an offer to give up all the Interest if he would Pay me the Principal of his Bond, which he refuse'd to do unless I would take it in Pitch & Tar at his own Price and time. I then impower'd another Person to Act for me & recover the Amount due & from that time to this moment I have not had a Line or Message on the affair, altho more than twenty conveyances have since presented" (Hamer et al, 1968:120).

By May 1748, Roger Moore had written Laurens, apparently reporting that he had obtained 300 barrels of pitch ready to be shipped in payment of the debt. Laurens was still complaining that the resolution favored the debtor since the pitch might be worth "little or much." It appears that he nevertheless accepted the payment since it was clear he would do no better (Hamer et al. 1968:140). A subsequent letter dated June 1748, this time to William Moore, the eldest son of Roger Moore, indicated that Laurens had chartered a ship to pick up the naval stores and was attempting to exchange the tar for pitch (Hamer et al. 1968:146).

There are no further letter exchanges between the Moores and Henry Laurens, so presumably he obtained what he could from his uncle and wrote off whatever may have remained of the debt. While Roger Moore sought to intervene, it does not appear that he was especially proactive in looking for a settlement and it seems unlikely that Henry Laurens got full satisfaction on his debt. Also of interest, these discussions focus entirely on naval stores, with no suggestion that rice or other commodities were readily available for export.

Operation of Kendal

Sadly, we have no census, agricultural details, or plantation records for Kendal (or Orton). Consequently, our observations can only, at best, be speculative.

First, in terms of enslaved African Americans, it is likely that Roger Moore and others brought slaves with them from South Carolina, although this is of only modest assistance since we don't know how many slaves Moore had on his various South Carolina properties. On the other hand, this assumption may have implications in the archaeological remains found at Kendal, since we might expect to see objects, such as colonoware, that occur frequently to the south.

Our assumption that most slaves came with Moore is based on the perceived difficulty in obtaining slaves on the Cape Fear during this early period. In 1733 Governor Burrington noted this

Table 9.
Slaves as a Percentage of Total Estimated Population in Various Areas of North Carolina in 1767 (adapted from Wood 2004:99).

Area of NC	Est. Total Pop.	% slaves
Lower Cape Fear	4,216	63
NE NC	37,284	24
Upper Cape Fear	2,040	29
Backcountry	40,313	15

difficulty since the state had no established slave trade with Africa. It appears that the Cape Fear community, while well-off, lacked the wealth of locations like Charleston to attract slavers to make regular visits. Wood suggests that slaves arrived haphazardly, in small numbers, and on ships that were engaged in other trading activities. Moreover, many of those enslaved Africans entering the Cape Fear may have been rejects from other venues (Wood 2004:38-39). This seems further confirmed by Minchinton (1994) who documents only 45 ships with 319 slaves arriving between 1702 and 1746. Most of these came from Charleston.

Nevertheless, Cape Fear residents were far more likely to own slaves during the colonial period than were families elsewhere in North Carolina. In fact, the Lower Cape Fear was the only region in North Carolina where enslaved Africans made up most of the population (Table 9). While land ownership might provide economic competence and even independence, the ownership of slaves indicated "mastery over social inferiors" – both white and black (Wood 2004:133, see also Merrens 1964:75).

Most of these slaves in the Lower Cape Fear, about 73%, lived on plantations with 20 or more slaves, and more than 87% lived on plantations with 10 or more slaves (Wood 2004:100). This suggests the presence of large and relatively stable black communities along the Cape Fear River.

At the end of the colonial period Scotus Americanus (1773) provided a brief, but telling, overview of slavery in the region. He noted that "young healthy negroes are bought there for between 25 and 40 £," and by this time it was likely easier to procure African slaves. Scotus Americanus also speaks of how happy the enslaved were, "compared to the wretchedness of their condition in the sugar islands." It was reported that they had "small houses or huts, like peasants, thatched, to which they have little gardens, and live in families separated from each other." The task system[23] was already well established (Scotus Americanus 1773:445-446).

Thus, we may assume that Kendal was operated primarily by South Carolina slaves and a task system was used. The number is uncertain, but at Moore's death, his will identified about 250 enslaved Africans.

In addition, Roger Moore is known to have also used indentured servants. In 1743 Moore advertised that one of his servants had run away. The newspaper account provided a number of details,

> Peter Broddrick, an indentured Servant, born in the North of Ireland, in the County of Limerick, professes Gardening, about 24 Years of Age, had on a green Prize Jacket, check'd shirt, and Oznabrugh Trowsers, he is a fresh colour'd well set Fellow, about five Feet eight Inches high, very much pitted with the small Pox, he has a small Vacancy between his Fore upper Teeth (*South Carolina Gazette*, October 1, 1744).

[23] The task system was one of two prevailing plantation slave labor systems. Under the task system, slaves were assigned a specific task or amount of production that was required of them. Those able to complete the task quickly were allowed to have the remainder of the day off to work on their own plot. The system resulted in less supervision and more autonomy. In contrast, under the gang labor system, the enslaved were worked in groups from sunup to sundown. There was little opportunity for free time and supervision was continuous.

Moore offered a £20 reward, suggesting he had a substantial investment in this servant. It is also interesting that at this early date Moore was spending some effort on gardening at his Cape Fear plantations.

Another issue worth considering is how Roger Moore made use of these slaves. Wood provides a compelling argument that during the colonial period rice played a very limited role in the Lower Cape Fear. The available colonial merchant accounts for the region provide no significant reference to rice (Wood 2004:182). Table 8, showing colonial exports from the port of Brunswick, suggest that little rice was being produced, especially when compared to other commodities such as naval stores. Even as late as 1775, only 36 tierces of rice were shipped to Jamaica, compared to 1,716,295 feet of timber and 1,305 barrels of pitch, tar, or turpentine (British Colonial Office, "A List of Imports into the Island Jamaica from North Carolina for the Year 1775"). In fact, between 1768 and 1772, forest products (tar, pitch, turpentine, lumber, scantling, staves, etc.) comprised 86% of the regional export wealth for the Lower Cape Fear (Wood 2004:180).

Just prior to the Revolution, the detailed accounts existing for Benjamin Heron reveal that while he owned a large, and very profitable, plantation, 37% of his returns came from tar and 17% came from turpentine. While he was one of the few planters on the Lower Cape Fear at the time with the resources to invest in rice, only 6% of his return came from this product (Wood 2004:204-205).

Thus, it is virtually certain that Roger Moore was using his enslaved Africans to harvest and prepare naval stores – just as he had done in South Carolina. This is clearly demonstrated by accounts showing his involvement in naval store production, including the export of turpentine, and shingles, although peas and even bread were included (Colonial Court Records, Box 190, Personal Accounts 1730-1739). Moreover, his will fails to enumerate or mention any crops on the plantation; only the "Stock of Horses, Cattle, &c."

We have found a brief mention that Moore faced several threats at Kendal from marauding Spanish vessels. In 1741 "two Irish Men" somehow persuaded some Spanish privateers to assist them in landing at night to "surprise the House of Roger Moore, Esq.; where they assured them [the Spaniards] they might get a considerable Booty" (*South Carolina Gazette*, October 10, 1741). The plan was foiled by the ship on which the Irish men were working sailing before the details were worked out.

However, in 1748 when the Spanish attacked and briefly occupied Brunswick Town, they were also reported to have "fired two shot" at Moore's house, although no damage was reported (*South Carolina Gazette*, October 31, 1748, pg. 1).

Death of Roger Moore

In 1745 Roger Moore's second wife, Catherine Rhett died and is thought to have been buried at the Orton Plantation cemetery. Moore then married Mary Vail Jones Willson who herself came from two previous marriages and had her own wealth (Knott et al. 2013:41).

She is thought to be the daughter of Jeremiah Vail and perhaps Mary Lillington, the daughter of Alexander Lillington. Mary Vail first married Frederick Jones of Hayes Plantation in Chowan District, the son of Frederick Jones and Sarah Swann. This marriage produced three children: Mary Jones, Harding Jones, and Thomas Jones. She next married Colonel William Willson, who built Clermont. They had at least two children, Mary and Elizabeth, to whom Colonel Willson left a very large legacy (Ellis 2009:189-190; Jones 1891:329-330; Thorne 1984:23).

The date of Mary Vail's third marriage to Roger Moore is not known. However, she established a marriage contract, dated January 4, 1747, with Roger Moore that noted, "Whereas the said Mary also, as administratrix of her former Husband Frederick Jones Gent., and as executrix of her late Husband William Wilson Esqr., as also in

in own Right, and as guardian of her children, is possessed of other valuable estate."[24] She insisted that he not "intermeddle" with the estates of her children. This was further reinforced by Roger Moore's will, dated March 7, 1748, that specified Mary would receive "all the Estate that was her own at the Time of Her Marriage" (Grimes 1912:311).

Carraway (1940:114) may have been the first to observe that Mary Vail married three times, "first for position, then for money, and finally for love," but this was nearly two centuries after the fact and it is difficult to reconcile love with the cautious marriage settlement she prepared. Moreover, it seems that subsequent authors have rearranged and rewritten this comment to suit their purposes. For example, Ellis repeats it as, "she married once for love, once for money, and once for ambition" (Ellis 2009:189).

Regardless, there seems to be general agreement that Mary Moore was commonly known as "Madam Moore." Ellis comments that the term was "a title of honor and recognition of her place in society" (Ellis 2009:190; see also Thorne 1984:23; Breytspraak 1989). The Oxford English Dictionary cites a 1696 source that describes the term as a "Title of Honor" given to "Women of Quality . . . but grown a little too common of late" (OED 1971:1688). Regardless, no author provides their source for this recognition. Far more revealing is a letter commenting that "her Family are principal People here; have met with a vast deal of Civility & been kindly treated & entertained" (Jones 1891:331).

As mentioned, we know that by 1747 Roger Moore had completed Orton and was most likely living there. By this time George, William, and Sarah were all married (in 1739, 1745, and 1744 respectively) and no longer living with Roger and Catherine. That left Ann, then 18, and Mary, 20 years old. Thus, by 1750 Kendal was likely no longer needed for Roger Moore's smaller family and may have been leased.

At the time Moore wrote his will on March 7, 1748[25] he possessed "Twenty Odd Thousand Acres of Land & Near Two Hundred & fifty Slaves, with the Stock of Horses, Cattle, &c., & besides the Debts Due To me" (Grimes 1912:311). Among those slaves was "the Carpenter" Higate, specifically mentioned, as well as four additional "Carpinters now at Nuce"[26] (Grimes 1912: 310,311). Also mentioned are "House slaves," although only Bess is mentioned by name. What Moore did not mention were any slaves skilled in rice or indigo production. The large number of carpenters seems appropriate, however, for plantations focused on naval stores since it would be necessary to make barrels.

Moore mentions horses, cattle, and sheep, all at Orton. He also indicates the presence of plate and household furniture, also specifically associated with Orton.

In contrast, Kendal (called Kendall and Kendals in the will) does not seem to have any specific associations of household goods or stocks, providing further evidence that Moore's plantation activities had shifted to Orton. Kendal is mentioned only in the context of the house "where Gready Lately removed from."[27] It seems unlikely that the plantation house was being leased, but this may have been an overseer's house on the property.

Roger Moore died between the date of his will's codicil, June 30, 1750, and the date the will was proved, May 25, 1751. At least one account

[24] As an indication of her children's wealth, one correspondent remarked that one of Mary's daughters "is supposed to be worth fifteen Thousand Pounds Sterling at the most moderate Computation" (Jones 1891:331).

[25] This date coincides well with when we believe Orton was completed and Moore made the shift from Kendal.

[26] We have found no plantation by this name and it seems likely that Moore was making reference to Nesces Creek where Arthur Mabson lived (Sprunt 205:74).

[27] A patriot by the name of John Grady was killed during the February 27, 1776 Battle of Moore's Creek Bridge.

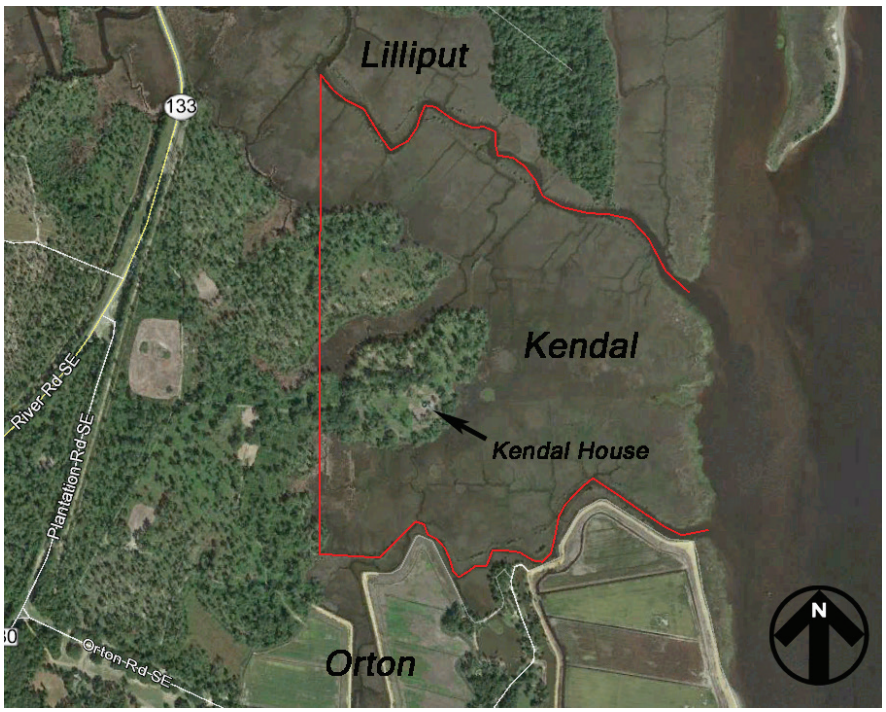

Figure 20. Approximate boundaries of Kendal as devised to George Moore as in Roger Moore's will.

states Moore died on October 20 (Gregg 1975:184).[28]

William Moore, Roger Moore's youngest son, received Orton with about 2,500 acres, the 640 acre Rocky Point, half of the 55,000 acres on the neck known as Mount Misery, a tract of land bounded by the Cape Fear and Smiths Creek, and 5,000 acres near the Haw or Eno old fields. He also received a fifth of his father's slaves, as well as the horses, cattle, and sheep at Orton, as well as the plate and household furniture. William was also obligated to pay his elder brother George £100, current money.

George Moore, Roger's eldest son, received "Kendals." The boundaries (see in Figure 20) were identified as,

> Bounding to the Southward by the Creek that runs up to my Mill as far as there is a post to be fixt about three Hundred yards up the Creek above the House where Gready Lately removed from; and from thence a Due west Line to be Continued as far my Lands runs up the Neck, and Bounded to the Northward by Mr. Allens Creek, with the Little Island of Marsh fronting the said Plantation in the River (Grimes 1912:309; New Hanover County Register of Deeds, DB C, pg. 286).

A variety of other parcels were included that need not concern us here, although two Brunswick Town lots are identified, one was "where Mr. Ross at Present Dwells, being five Poles[29] wide & running from the river as farr as the Street before Doct. Fergu's House, with the Wharf and all Other Improvements thereon." The other was identified as that "Lott of Land in the Town of Brunswick where Mr. William Lord at Present resides" (Grimes 1912:310, 311).

Mary Moore, Roger's widow, apparently chose to live at Clermont Plantation with her daughter and son-in-law, Richard Spaight (Ellis 2009:190; Jones 1891:331; Thorne 1984). She was buried there at her death in 1764.

[28] This source makes a common transcription error, repeated by many researchers, identifying the year as 1759, when it should be 1750. Otherwise, we have no information regarding the source of the October 20 death date.

[29] A pole is 5.5 yards in length.

Ownership of Kendal by George Moore

George Moore first married Mary Ashe (1723–1761) on March 19, 1739. She was the daughter of John Baptista Ashe, the brother of Governor Samuel Ashe. He was a staunch whig, able military leader, and political leader. George and Mary Moore had 15 children between 1742 and 1761, 11 of whom died young. Following the death of his first wife in April 1761, George Moore married Sarah Jones, the daughter of Thomas Jones.[30] They had an additional 15 children, with only two surviving to maturity.[31] These births were reportedly recorded in George Moore's Book of Common Prayer, owned by Junius Davis then of Wilmington, North Carolina. This book disappeared during the mid-twentieth century. Table 10 lists the information that was transcribed at the time it was held by Davis (South Carolina Historical Society, File 30-4, Moore).

Moore served in the colonial Assembly in 1744-1745, and then served continuously from 1754 to 1762 (Conner 1913:370-371). In 1775 he also served in the Provincial Congress from New Hanover (Conner 1913:403) and was also elected to the local committee of safety that same year (Rankin 1988:202).

Moore received a kind review by the local satirist, "Musqueto" at the eve of the Revolution. Moore was identified as "the hospitable Patriarch of the East, heading a Festive board in the midst of the *Wall of Shells*, open on all sides to the access of the indigent & the Worthy a draught of the golden Age" (Rankin 1988:202). The "wall of shells" is thought to be a reference to one of his homes being constructed of tabby.

James Sprunt (1896:59, 2005:70) identifies the Rocky Point Moore Fields Plantation on the Northeast Branch of the Cape Fear River, north of Wilmington, as George Moore's primary residence. Sprunt notes that Rocky Point "was the center from which had radiated the influences that directed popular movements" (Sprunt 2005:92). Wood also observes that "many of the Lower Cape Fear's wealthiest men, lived in the vicinity of Rocky Point" (Wood 2006:57). Rankin notes that in addition to the Rocky Point plantation, Moore also owned a summer home on Masonboro Sound, southeast of Wilmington.

The 1762 tax list for St. James and St. Philips parishes identify Goerge Moore's holdings in both. In St. James, which was east of the Cape Fear and most likely represented Moore Field, George Moore reported two white men, 44 enslaved African men, 65 enslaved African women, and five "negro boys." In St. Philips Parish, likely Kendal, there were seven male slaves and one female slave (Jarrett 1990:13). The 1767 tax list covers only New Hanover and reports four white men, 28 male slaves, 71 female slaves, and nine black children (Reaves 1994:17). The 1769 tax list for Brunswick County lists the same seven enslaved males and one enslaved female (Secretary of State, SS837, Brunswick County Tax List, 1769, North Carolina Department of Archives).

George Moore owned a house in Wilmington that in 1754 was valued at £200 and was taxed £2. This was one of the 58 identified on the tax lists that produce a mean value of £111, suggesting that Moore's house was relatively affluent. Value ranged from only £2 for a structure owned by Josua Grainer to £512 identified for the structure of Arthur Mabson. Two years later a second tax identified George's house as being valued at £150, with the town average now £302 and the structure of Alice Marsden having the highest value, at £500 (Lennon and Kellam 1973:77, 95). George Moore's structure was apparently on Chestnut Street and contained a stable, poultry house, and yard (Lennon and

[30] According to a letter from Junius Davis to Mrs. A.M. Caldwell dated August 13, 1897 at the Cape Fear Historical Society, George Moore married his second wife, Sarah, in September 1761. A five month period of mourning is short, but the quick remarriage may have been necessitated by the number of children that Mary left behind.

[31] Powell (1991) provided different numbers, but we are relying on those transcribed and shown in Table 10.

Table 10.
Children of George Moore (transcribed from Moore's Book of Common Prayer at one time held by Junius Davis, from the South Carolina Historical Society, File 30-4, Moore)

George Moore & Mary Ashe (married March 19, 1739)

1. Roger	Nov 8, 1740*	9. Sarah	Feb 22, 1752
2. Mary	Dec 1, 1742	10. Raynes	Nov 12, 1753*
3. Roger	Dec 29, 1744*	11. Ann	July 21, 1755*
4. George	Jan 24, 1746	12. William	Sept 5, 1757*
5. Elizabeth	May 2, 1747*	13. James	Apr 2, 1761*
6. John Baptista	Sept 17, 1748	14. not named	unknown*
7. William	Dec 8, 1749*	15. not named	unknown*
8. Sophia	Jan 31, 1751*		

George Moore & Sarah Jones (married September 3, 1761)

1. Elizabeth	Apr 14, 1763*	9. Julia	Oct 14, 1774*
2. Thomas	Apr 23, 1764	10. Martha	Dec 3, 1775*
3. Wm Harding	Sept 12, 1765*	11. Frederick	Nov 28, 1776*
4. Charlotte	Sept 2, 1766*	12. not named	unknown*
5. Roger	Sept 8, 1767*	13. not named	unknown*
6. Sarah	Mar 10, 1769*	14. not named	unknown*
7. Margaret	Nov 20, 1770	15. Rebecca	1778*
8. Pitt	Nov 20, 1771*		

* = died young

Kellam 1973:200).

In spite of his numerous tracts and the small slave force reported at Kendal in 1762, there are several deeds in 1754 and 1755 that identify "George Moore, Esq. of Kendall" (New Hanover County Register of Deeds, DB C, pg. 180; New Hanover County Register of Deeds, DB D, pg. 144; New Hanover County Register of Deeds, DB D, pg. 145).[32] This suggests that George spent at least some time at Kendal.

Nevertheless, George Moore held the Kendal property on which Roger Moore's house was located for about 14 years before disposing of it to John Davis, the younger, in 1765. This is just a few months before North Carolina's Stamp Act crisis when Moore and Cornelius Harnett delivered a letter to Governor William Tryon, signed by Speaker of the House John Ashe, Alexander Lillington, and Thomas Lloyd, warning the governor of an impending march on his house (for a review of this and other events leading up to the Revolution in North Carolina, see Powell 1989:162-166).

Ownership of Kendal by John and Thomas Davis

Sprunt claims that, "the name of Davis, both in early and later times on the Cape Fear has always been associated with all that was highly respectable and honorable" (Sprunt 2005:74). We also know that Mary, George Moore's eldest daughter, married Thomas Davis (son of Jehu Davis, Sr.) while George's daughter Margaret married Col. William Davis (South Carolina Historical Society, File 30-4, Moore). Almost nothing is known of these individuals and, given their names, it is even difficult to be certain that we have the correct individuals when records are found.

Nevertheless, we know that on October 16, 1765 George Moore and his wife at the time, Sarah, sold "John Davis, the Younger," Kendal plantation for £400 current money. The meets and bounds were essentially taken from Roger Moore's will, with the tract,

> Beginning at the mound of a creek commonly called Orton Creek then running up the said creek about 300 yards above the House called Greadys House (pursuant to the last will of Roger Moore, Esq., deceased) then a due west course to the first Main Road, then along the Main Road to Perdreaux, or Allens Creek then down the said Creek to the

[32] There was another deed (New Hanover County Register of Deeds, DB D, pg. 38) where George was identified as being "of Brunswick," suggesting he also spent at least some time in town as well.

> Mouth thereof & then down the River to the first station containing by estimation 100 acres [being] part of a tract of Land containing 640 acres granted by the late Lords proprietors of Carolina to Maurice Moore, Esq. deced by Deed bearing date of the 3rd day of June in the year of our Lord 1725 & by the sd Maurice Moore by endorsement on the s. Deed bearing date of the 25th day of March in the year of our Lord 1726 assigned to Roger Moore Esq. deceased & by the sd Roger Moore in & by his late Will & Testament about 440 acres of the same, including the above mentioned premises, was devised to the sd George Moore & his heirs as by the sd Deed endorsed thereon & will reference being thereto respectively had may more fully appear (New Hanover County Register of Deeds, DB E, pg. 242).

The deed also specified that John Davis would be allowed to enter the adjacent lands of George Moore "to cut fell fetch & carry away such & so many trees & so much Timber Wood & fuel . . . as shall from time to time be necessary & sufficient" for his use, including "for Building, fencing, firing, Plantation work & necessary tools & implements."

This suggests that the 100 acres was largely marsh and fields, with no appreciable timber on the tract, giving us a good visual impression of Kendal at the time. Of course, we can't be certain if marsh was included in the deed's acreage, but if it was, then Davis received only about 20 acres of high ground.

This deed also reveals that at least initially the interior portion of Kendal was retained by Moore.

Two years earlier John Davis, Jr. – who may, or may not be the same John Davis who acquired Kendal – is listed twice on the 1762 tax list for St. Philip's Parish. In his own right are listed one white male, six male slaves, and 10 female slaves. The second listing, however, is "for Roger Moore" and identifies three male slaves and one female slave. This Roger Moore may have been the estate of Roger Moore who died 11 years earlier. But it may also represent the son of George Moore (b. 1740). In either event, this suggests that John Davis, Jr. or "the younger" was an overseer for the Moore family and this may help explain his acquisition of a small portion of Kendal, as well as the willingness to allow him to remove timber from the lands still owned by George Moore.

By 1769, John Davis is listed on the Brunswick tax list with 11 enslaved African males and 16 African American female slaves (Secretary of State, SS837, Brunswick County Tax List, 1769, North Carolina Department of Archives).[33]

John Davis, Jr. is mentioned occasionally in various North Carolina records. One of the earliest is in September 1748 when he served with Capt. William Dry's militia unit to counter the Spanish attack of Brunswick (Colonial and State Records of North Carolina, Vol. 22, pg. 280; *South Carolina Gazette* October 31, 1748). In 1754 he was an individual exempt by law from bearing arms except in case of invasion (Colonial and State Records of North Carolina, Vol. 22, pg. 385). In 1754 he also signed a petition concerning roads (Colonial and State Records of North Carolina, Vol. 5, pg. 185). In 1760 and again in 1764 he was named on the Commission of the Peace and Dedimus for New Hanover (Colonial and State Records of North Carolina, Vol. 6, pg. 335, 1070). In 1764 he also took out a bond to ensure the

[33] The 1769 tax list identified 130 slave owners out of 204 individuals (63.7%). The 130 individuals (or estates), owned 1,241 slaves, or an average of 9.5 slaves each. The two largest slave owners listed were William Dry, with 128 slaves and Richard Quince with 113. The Moore family member with the largest number of slaves was Maurice with 77.

orphan Richard Spaight would be cared for (Colonial and State Records of North Carolina, Vol. 6, pg. 1043).

A John Davis wrote his will on July 21, 1765, about three months prior to the conveyance of the 100 acres (Brunswick County Register of Deeds, DB A, pg. 37). The will mentions his "beloved kinsman John Davis, Jr." as an executor in addition to his son Thomas, and wife Jane.

In 1769 the John Davis who acquired Kendal in 1765 sold six acres of the tract to Governor William Tryon for 5 shillings. The description of the parcel indicates that it joined "the tract His said Excellency Purchased of the said John Davis called Lilliput." Specifically the meets and bounds were described as,

> Beginning at the Bridge in the Main road which crosses the cut, then down the cut into the creek, then up the creek as it Meanders to the Main road, then down the main road to the afd. Bridge across the cut, containing by Estimation six acres be the same more or less (Brunswick County Register of Deeds, DB A, pg. 104).

While no deed has been identified, we know through derivation clauses in later deeds that eventually John Davis acquired additional Kendal acreage, taking the tract back to the main road and encompassing 420 acres.

John Davis sold a portion of the Kendal holdings to General Robert Howe (Brunswick County Register of Deeds, DB B, pg. 283). The inland portion of Kendal was retained by Davis, passing the lands to his son, Thomas by will (Brunswick County Register of Deeds, DB A, pg. 37). In another transaction, we know that Thomas Davis sold the 640 acre Pleasant Point plantation to Josias Alston in 1772 (New Hanover County Register of Deeds, DB F, pg. 275).

In 1772 Thomas Davis reported owning a total of 36 slaves: 16 males, 18 females, and two boys (General Assembly, GA.11.1, Brunswick County Tax List, 1772, North Carolina Department of Archives). While uncertain if they were on Kendal, the number does suggest that Davis was engaged in some agricultural or naval store production activities on his property.

Thomas Davis does not seem to have held the inland portion of Kendal for long, selling the tract to George Hooper on November 20, 1777 for £2,000 current money (Brunswick County Register of Deeds, DB C, pg. 326). This deed acknowledged that part of Kendal was "now possessed by Robert Howe, Esq."

Unfortunately we have virtually no information concerning how Kendal was operated by the Davis family during their tenure except for the previous discussion of slave ownership.

Kendal Under the Hooper Family

Although a great deal is known about the politics of the Hooper family, and even about the individuals, virtually nothing is known about their plantation activities.

An abbreviated family tree is provided as Figure 21. William Hooper, educated at the University of Edinburgh, immigrated to Boston about 1734 and in 1737 became the first rector of West Church. This was an Independent Congregational church, although most of the ministers were Unitarians. William Hooper married Mary Dennie, the daughter of a Boston merchant, in 1739. By about 1746 William became an Episcopalian and was appointed rector of Trinity Church in Boston. The couple apparently had at least five children: four sons and a daughter.

The eldest son, William (II), is undoubtedly the best known since he was ultimately one of North Carolina's three signers of the Declaration of Independence (along with Joseph Hewes and Richard Caswell). He was born in 1742 and was apparently very well educated, eventually studying law. He was admitted to the

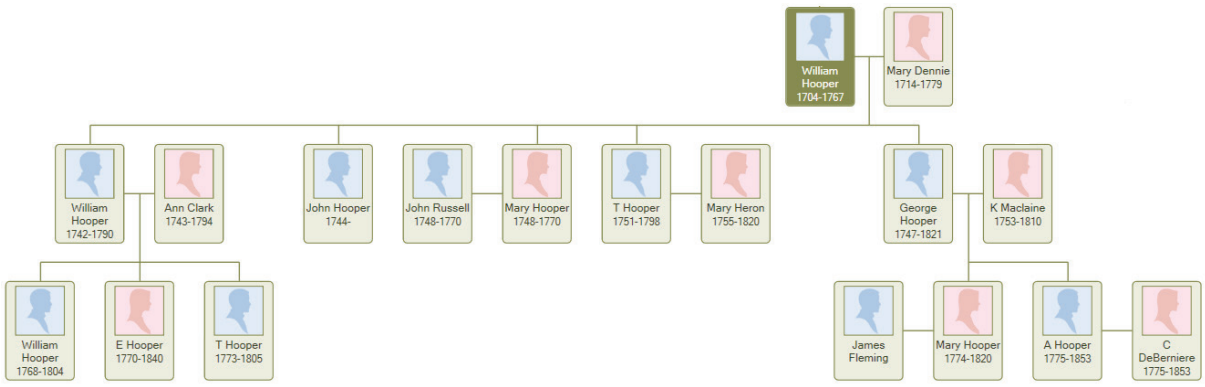

Figure 21. Abbreviated family tree for the Hooper family (adapted from Goodwin 2000:76-77).

Boston bar in 1764.

John Hooper, born in 1744, apparently died young. The following son, George, was born in 1747. The youngest son, Thomas, was born in 1751. George and Thomas followed the trade of their grandfather Dennie and went into service at a merchantile house (Goodwin 2000; Lawson 1979).

All three – William, George, and Thomas – apparently left Boston for Wilmington North Carolina between 1764 and 1769 (records of all three in North Carolina seem to begin about 1770). While William served as an attorney and entered politics, George and Thomas established their own mercantile partnership (Powell 1988:196-197, 199).

While William Hooper is uniformly regarded as a Whig, taking an active role in the drafting of the Declaration of Independence and Continental Congress, Jefferson still had doubts, writing that "there was no greater Tory in Congress than William Hooper" (Whitaker 1905:62). This distrust may have been the result of Hooper's conservative leanings and fundamental fear of democracy and republicanism (Lawson 1979:52-53, 57). He was also assaulted by both the British, who shelled one of his houses, impounded his property, and expelled his wife and family from Wilmington, and the American forces, who stole slaves and money, and plundered his books (Lawson 1979:53-54). William Hooper abandoned Wilmington and moved to Hillsborough, where he became the second largest slaveholder in Orange County (Lawson 1979:54). He served only one term in the state legislature (1782) and was defeated the following term as the countryside's farmers and mechanics became increasingly more radical. He died and was buried in Hillsborough in 1790.

In contrast, both George and Thomas, while frequently identified as Tories, might better be identified as either neutral or apolitical. George Hooper was a member of the committee to value houses in Wilmington, was appointed as a clerk of court, and in 1778 was a commissioner for navigation on the Cape Fear (Powell 1988:197). Lipscomb reports that George and Thomas Hooper were partners in George and Thomas Hooper (c. 1773), Burgwin, Hooper, and Alexander (c. 1785), and George Hooper and Company (aka Hooper and Maclaine, c. 1787). They operated a store on Market Street in Wilmington and reportedly opened a branch in Charleston (Lipscomb 2007:25).

George was a resident in North Carolina in 1778, thereby avoiding the confiscation laws that were developed as North Carolina sought to pay its bills (Conner 1919:434).

One of the largest mercantile firms in Wilmington during this period was [Robert] Hogg and [William] Campbell. Formed by at least the late 1760s, by the time the partnership was

dissolved in 1778 their annual profits were about £1,200 sterling and the firm's gross assets were £18,330 sterling (Powell 1988:161-162). The operation's balance sheet in 1778 reveals that George and Thomas Hooper owed the firm £248.17.11. In contrast, the Moores (James, John, George, Jr.) owed £46, 20, and 13 respectively (Gerdes and Reaves 1994:15).

By 1782 George Hooper apparently left Wilmington for Charleston, but made several trips back to Wilmington, each time leaving again for South Carolina. In 1785, after visiting Wilmington, his brother William remarked that, "Our meeting was awkward, distant, and distressing to me" (Sabine 1864:541). Thomas, also, was in Charleston by 1780 (Sabine 1864:542). During their early tenure in Charleston the city was under British rule.

Their time in Charleston, however, is not well documented. For example, neither Thomas nor George is identified in the Charleston city directories of 1782, 1785, or 1794. They are only rarely found in Charleston newspapers. George does not show up in any property transfers in Charleston. Thomas Hooper's activities span the dates of 1779 and 1798, but are not very numerous. Thomas Hooper is found as the grantor in five transactions (Charleston County RMC, DB A6, pg. 337; City Council Book, pg. 91; DB D6, pg. 557; DB E6, pg. 178; and DB x6, pg. 47) and the grantee in seven (Charleston County RMC, DB F6, pg. 62; DB H5, pg. 47; DB H5, pg. 126; DB V5, pg. 255; DB V5, pg. 461; DB V5, pg. 284; and DB W5, pg. 118). Many of these involve Charleston lots and are suggestive of either speculation or perhaps acquisitions during various trade activities. In 1785 he wrote an unidentified individual seeking payment of a bond taken two years earlier (South Carolina Historical Society, File 43/0917). This particular letter lists his address as "Beaufain Street on the Green" which may have been rental property since he is not shown as owner.

Lipscomb notes that with Charleston's fall to American forces in 1782 they, along with other Charleston merchants reached an accommodation with South Carolina's government and George Hooper sought South Carolina citizenship. Although Lipscomb (2007:25) suggests the petition was not acted on and Hooper was advised to seek reinstatement in North Carolina, a 1786 letter from South Carolina Governor Moultrie explains that "Mr. Hooper was admitted a Citizen of this State by Mr. Guerard our late Governor of the 10th of April 1783" which would have been shortly after his leaving Wilmington (Clark 1900:695).

This became an issue as North Carolina began confiscating the lands of Loyalists to help pay the public debt (Conner 1919:434). There are, in fact, numerous records indicating that Thomas Hooper had a variety of parcels confiscated and resold, including at least 658 acres on the lower side of Allen's Creek, 1,946 acres on the upper side of the creek, and 591 acres in the vicinity of Allen's Creek (Brunswick County Land Grant Book A, Grants 432-440). It appears that some of these represent Lilliput, although some are almost certainly the inland portion of Kendal.

As mentioned, George Hooper avoided confiscation and eventually returned to North Carolina resuming trade as a merchant and becoming the President of Bank of Cape Fear in 1804. He is identified in several New Hanover deeds between 1801 and 1817 (New Hanover County Register of Deeds, DB M, pg. 97; DB D, pg. 495; and DB P, pg. 655). He apparently spread his time between Wilmington and Raleigh. His wife died in Wilmington in 1810 and George died there as well in 1821 (Goodwin 2000:71).

In contrast, it appears that Thomas Hooper stayed in South Carolina, creating the Borough Plantation in Statesburg, a Federal-style plantation seat remarkable for its *pise de terre* (rammed earth) construction (Hood 2009:5).

The inland portion of Kendal was apparently sold to John MacKenzie (also McKenzie), although we have been unable to trace its conveyance from MacKenzie. A John Mackenzie is listed in the 1790 census, but is shown in New Hanover, not Brunswick County. His family

consisted of himself and his wife, a son and a daughter. In addition, he owned 31 African American slaves. This suggests that if MacKenzie held the inland portion of Kendal, it was not his primary residence and may have owned the tract for its naval stores or simply as speculation.

Acquisition by Griffith John McRee

It appears that at least some inland portions of Kendal were acquired through public sales in 1788 by Griffith John McRee[34] (for example, Brunswick County Register of Deeds, DB B, pg. 346-347). His primary plantation, however, was Lilliput, which he also acquired through North Carolina's confiscation act. In 1800 he also acquired a portion of Prospect Hall in New Hanover County (McKoy 1973:30).

In 1790 McRee listed eight slaves in the census. This seems like a very modest number and he may have leased at least some of his lands out to others.

McRee was born on February 1, 1758 and wed Ann Fergus (born March 9, 1765) on July 21, 1785. He was a captain in the Wilmington District Minutemen from 1775 to 1776, the 6th North Carolina Regiment from 1776 to 1778, and the 1st North Carolina Regiment from 1779 to 1781. He was serving in the defense of Charleston when it fell in 1780 and he was captured. He was exchanged in 1781 and resumed service with General Greene until 1798, by which time he had been promoted to major (Babits and Howard 2004:185; McCrady and Ashe 1892:2:479).

In 1784 McRee was appointed a commissioner to sell confiscated Tory property (Colonial and State Records of North Carolina, vol. 25, pg. 658).

McRee was appointed a captain in the corps of artillerists and engineers in December 1794 and was placed in command of Fort Johnson. By 1798 he was appointed customs collector for the Wilmington district. Serving as an agent for the War Department, in 1799 he contracted with Benjamin Smith to perform work at Fort Johnson (National Archives, RG 94, June 1, 1799, contract between Smith and McRee).

He died at either Lilliput or Smithville (accounts vary) on October 30, 1801, but no will has been identified for either him or his wife, Ann Fergus McRee.

Given McRee's focus on Lilliput, it seems unlikely that he conducted much activity on the interior portion of Kendal. Moreover, we have not determined his disposition of the property.

The Howe Family and Kendal

Although we have not identified the deed, the derivation in a subsequent transaction reveals that Kendal was sold to Robert Howe of Revolutionary War fame by Davis (see, for example the deed from Thomas Davis to George Hooper, Brunswick County Register of Deeds, DB C, pg. 326 and the mortgage of Kendal by Howe to William Hill, Brunswick County Register of Deeds, DB B, pg. 94). These deeds reveal that Howe had obtained the 400 acre Kendal from "John Davis, Esq." by at least 1775.[35]

On-line family trees for Howe are notoriously incorrect, with many amateur genealogists being confused by the repeating names. Figure 22 provides an overview of the immediate family to assist with these brief background comments. Robert Howe (II) was born in 1732. Robert's father, Job, was the son of Mary Moore, daughter of James Moore and sister of Roger Moore and Mary's first husband, Robert Howe (I, d. 1724). After the death of Robert Howe (I), Mary Moore wed Thomas Clifford (d. 1739).

[34] Also spelled McRey, McRea, and McKree in various records.

[35] Bennett and Lennon (1991:6) state only that Kendal was acquired sometime after 1770.

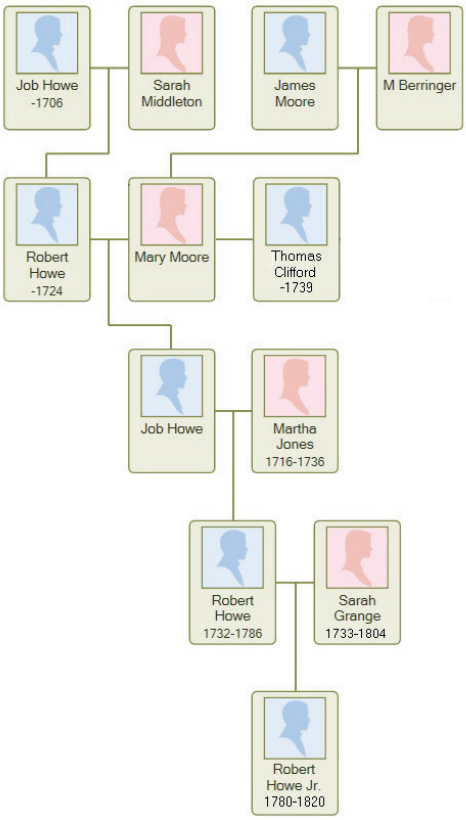

Figure 22. Abbreviated family tree for the Howe family.

Robert Howe (I) was a Goose Creek planter and owner of 64 slaves. He served in the Fourteenth and Fifteenth South Carolina Assemblies, and was a strong opponent of proprietary rule (Edgar and Bailey 1977:337). His son, Job, acquired land on New Topsail Sound, opposite Barren Inlet in the vicinity of what would become Wilmington. This was known as Howe's Point and was Job's principal residence. He subsequently acquired a 1,000 acre plantation opposite Mount Misery on the west bank of the Cape Fear (Bennett and Lennon 1991:4).

Robert Howe (II) married Sarah Grange in 1754 and within four years was willed his father's 1,000 acre plantation on the Cape Fear opposite Mount Misery (New Hanover County Register of Deeds, DB D, pg. 353). He also inherited five slaves from his grandmother, Mary Clifford (New Hanover County Register of Deeds, DB D, pg. 517). Shortly thereafter he acquired a second tract on Beaver Dam and Weyman creeks in Bladen County. In the next decade he acquired a third plantation on Town Creek (Lennon 1979:72). It was Kendal, however, that became Howe's primary residence.

By 1756 Robert Howe (II) became a Captain in the Bladen County militia and in 1756 was appointed justice of the peace. In 1760 he was elected to the General Assembly from Bladen County, serving nearly continuously until he took command of the Second North Carolina Regiment in 1775.

Howe appears to have initially supported royal authority in North Carolina. Ranlet notes that while the royal stamp tax was widely hated in the Cape Fear area during early 1766, there is no evidence that Howe participated (Ranlet 1991:722). Howe courted Royal Governor William Tryon and was able to obtain command of Fort Johnson (Lennon 1979:75). While the associated salary was modest, Ranlet explains how the commanders were able to understaff the garrison, pocketing the funds allocated by the assembly and thereby generating a sizable profit (Ranlet 1991:725).

There is undeniable evidence that Howe lived far beyond his means. One observer commented that,

> Mr. Howe, otherwise not an unworthy man, was always so very fond of ostentation, that he almost starved his poor wife and family at home, in order that he himself might be able to cut a figure every year at the races in Virginia and Maryland (Smyth 1784:88).

Whether Howe gambled away his money or he was simply a poor manager, we know that there were a series of sales or mortgages as he attempted to raise cash. In 1766 How sold 12 slaves for £619.15 (Brunswick County Register of Deeds, DB A, pg. 125). In 1767 he sold an

additional 11 slaves for £414.4, although he was able to negotiate the ability to retain them for 15 months prior to the final sale (Brunswick County Register of Deeds, DB A, pg. 44). In 1768 an additional five slaves and a gold watch were sold for £500 (Brunswick County Register of Deeds, DB A, pg. 90). By 1773 Howe was forced to sell an additional 10 slaves to make the £422.17.7 interest payment on an £845 note held by Robert Hogg and Samuel Campbell (Brunswick County Register of Deeds, DB A, pg. 168). At the start of the Revolution, on August 11, 1775 Howe was forced to mortgage Kendal Plantation for £214.3.5 (Brunswick County Register of Deeds, DB D, pg. 94).

Royal Governor Josiah Martin was immediately at odds with Howe, and remarked to William Legg, Earl of Dartmouth in 1773 that Howe,

> By somewhat extraordinary management of the Public money that came into his hands for the support of the [Fort Johnson] Garrison, had made very lucrative to himself, and that served to keep together the wreck of a good fortune he inherited in this Country, of which his is a native, that he had nearly outlived (North Carolina Colonial Records, vol. 9, pg. 799).

Miss Janet Schaw described Robert Howe "or as he is called here Bob Howe" as "very like a Gentleman, much more so indeed than any thing I have seen in the Country." Nevertheless he was "deeded a horrid animal, a sort of a woman-eater that devours every thing that comes in his way, and that no woman can withstand him" (Andrews and Andrews 1921:167). Josiah Quincy, Jr. was more blunt, referring to Howe as a libertine (Andrews and Andrews 1921: 317). It may be Howe's romantic interludes, his lack of managerial skills, or both, that resulted in Howe's wife, Sarah, obtaining a legal separation agreement in 1772.[36] In it, Howe agreed to pay her £100 a year for maintenance, gave her certain named slaves, as well as the use of some of his properties. Should she outlive him (which she did), she would inherit everything, sharing it with their children (Brunswick County Register of Deeds, DB B, pg. 328).

However unheard of such a separation was at the time, it was not his personal life that drew the attention of the local satirist, "Musqueto" at the eve of the Revolution. Instead, it was Howe's patriotism and treatment of slaves,

> The shell of patriotism without its kernel a carcass without heart, a scabby sheep that would damn a Myriad in gloomy Sable (Rankin 1988:188).

While Bennett and Lennon (1991) and Lennon (1979) both recount Howe's military career in generally sympathetic terms, Ranlet's evaluation is far less generous, describing his career as "less-than-glorious," determining that his loss of Savannah in 1778 was a "deliberate act of revenge" against Georgia politicians who vexed him, and finding adequate evidence to suggest that late in the war Howe was negotiating with the British to switch sides (Ranlet 1991:721). He comments that, "throughout Howe's career, he was motivated by ambition, and when his hopes were dashed or his honor injured, he sought revenge" (Ranlet 1991:721, 727).

At the end of the Revolution Howe was in even deeper financial trouble. From the summer of 1783 through at least March 1785 Howe repeatedly appealed to Congress for back pay and expenses. He pointed out that he had received no pay from North Carolina since he did not serve in his home state. Nevertheless, Congress delayed action, eventually issuing him payment certificates. He appealed to North Carolina, asking the state to redeem almost £10,000 in

[36] It states, "Whereas on the final difference between the said Robert Howe and Sarah his wife a mutual Resolution hath been adapted in a State of Independence . . . ."

interest-bearing certificates awarded him by Congress for his services. North Carolina also delayed.

In 1785 Howe succeeded in mortgaging Kendal once again, this time for £758.1.6 (Brunswick County Register of Deeds, DB B, pg. 287). The holder of the note was Francis Brice, surviving partner of Ancrum, Foster and Brice of Wilmington.

Powell (1988:219) notes that Howe returned to Kendal to resume his career as a planter, while Bennett and Lennon suggest that Howe had an ambitious program in mind,

> He undertook to restore his long-neglected fields, building new canals and floodgates for the once-productive rice fields that bordered the Cape Fear River. He also obtained a land warrant to add to his lands adjoining Lilliput Plantation, which had been confiscated from former Royal governor William Tryon. In addition to this 492-acre rice plantation, he had bid on some three thousand acres on Allens Creek that had been confiscated from Thomas Hooper. With the new plantation, the general would be prepared for a major farming venture (Bennett and Lennon 1991:152-153).

Howe also re-entered local politics, being appointed a commissioner of pilotage for the Cape Fear River and working with Benjamin Smith to select a location for a light on Baldhead Island. He was also elected to the Assembly representing Brunswick. He became sick with "bilious fever"[37] but after several weeks felt well enough to begin the journey to Fayetteville in November 1785, where the assembly was to meet. During this trip he relapsed and died. Lennon suggests that he was buried at his wife's Grange Farm in Columbus County (Lennon1979:92; cf. Hooper 1853:221).

At his death, the property would have passed to Sarah Howe and their children, based on the 1772 separation agreement. Sarah Howe wrote her will in 1796 (Brunswick County Clerk of Court, Will Book B, pg. 75), but the property was sold by Robert Howe, Jr. in 1794, implying that he took control prior to his mother's death. In fact, the deed identified "Robert Howe Jun. and heir of the late general Robert Howe." The April 13, 1794 deed conveyed the 420 acre Kendal Plantation to James McAlister (variously spelled McClister and McClalister) for £1,200 provincial money (Brunswick County Register of Deeds, DB C, pg. 283). While the deed clearly identified the property as bounded by Lilliput Creek to the north, Orton Creek to the south, and the Cape Fear to the west, there was no mention of mills, rice fields, or any other development on the parcel.

The 1800 census identities the household of Robert Howe, who is not married. The presence of a white female over 45 years of age suggests that Sarah was living with her son. Also present are 33 African American slaves. This suggests that while Kendal has been sold, Howe was still engaged in some agricultural persuits.

Long after General Howe's death, his son sought a bounty-land warrant for his father's service. The application identifies the request for himself and other unnamed heirs. On February 23, 1820, Robert Howe, Jr. was granted Warrant No. 856 for 1,100 acres (National Archives, M804, 1345). It is uncertain what became of these additional lands since the grant was dated the same year that Robert died.

Kendal During the Revolution

About the only detailed information we possess concerning Kendal is related to the raid which occurred there during the Revolution.

Morrill (1993) and Russell (1965) provide a broad overview of the events surrounding the late 1775 and early 1776 actions

[37] "Bilious fever" is an archaic name for a variety of diseases with similar symptoms, such as typhoid fever, yellow fever, cholera, and particularly malarial fevers.

on the Cape Fear River. North Carolina's Royal Governor, Josiah Martin, fearing for his safety, fled Tryon Place and took up residence at Fort Johnson below Brunswick on June 2, 1775. Anticipating an attack, the governor fled to a British ship anchored in the river and had the fortification's armament laid on the beach for protection by the guns of the British ship. When American forces under the command of Col. Robert Howe took possession of the fort on the night of July 18, it was burned. Unable to recover the armament on the beach, American forces abandoned the ruins of the fortification.

The following winter the British sent seven regular army regiments and two companies of artillery to the Lower Cape Fear, anticipating that Governor Martin would be able to rally Loyalist supporters. These plans were thwarted by the Battle of Moores Creek Bridge on February 27, 1776 when Scottish Highlanders under Lt. Col. Donald McLeod were met by American forces, resulting in the first Patriot victory in the American Revolution.

British troops under Maj. Gen. Henry Clinton began arriving in early March 1776, too late to assist the Loyalists at Moores Creek and too few in number to do much of anything. General Charles Cornwallis lamented "the fatal delays that prevented the armaments from arriving in time in this Province" being certain that it would have tipped the scales (Morgan 1970:131). However, learning that he would have no Loyalists meeting his forces, Clinton chose not to land his soldiers, but kept them on his ships. On March 12, 1776 the rest of the British fleet from New York arrived in the Lower Cape Fear. Clinton remarked that, "of all the countries for climate I ever visited, nothing can equal this. As the seasons advance, it must be intolerable" (quoted in Dunkerly 2012:76).

An effort by the British to either retake or further destroy Fort Johnson on March 10, 1776 was repulsed by American forces at the fortification.

By April 18, the first of the Irish fleet began to arrive at Cape Fear and on May 3 British Admiral Peter Parker arrived with the bulk of the fleet (Morgan 1970:110, 131, 325). The voyage had been a difficult one and Clinton's first task was to "land the Troops, who stood much in need of that Refreshment after being so long cooped up in Transports, particularly the 46 Regt which was very sickly (Morgan 1970:325). Lieutenant Thomas Tonken explained that there had been a "contagious fever" on board one of the ships and "during her passage from Cork and Burying Several of the Troops, arrived at Cape Fear, very Sickly." The physician recommended that "most part of the Bedding onboard her should be Burnt, in order to prevent the Spreading of the Infection thro' the Army" with the result that "Three hundred, and Eighteen Beds" were burned (Morgan 1970:965; Allen 1814:59). The infection may have been smallpox which was specifically mentioned by one of the British captives from New York, Colonel Ethan Allen (Morgan 1970:175).

Once in force, the British began establishing camps. American forces apparently moved inland about May 3 and British forces landed on Battery and Bald Head islands, as well as at Fort Johnson for daily exercises. A British regiment created a small earthen fort, which they named Fort George, on Bald Head Island at the mouth of the Cape Fear (Dunkerly 2012:79). On May 7,

> the 15th and 28th regiments landed on a Peninsula, at the mouth of the River, but the enemy not chusing to shew themselves, the General, after reconnoitering the county, reimbarked them. A few days after, the 27th and 33d regiment went fifteen miles up the River, and dispossessed the Rebels of a post they had at that place called Brunswick. . . . [On May 15] the 15th, 28th, 33d, 37th, and 54th regiments landed, and encamped near a demolished post opposite to our shipping [Fort Johnson]. The 57th is encamped on the opposite shore, and the 46th is

Table 11.
African Americans Documented as Fleeing to the British in the Cape Fear Area
(adapted from Moss and Scoggins 2004; page numbers reference that work)

Name	Owner	Location	Date	pg.
Abberdeen	?	British Navy HMS *Scorpion* off Cape Fear	1776	1a
Abraham	?	British Navy HMS Scorpion off Cape Fear	1776	1b
Adam	William Lord	Lockert's Folly, near Wilmington	<1778	1d
Arthur	?	British Navy HMS Scorpion off Cape Fear	1776	6
Ben	?	British Navy HMS Scorpion off Cape Fear	1776	15
Bobb	?	British Navy HMS Scorpion off Cape Fear	1776	28
Cain, Jack	William Cain	Brunswick	<1778	43
Campbell, Moses	James Campbell	Wilmington	1776	44
Cato	?	British Navy HMS Scorpion off Cape Fear	1776	47
Ceasar	?	British Navy HMS St. Lawrence off Cape Fear	1776	48
Charlotte	?	British Navy HMS St. Lawrence off Cape Fear	1776	51
Claranda	?	British Navy HMS Scorpion off Cape Fear	1776	53
Davids, Nancy	Robert Daniel	Cape Fear	1776	68
Deer, Tom	Joseph Eagles	Northwest Branch Cape Fear	<1778	70
Dick	?	British Navy HMS Scorpion off Cape Fear	1776	74
Friday	?	British Navy HMS Scorpion off Cape Fear	1776	96
George	Parker Quince	Town Creek	<1778	100
Gilbert	?	British Navy HMS Scorpion off Cape Fear	1776	103
Grace	?	British Navy HMS Scorpion off Cape Fear	1776	112
Jackson, Judith	John Bell	[mulato indentured servant] Cape Fear	1776	144
Jacob	?	British Navy HMS Scorpion off Cape Fear	1776	146
James	?	British Navy HMS Scorpion off Cape Fear	1776	148
Jeffery	?	British Navy HMS Scorpion off Cape Fear	1776	152
John	?	British Navy HMS Scorpion off Cape Fear	1776	159
John	?	British Navy HMS Scorpion off Cape Fear	1776	159
Justice	Capt. Newman	Brunswick	<1778	174
Lavinia	William Hooper	Wilmington [forced to return to Hooper]	1781	183
Lesslie, Abraham	Richard Quince	Upper Town Creek	1776	186
London	Lt. Isaac DuBois	Wilmington	1776	189
London, Drury	William Lord	Lockert's Folly, near Wilmington	<1778	190
Londonerry	William Lord	Lockert's Folly, near Wilmington	<1778	191
Lord, Bob	William Lord	Lockert's Folly, near Wilmington	<1778	191
Maryann	?	British Navy HMS Scorpion off Cape Fear	1776	199
Moore, Daniel	John Moore	Wilmington	1776	212
Moore, Isaac	Hunting Moore	Lockert's Folly, near Wilmington	<1778	213
Moore, Joseph	Hunting Moore	Lockert's Folly, near Wilmington	<1778	213
Moore, Samuel	Skinner Moore	Lockert's Folly, near Wilmington	1776	214
Moore, Sherry	Hunting Moore	Lockert's Folly, near Wilmington	<1778	214
Moore, Tom	Hunting Moore	Lockert's Folly, near Wilmington	<1778	214
Morris	?	Town Creek	<1778	215
Morris	?	British Navy HMS Scorpion off Cape Fear	1776	215
Murphy	?	British Navy HMS Scorpion off Cape Fear	1776	219
Patience	?	British Navy HMS Scorpion off Cape Fear	1776	229
Patty	Robert Howe	[with child] [Kendal] Cape Fear	1779	230
Payne, Thomas	John Gerard	Wilmington	<1778	232
Peggy	?	British Navy HMS Scorpion off Cape Fear	1776	232
Peters, Thomas	William Campbell	Wilmington	1776	240
Polly	?	British Navy HMS Scorpion off Cape Fear	1776	244
Presence	?	British Navy HMS Scorpion off Cape Fear	1776	248
Provey, John	?	[fpc?] off North Carolina coast	1776	253
Queen	?	British Navy HMS Scorpion off Cape Fear	1776	255
Quince, Abram	Richard Quince	Wilmington	1779	255
Quince, Jacob	Parker Quince	Town Creek	<1778	255
Quince, James	Parker Quince	Town Creek	<1778	256
Quince, Morris	Parker Quince	Town Creek	<1778	256
Quince, Quash	Parker Quince	Town Creek	<1778	256
Richard	?	British Navy HMS Scorpion off Cape Fear	1776	262
Rose	?	British Navy HMS Scorpion off Cape Fear	1776	271
Sam	?	British Navy HMS St. Lawrence off Cape Fear	1776	275
Sampson	?	British Navy HMS St. Lawrence off Cape Fear	1776	278
Saris	?	British Navy HMS St. Lawrence off Cape Fear	1776	282
Saunders, David	?	British Navy HMS St. Lawrence off Cape Fear	1776	282
Scipio	?	British Navy HMS St. Lawrence off Cape Fear	1776	285
Snow, Dick	William Snow	Pleasant Point	<1778	300
Snow, Gosman	William Snow	Pleasant Point	<1778	300
Snow, Thomas	William Snow	Pleasant Point	<1778	300
Steele, Murphy	Stephen Daniel	Lockert's Folly, near Wilmington	1776	304
Thomas, John	Henry Long	Cape Fear	1777	317
Tom	?	British Navy HMS St. Lawrence off Cape Fear	1776	323
Tom	Roger Davis	Brunswick County	<1778	323
Watson, Nancy	Patt Quince	Wilmington	1776	338
Williams, Polly	Parker Quince	Cape Fear	1776	353

> still on board (Morgan 1970:139).

In addition to open hostilities, the British also waged a war of attrition, encouraging enslaved African Americans in the area to escape their owners and flee to British ships for freedom. The 14-year old Patty and her 6-month old child from Kendal were among those escaping to the British ships in the Cape Fear (Moss and Scoggins 2005:230). Two "Negro men from the Rebells" reached the British sloop *Falcon* on May 15 (Morgan 1970:131) and "16 negroes Refugees" were taken aboard another ship on May 22 (Morgan 1970:279).

On May 11-12, 1776 Clinton lead a night raid on the coast. Col. Moore reported,

> On Sunday morning between 2 and 3 Oclock the enemy landed about 900 men at General Howe's plantation 2 miles above Brunswick to surprise as I imagine a small detachment I had stationed near that place. The guard placed at the House fired on the enemy as they marched from the river & killed two, wounded several & took a Sergeant prisoner. We had not any killed or wounded, the enemy have gone on board their vessels again at the Fort (Letter from James Moore, dated May 14, 1776, Thomas Addis Emmet Collection, New York Public Library Archives and Manuscripts, EM.8490).

A more elaborate account comes from a letter subsequently published in various newspapers:

> The enemy having landed at General Robert Howe's plantation on Sunday morning, between two and three o'clock, about nine hundred troops, under the command of Generals Clinton and Cornwallis, the sentry posted on the river bank immediately gave the alarm to the guards, who had only time to collect their horses and throw down the fences to let a few cattle out, which they drove off before the enemy surrounded the house. On their march up the causeway from the river, part of the guard kept up a fire on them, which the enemy returned. A few women who lived in the house were treated with great barbarity, one of whom was shot through the hips, another stabbed, with a bayonet, and a third knocked down with the butt of a musket. The enemy had two men killed, several wounded, and a Sergeant of the Thirty-Third Regiment taken prisoner. They proceeded on their march to Orton Mill, with a design to surprise Major Davis, who commanded a detachment of about ninety men stationed at that place. In this they failed, as the Major had received the alarm from the guard, and had retired, with his baggage and two small swivels, in very good order, unpursued by the enemy. They have burned the Mill, and retreated to the vessels at the Fort. Upon the whole the Generals have very little to boast of, they having got by this descent three horses and three cows. We had not a man killed or wounded (Clarke and Force 1843:432; *South Carolina & American General Gazette*, May 8-22, 1776; *Virginia Gazette* [Dixon and Hunter], June 29, 1776, pg. 2; Morgan 1970:80, 111).

Although a news report the following month contended that Howe's house was burned, this was in error (*Virginia Gazette* [Purdie], June 7, 1776, pg. 3).

These accounts have been repeated by various historians since, although often some of the details become embellished. For example, Ashe reports that "twenty bullocks" were taken by the British (Ashe 1908:534; cf. Morgan 1970:139). Martin incorrectly reports the mill as "Ostin's," but otherwise the account is nearly identical (Martin 1829:391).

Allen further explains that while the British claimed to have lost only one man, "a negro man who was with them, and heard what was said, soon after told me that he helped to bury thirty-one of them" (Allen 1814:61; Morgan 1970:175). In addition, the ship's log of *H.M. Sloop Scorpion* indicates that on Sunday, May 12, 1776 a boat was sent ashore to supply the transports with "Rum and Rice." In addition the small contingent "interred the Body of Jno Jefferies at Brunswick [a seaman who had died the day before]" (Morgan 1970:81).

This May raid, however, may not have been the first since, on April 10, 1776, Robert Howe wrote General Lee that,

> They [the British] have done me the honor to disfurnish my House, as a Gentleman from that part of the country informs me heard, of chairs, tables, glasses, china and plate. All they took is suppos'd to amount to £1500 – he says it is reported that they destry'd all my Private letters & accounts, as if determined to injure me without Benefit to themselves or to their cause (Anonymous 1873:402).

After two and a half months on the Cape Fear, with very little to show for the effort, Clinton sailed south to Charleston, South Carolina on May 31, 1776. Nevertheless, a guard continued to be posted at Kendal through at least September 16, 1776, when a Return of Captain John Dickerson's Cavalry Company reveals that four soldiers were at the plantation (Colonial and State Records of North Carolina, vol. 10, pg. 802).

Parts of Brunswick were burned by the British, although at least one period account suggests freed slaves from General Howe's Plantation provided assistance (Wright and Tinling 1943:287). The seat of government was transferred to the Lockwood Folly Bridge in 1779 (Lee 1965:275). By 1784 Schoepf (Morrison 1911:2:145) reported that the town was "almost wholly demolished and deserted."

The North Carolina General Assembly appropriated funds to repair Fort Anderson in 1778 and it was subsequently garrisoned by a small command through 1780. The post was again abandoned when British regulars under the command of Maj. James H. Craig entered the Cape Fear on January 25, 1781.

James McAlister

Like so many others associated with Kendal, the McAlister (or McAllister, MacAlister) family is poorly researched and appears to have left little evidence in North Carolina. Archibald and his younger brother, James, appear to be descended from the McAlister family of Pennsylvania (McAllister 1898:28).

The complex family relations are fortunately detailed by the legal case *William G. Berry & Wife v. Mary McAllister's Exr's* (Taylor et al. 1844:231-233). Ignoring the details of the case, the lawsuit reveals that Archibald McAlister owned Belleville Plantation (Jackson and Fryar 2008:99-100) and was planting rice on the plantation with his wife, Mary. McCall (1968: 138) identifies her as Mary Hassell, the daughter of James Hassell, Jr. (1727-1769) and his wife, Sarah Wright (1736-1769). Mary Hassell first married John Ancrum (1724-1779), a member of the North Carolina Committee of Safety and Judge of the Admiralty at Brunswick. They had two children, James Hassell (1769-1794) and Sarah Eliza (d.

1837). Upon Ancrum's death Mary wed Archibald McAlister.

Archibald McAlister died in 1793 and the legal documents note that Mary and James McAlister thereupon "made one family." In May 1794 Mary died and James McAlister then married Sarah Eliza, his step-niece in January 1795. James McAlister then died about September 1795 and Sarah Eliza went on to marry W.M. Berry and later Edward Winslow.

In addition to helping clarify a very difficult extended family, the law suit also reveals that in April 1794, when James McAlister purchased Kendal, he was fully involved in Belleville Plantation. Kendal was no doubt an effort to expand his rice production. The death of Mary in 1794, followed by his own death in September the following year, combined with the ensuing legal difficulties, likely explains why Kendal is again found in the hands of Robert Howe, Jr. in 1802. We suspect that the McAlister estate was unable to make payments on Kendal and the property was taken back by the Howes. Alternatively, since Robert Howe was the executor of James McAlister (*Wilmington Gazette*, March 2, 1797), it is possible that he acquired Kendal from the estate.

Kendal Owned by Benjamin and James Smith

We have identified a September 1802 deed in which Benjamin Smith was bound to "Mrs. Sarah Howe and Robert Howe" in the sum of $3,000. Since General Howe had died by this time, the bond was issued to his wife, Sarah, and son, Robert, Jr. It specified that Smith would be responsible for paying "three hundred Silver Dollars annually" beginning in 1804, as long as one of them was alive (Brunswick County Register of Deeds, DB J, pg. 148).

It was, in effect, an annuity, although the reason for the payment was not specified. An attached document, however, sheds additional light since it specifies that "some years since" Howe had "sold and delivered unto Benjamin Smith of Belvedere[38] . . . certain valuable Property in consequence whereof" the agreement was reached. We believe this valuable property was Kendal, although the document fails to be more specific.

In any event, by 1813 Howe had taken twenty slaves and their future increase as a mortgage to ensure the annual payment (Brunswick County Register of Deeds, DB J, pg. 148). Unfortunately, Brunswick County fails to note satisfaction on mortgages, so it is impossible to determine if Smith made the annual payment or lost the 20 slaves. Nevertheless, by 1820 Howe had died (his mother died in 1804), voiding the agreement.

Smith is relatively well known, with a bibliography having recently been produced (Watson 2011). As a further indication of the closeness of Brunswick society, Smith's mother Sarah was a daughter of Roger Moore.

While little is known of Smith's early years, a 1771 letter reveals he was in Philadelphia, along with his brother James, being schooled by the Rev. Jacob Duché (Rogers et al. 1980:133).[39] By 1774 he was admitted to the Middle Temple of London's Inns of Court.[40] He returned to America and served under George Washington in New York and William Moultrie in South Carolina, rising to the rank of colonel. Smith held various elected positions. He may be best known in North Carolina for serving on the original board of the University of North Carolina and donating 20,000 acres of land to the new University (*The Daily Advertiser* (New Bern, NC), April 12, 1790).

[38] Belvedere Plantation was located on the west branch of the Cape Fear River opposite Wilmington, south of Sturgeon Creek.

[39] Rev. Duché was the Rector of Christ Church in Philadelphia. He was educated at what would become the University of Pennsylvania and went to England to study at Oxford.

[40] Middle Temple is one of the four Inns of Court which have the exclusive right to admit individuals to the practice of law.

As previously mentioned, he obtained a contract with the War Department's representative, Griffith John McRee, to rebuild Fort Johnson.[41] By 1796 he was made a Brigadier-General of the militia. In 1810 he served one term as governor. He returned from Raleigh to the life of a prosperous planter, but his wealth began slipping from him as a result of financial errors, personal extravagance, and long-term debt obligations. Another account explained that "Governor Smith lost his health by high living and his fortune by too generous suretyship. He became irascible and prone to resent fancied slights. His tongue became venomous to opponents" (quoted in Cobb 1911:165).

Watson comments that,

> through the years Smith appeared to be vain and pompous, bearing an aristocratic mien that alienated lesser men. Flaunting his riches, or so it seemed, Smith with his South Carolina pedigree invited envy and contempt. . . . [the] capitalistic America that he had helped to sire by the Revolution had little patience with a domineering country squire overseeing his lordly domain in Brunswick County" (Watson 2010:31).

In 1796 Smith purchased the 2,700 acre Orton Plantation, south of Kendal, from Richard Quince (III) (Brunswick County Register of Deeds, DB F, pg. 149). Within a year and half Smith had his slave Bob approved to keep a gun on Orton to procure game and protect stock (Watson 2011:102; Brunswick County Court Minutes, July 1797).[42] This suggests that Smith himself may have spent time at Orton and perhaps saw both Orton and Kendal as opportunities to expand his rice production (Benjamin Smith, Bill Reaves Collection, New Hanover Public Library; Watson 2011:122).

The 1800 federal census for Smith shows his household consisted of himself and his wife, as well as two white females aged between 26 and 44. In addition, he owned 199 slaves. Of course, these almost certainly reflect slaves held at Belvedere, Orton, and Kendal. In the following census this increased to 204 and Watson notes that this "marked him as one of the principal slave owners in the state and largest by far in the county" (Watson 2010:32).

Watson suggests that Benjamin Smith had been attempting to have his brother, James, move from South Carolina to the Cape Fear area since at least 1805 and that James had been living at Kendal part-time (Watson 2011:156).

On March 24, 1806 Benjamin conveyed the 285 acre[43] Kendal tract, as well as Belvedere Plantation, to James Smith, his brother "for and in consideration of the natural love and affection which he hath and beareth" as well as "to induce & encourage him [James] to settle finally in the [Cape Fear] Neighborhood," and also to "advance the interest & fortune of the said Jas Smith" (Brunswick County Register of Deeds, DB E, pg. 378).

However brotherly Benjamin may have felt, he did place some conditions on the deed:

> That the said James Smith his

[41] Sprunt describes how Smith's slaves burned shell for lime and prepared tabby to heighten the existing tabby walls of the fort (Sprunt 2005:137-138).

[42] In 1741 the Assembly enacted a detailed law regarding servants and slaves. One aspect specified that while "no shall go armed with gun, sword, club or other weapon," that would not preclude owners from permitting no more than one slave per "distinct plantation" from hunting with a gun on the master's lands, provided that the owner "shall first deliver into the country court, an account in writing, of the name of any such slave to be employed" (Potter et al. 1821:164-165).

[43] The deed specifies that this includes both tidal swamp (i.e., rice lands) and high ground, but does not distinguish between the two.

> heirs or assigns cultivate and keeps in constant cultivation the Swamp and marsh land aforesaid for and during the time of natural life of the said Benjamin and reserving a right to him the Said Benjamin Smith his heirs and assigns, To Cut Mill timber from all that part of the high land of Kendal to the westward of the line marked A,B in the Platt there of here unto annexed and to cart off the same in such manner and at such times and by such Roads as he the said Benjamin Smith his heirs or assigns may think proper or convenient (Brunswick County Register of Deeds, DB E, pg. 378).

Unfortunately the referenced plat has been stripped from the deed and can no longer be located – the same situation had been identified in Brunswick County for the Orton property as well.

The meets and bounds of the Kendal Plantation are similar to those provided in much earlier deeds:

> Begins on the main Road Leading from Wilmington to Smithville. At the Bridge across Kendall Lilliput or Allens Creek & runs thence down said creek to the mouth thereof on Cape Fear River, then down the River to the mouth of Orton Creek, thence up the Northern edge bank or border there of to a State then South 75 west by a State [stake] on the causeway leading from Kendal house southwardly to Orton Creek, one chain from & to the Northward of Said Creek at the South end of said causeway 153 poles to a cedar tree then due west 93½ poles to the said Road thence along the Said Road Northwardly by different courses to the beginning (Brunswick County Register of Deeds, DB E, pg. 378).

These are of some interest since they suggest "Gready's house" was still present, although it does not confirm whether this structure was a main house or overseer's house.

By 1800 James Smith was in the area and the federal census for Brunswick reveals six members of the household, but no African American slaves. In 1810, by which time he had settled on Kendal, his household had declined to five, but there were 102 African American slaves. This is suggestive of an extensive operation, but we are not able to document the presence of rice.

James Smith served in what was called the "Silk Stocking Company" of light infantry, comprised of Charleston aristocracy, during the Revolution. He was captured at the fall of Savannah in May 1780 and was released through the influence of his father, Thomas Smith, who immediately sent James to England for schooling and perhaps as a means of keeping him out of the war. James studied law and was eventually admitted to practice in the courts of equity at the Middle Temple in London. When he returned to Charleston after the Revolution he practiced only a little law in Charleston; when his father died in 1787 he took his inheritance of $50,000 and purchased a plantation in St. Helena Parish. There he met and married Marianna Gough in 1791.

As Davis notes, Smith's famous bloodline was not able to save him from himself. One of his future sons explained that his father, James, was "totally unsuited for planting or for any money-making occupation" (quoted in Davis 2001:9). Davis goes on to note that everyone was able to cheat Smith, even his slaves. By 1803 his wife had given birth to four boys and three girls and it looked as though he would lose his St. Helena plantation.

When James received the invitation to move to the Cape Fear in 1805, it appeared to be a lifeline. Benjamin was far more successful, serving as North Carolina's governor at the time. James

moved his wife and girls to Kendal, leaving his boys in Beaufort to be educated there (Davis 2001:10).

Davis (2001:14) reports that James spent winters at Kendal, but otherwise lived at the small Exeter Plantation near Smithfield (today Southport).

By early 1812 (and likely even earlier), James Smith was in serious financial distress. He wrote the Bank of Cape Fear seeking some "indulgence" on his debt (Bank of Cape Fear Minutes, Special Meeting, January 14, 1812, New Hanover County Public Library, Wilmington, North Carolina). The War of 1812 was creating considerable financial distress and the Bank was offering a number of planters some latitude on their payments, often delaying payment of principal for several years with the payment of interest in advance. They also agreed to waive up to seven-eighths of a planters' debts.

By March 1812 the Bank had agreed to settle James Smith's debt, as long as Benjamin Smith would relinquish "all the limitations and restricts on the titles from him to J. Smith on the property proposed to be secured. . . . John R. London & Wm. B. Mears, Esq. be requested & appointed to be Trustees for and on behalf of the Bank to such Deeds of Trust as the [Bank] Committee] may think proper" (Bank of Cape Fear Minutes, March 20, 1812, New Hanover County Public Library, Wilmington, North Carolina).

The conditions that Benjamin Smith placed on the use of the property by his brother were lifted by Benjamin Smith on May 10, 1812 for the payment of £5 (Brunswick County Register of Deeds, DB F, pg. 144).

The delay in removing the restrictions weighed heavily on the Bank and during the Bank's May 18, 1812 meeting the President was directed to write James Smith a letter, "informing him that unless the agreement entered into by him with the bank is completed on or before the 3rd of June next that Execution will be directed so against him for the Eighth of the debt due by him" (Bank of Cape Fear Minutes, May 18, 1812, New Hanover County Public Library, Wilmington, North Carolina).

In an 1812 letter James Smith wrote John J. Swann, another area planter, he offered several slaves to Swann. Included were:

> an elderly wench, a good field hand & good plantation Nurse & spinner. A young wench about 17 – her daughter. The two I would sell together for a note of $550. . . . a prime fellow, about 26 yrs. old – stout & tall, an excellent field hand & good plowman with harness – a young wench about the same age – a good field hand – 2 girls – one of 7, the other of 5 yrs old – An old fellow – the father – a half hand – I estimate these five at $1100 Cash (Letter from James Smith, July 22, 1812 to John J. Swann, Swann Family Papers #2827, Southern Historical Collection, The Wilson Library, University of North Carolina at Chapel Hill).

Smith also asked Swann "to say nothing to the bearer about my offer for sale of Negroes." It was likely he was seeking to keep his financial situation out of public discussion. Nevertheless, we do not know if the slaves were sold or upon what terms.

In May 1812, the Bank of Cape Fear received a court judgment against Smith in the sum of $5,920. Unable to pay, Smith deeded Kendal and Bevendo plantations, as well as eight African American slaves to the Bank and their trustees, William B. Mears and John R. London for £5 and a stay of execution until March 1816. As with his brother, the Bank allowed James to continue living on Kendal (Brunswick County Register of Deeds, DB F, pg. 197).

That same year a judgment was obtained against James Smith in the August 1812 session of

New Hanover court for $595.23. In an effort to pay this judgment Smith deeded the slave Rose and her two sons, Jacob and Landy, with several other slaves to Jesse Wingate as trustee, giving him the authority to sell the slaves at auction if Smith failed to pay on the judgment by 1816. With no payment made, Wingate auctioned the slaves on February 14, 1816. James Swann was the high bidder at $635 and the three slaves were sold to him (Deed from Jesse Wingate to James Swann, March 1, 1816, Swann Family Papers #2827, Southern Historical Collection, The Wilson Library, University of North Carolina at Chapel Hill). A few days later Swann also obtained a deed for the slaves directly from Smith (Deed from James Smith to James Swann, March 4, 1816, Swann Family Papers #2827, Southern Historical Collection, The Wilson Library, University of North Carolina at Chapel Hill).

The slaves listed were "George, a fellow about forty years of age; Katy a Wench about thirty three years; a boy about seven; Phoebe a girl about eight; Penny an infant; Lemses, a fellow about thirty four; Clarita a wench about thirty four; and Quince a boy about ten."

In March 1815 the Bank directed the Trustees to advertise and sell Kendal (Bank of Cape Fear Minutes, March 29, 1815, New Hanover County Public Library, Wilmington, North Carolina). The advertisement was very short, providing no description of Kendal, other than that it was "agreeable" to the description provided in the deed to James from his brother Benjamin. In addition, the slaves George, Katy, April, Phoebe, Penny, Linus, Clarissa, and July were to also be sold at auction (*Wilmington Gazette*, Wilmington, NC, April 27, 1815, pg. 4).[44]

The trustees identified in the deed were John London (1747-1816), the president of the Cape Fear Bank (1811-1816) and William B. Meares (1787-1841), a board member and attorney. London was a member of the mercantile firm of Burgwin, Jewkes, and London of Wilmington prior to the Revolution. During the Revolution he was a Loyalist, working out of both Wilmington and Charleston. By 1785 he was again active in Wilmington and in 1804 was a chartering member of the Bank of Cape Fear and was elected a board member each year until his death (Powell 1991:87-88). Meares was elected to represent New Hanover in the Assemblies of 1818 and 1819 and the State Senate in 1828-1830 (Conner 1913:719, 723). In addition to his work with the Bank of Cape Fear, he was also involved in the Wilmington and Weldon Railroad. Around 1835 he retired to operate his Meares Bluff Plantation which he had acquired about 1822. He was identified as the second largest slave holder in Brunswick County in 1830, with at least 61 slaves (Judah 2009:94; Powell 1991:242-243).

In May the Board Minutes reflect that, "the application of Mr. James Smith being under consideration Resolved that the Trustees be directed to postpone the sale of his property until further notice" (Bank of Cape Fear Minutes, May 5, 1815, New Hanover County Public Library, Wilmington, North Carolina).

There is no further indication of the arrangements made by James Smith in the Bank's minutes, but they were apparently satisfactory since the Bank did not sell the property and Smith retained ownership. In 1823 James Smith "of Kendal" sold Gabriel Holmes, Jr. the 285 acre Kendal Plantation for $3,110. The meets and bounds for the plantation are similar to those from earlier deeds, with one exception – there is no mention of a house in the description. (Brunswick County Register of Deeds, DB O, pg. 530). Once again the plat "hereunto annexed" has been stripped from the deed and is presumed lost.

James, with the failure of both Exeter and Kendal, returned to Beaufort where he took up residence in the house left by the death of his

[44] At the same time three of Benjamin Smith's plantations, a tract on Malary Creek, Belvedere, and Orton, also went on the auction block (*Wilmington Gazette*, Wilmington, NC, April 27, 1815, pg. 4). Joshua Swift recounts his 1817 visit with Benjamin Smith at Orton, "clouded by the aspect of the failing fortunes of the General." Afterwards he returned to Wilmington finding it "a fruitless essay to liquidate the large claims of the general's creditors" (Battle 1903b:114).

wife's mother. That estate, plus the small amount of money he had remaining, kept the family together (Davis 2001:15). Watson (2011:195) suggests that James and Benjamin quarreled about the loss of the properties and became alienated. James died in 1835 and in 1837 his sons petitioned the court to change their surname to Rhett in honor of their great-grandfather, Col. William Rhett, whose name had died out.

Kendal During the War of 1812

Both Lemmon (1973:3-23) and Malcomson (2006:xxxix-xlii) lay out the causes of the war that has been described as the "forgotten conflict" (Hickey 2012). Set in motion by the failure of the Peace of Amiens between Britain and France, the conflict escalated when America perceived its sovereignty threatened. The right of free trade and the right for seamen to sail unmolested lay at the core of the conflict, although failed diplomacy certainly played a significant role.

War was declared by the United States on June 12, 1812, but the nation found itself poorly prepared. America's army and navy had been maintained at very low levels by the Jefferson and Madison administrations. Enlistments were far less than anticipated. The Department of War was incapable of supplying the most basic of items and many others simply disappeared in transit. The state militias were discovered to be far less effective than the federal government anticipated.

By May 1812 the United States Secretary of War requested that North Carolina raise and prepare 7,000 militia and General Thomas Pinckney requested troops deploy to Fort Johnson on the lower Cape Fear and Fort Hampton near Beaufort, NC to be replaced when possible by regulars. When no British had arrived on the North Carolina coast by September, General Pinckney released the militia, deciding that only Beaufort and Wilmington were sufficiently important to warrant long-term protection. Meanwhile, five gunboats were sent to North Carolina, although all required outfitting before they would be useful.

Wilmington constructed a fort on Clark's Island in the Cape Fear River below the town to aid in its defenses (Watson 2003:206), although we are unable to identify more about the fort. Watson also notes that Wilmington seemed lukewarm to the efforts and it was difficult to raise troops. In addition, Wilmington merchants took "advantage of military construction contracts to realize . . . great profits" (Watson 2003:231).

Lemmon explains how inadequate North Carolina's defenses were with unmounted cannons, little or no ammunition, poorly mounted guns, fortifications exposed to attack on their land side and rusted muskets. On the Cape Fear, Fort Johnson was characterized as "a mere apology" and virtually indefensible. It was being eroded by high tides and the blockhouse was so poorly constructed it would not withstand enemy cannon fire. Moreover, the Smithville houses were built so close as to be destroyed in any engagement (Lemmon 1973:137-138).

Fortunately, most of North Carolina's engagements were fought at sea and in the rivers, with the British harassing shipping at every chance (*Raleigh Minerva*, October 15, 1813, pg. 3). While occasional landings would steal cattle or burn a windmill (Lemmon 1973:129; *City Gazette*, Charleston, South Carolina, June 26, 1813, pg. 3), the only major engagement occurred in the Ocracoke area in July 1813 (*City Gazette*, Raleigh, North Carolina, July 27, 1813, pg. 2; *Charleston Courier*, August 4, 1813, pg. 2; Lemmon 1973:131-132). One account reported that the British, "sent in 30 barges and allies, with 700 men, part of the 102d Regiment, 200 of whom landed at Occacock [sic], and the others at Portsmouth" [45] (*Charleston Courier*, August 4, 1813, pg. 2). As the British left they took with them 200 head of cattle, 400 sheep, and 1,600 fowl (Lemmon 1973:132).

In the vicinity of Kendal the situation was

[45] Portsmouth is a small island southwest of Ocracoke separating the ocean from Pamlico Sound.

far more quiet. Lemmon reports only three events, all occurring in 1814. A raiding party from the sloop *Peacock* skirmished with the local militia in the Federal Point area; three pilots were captured by the British in the Cape Fear; and south of Wilmington a British raiding party from the brig *Lacedemonian* was captured (Lemmon 1973:132).

There were, no doubt, other encounters. For example,

> A gentleman who left Wilmington, N.C. on Saturday last, and who arrived in town yesterday, informs, that several British vessels had been off Cape Fear, (probably the *Majestic, Morgiana,* and *Dotterell*). Two whale-boats, having on board 5 pilots, went missing, and it was supposed that they had been carried off by the British vessels (*Charleston Courier*, June 2, 1814, pg. 3).

Thus, while it is certainly likely that pickets and occasional encampments were made in the area, it seems that Kendal was spared any significant action.

Consolidation and Operation of Kendal by Gabriel Holmes, Jr.

As mentioned, Gabriel Holmes, Jr. acquired the river portion of Kendal in 1823. Six years later, on May 29, 1829, Gabriel purchased two interior tracts from John Swann and Frances M. Swann, his wife, for the modest sum of $700 (Brunswick County Register of Deeds, DB O, pg. 532). The first parcel, which appears to be the interior portion of Kendal originally struck off in 1765, was 500 acres. The second tract consisted of 2,000 acres including mill lands. The two parcels were likely so inexpensive because they were low and timbered, not likely suitable for cultivation. Thus, by 1829 Kendal plantation was once again largely intact and included additional lands.

A basic family tree for the Holmes family is provided as Figure 23, beginning with Gabriel Holmes, Sr. (1719-1788) about whom we have little information except that he appears in the 1784 Sampson County tax list. In the 1790 federal census he is reported with a household of three whites and 15 slaves. His son, Owen Holmes, also appears in this census with five whites and 13 slaves. The senior Gabriel was allowed £2.15 in pay for his part in the expedition against the upstate Regulators (Southern Historical Collection M2457, The Wilson Library, University of North Carolina at Chapel Hill).

Gabriel Holmes, Jr. can first be identified in the 1820 federal census for New Hanover County where he and his family lived. His household involves eight whites and 22 slaves. In 1820 he reported eight members of the family and 11 slaves – only half the number of slaves reported in 1820. By 1840, Gabriel Holmes, Jr. was 54 years old. The enumeration for Brunswick County identified no whites, but there were 43 African American slaves. Gabriel and his family were separately listed in Wilmington, along with three African American slaves.

There is an 1838 news account mentioning the "rice crops at Lilliput, Kendall, and Orton," noting that the reporter had "never seen a richer promise or the prospect of a greater yield" (*Wilmington Advertiser*, Wilmington, NC, August 3, 1838).

About 1848 Gabriel Holmes, Jr. died intestate. Gabriel and his wife, Mildred Mabson, had 11 children, although for our discussions we'll focus on three: Owen Davis Holmes (1824-1883), Gabriel Holmes (1831-1874), and William Hardy Holmes (b. 1835). Kendal Plantation was apparently left to these three children by their father.

Kendal/Lilliput Pond

It was during this period that we find documentation of the Kendal/Lilliput/Allen's Creek Pond. It is, however, entirely possible that the dam predates the nineteenth century since the nearby woods had long been known as the Mill

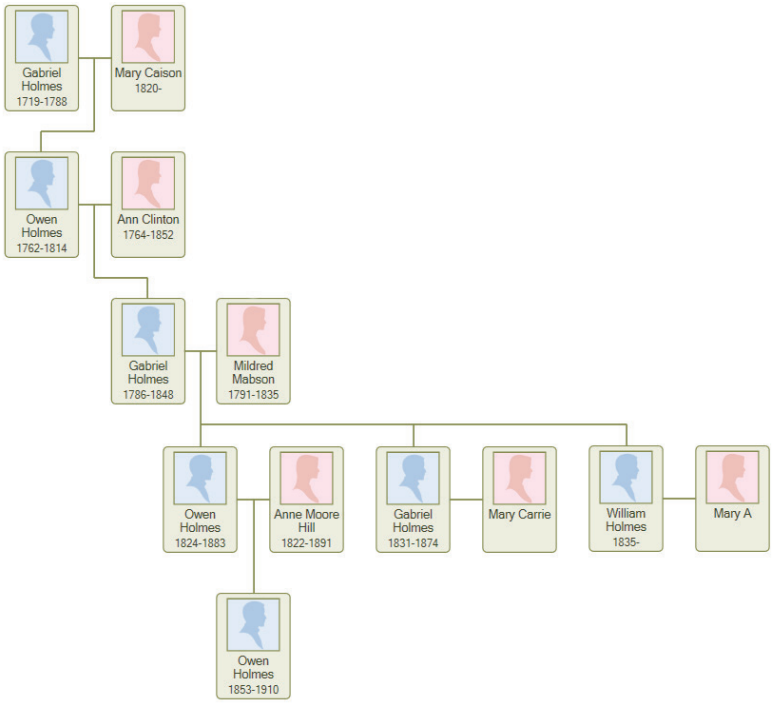

Figure 23. Abbreviated family tree for the Holmes family (dates are approximate).

Tract, implying the operation of a mill and necessitating an impoundment of some sort.

Nevertheless, in 1828 John and Frances Swann deeded Gabriel Holmes, Jr. a tract of land on the "town side of Allens or Lilliput creek running thence down said creek the various courses thereof to the Mill dam thence Along the lower side of the Mill dam to the flood Gates lately erected by the said Gabriel Holmes Jur & John Swann thence down the race way leading from said flood gates to a cypress standing on the creek side." The deed went on to provide Holmes with certain water rights, including the right to flood any part of the land associated with the mill pond, as well as free use of the water. Holmes was also allowed to "erect Machinery across said Lilliput Mill dam and also the further right of stopping Lilliput creek below said mill for the purpose of erecting flood gates [in order to flood] his rice fields and for other uses" (Brunswick County Register of Deeds, DB O, pg. 532).

This deed clearly documents the presence of rice fields at Kendal during the first quarter of the nineteenth century, with the use of the pond to allow water control. The "machinery" referenced in the deed may be for rice processing or for timber production. Although there is no conclusive evidence for either, we suspect both were present. As previously mentioned, the Mill Tract implied the presence of a saw mill well into the eighteenth century, prior to any rice production in the area. However, by the early nineteenth century rice was being well established and local planters would have desired some means of processing.

An 1863 map shows two pond on the creek. The first is immediately west of the road to Wilmington. It is this pond that was referenced by the 1828 deed. The second is immediately southwest of what was known as the Grange Road.

Over time the lower pond appears to have disappeared, not being found on the 1878 U.S. Coast Survey T-1463b map. The upper pond, however, continues to be shown on the 1921 plan of Orton and Kendal Plantations. Curiously, the 1939 Orton and Kendal Plantations map shows both ponds as essentially one, but in dotted lines, implying that neither was still functioning or even present. This is further confirmed by the notation "Old Dam," implying that while a dam was visible, it was no longer functioning. The dotted lines probably indicate the extent of flooding should the dam be repaired. There has not been any archaeological investigation of the dam location so little more can be said about this landscape feature at this point.

Table 12.
1850 and 1860 Agricultural Schedules for Kendal

	1850	1860
Improved Acres	244	221
Unimproved Acres	1256	5370
Value	$25,000	$17,000
Value of Implements	$700	$750
Horses	2	4
Asses	2	2
Milk Cows	14	11
Oxen	4	7
Other Cattle	30	55
Sheep	37	45
Swine	30	150
Value of Livestock	$765	$2,140
Corn (bu)	569	550
Rice (lbs)	156,000	22,700
Wool (lbs)	80	18
Peas (bu)	208	250
Sweet Potatoes (bu)	2,000	3,500

Operation of Kendal by the Holmes in the Late Antebellum

The 1850 census identifies Owen D. Holmes as a Wilmington merchant. Also present are five females, one of whom is the correct age to be a wife. Also listed for New Hanover County are 20 slaves. By 1860 it appears that Owen was in charge of the Kendal property since the census of that year identifies $17,000 in real estate in his name, plus an additional $15,000 "for G. Holmes." In his own name are also identified 58 enslaved African Americans in Brunswick County – likely associated with Kendal.

Gabriel Holmes, Jr.'s son, Gabriel, is listed in the 1850 census only as the owner of a single slave in Columbus County, North Carolina. By 1860 Gabriel is identified in the census as a farmer in Sampson County with $5,500 in real estate, but a personal estate valued at $24,705. He was married to Mary C. Holmes and they had one child.

The last child, William Hardy Holmes, is found in the 1850 census in the Sampson, North Carolina household of Thomas Bunting, a farmer. William was only 15 years old, his occupation was listed as "student," but he reported real estate valued at $5,000.

The reason for his enumeration with Bunting is uncertain since he is also found listed at the St. Timothy's Hall College in Catonville, Maryland. This was a military-style preparatory school that is perhaps best known for the attendance of John Wilkes Booth ("Cantonville's Connection to Lincoln Assassin John Wilkes Booth," *Catonville Times*, April 14, 2015). By 1860 he was married to Mary A. Holmes and was living in Clinton, Sampson County, North Carolina. He was identified as a farmer with $2,000 worth of real estate and $8,300 value in personal estate (at least partially consisting of his four enslaved African Americans). William served as a private in Company C, North Carolina 5th Cavalry Regiment from 1862 to 1864 (Manarin 2004).

During the late antebellum Kendal was being operated by Owen D. Holmes and the agricultural schedule provides critical details on the plantation's operation and management.

Kendal was smaller than Orton to the south with just over half as many improved acres. Nevertheless, the value of the plantation was only $5,000 less than Orton. The value of agricultural implements is significantly lower, only $700 compared with the $2,000 reported at Orton. Horses, asses, and mules were less numerous at Kendal; nevertheless, the four oxen were likely sufficient to plow the rice fields. Cattle and swine were slightly more common at Kendal; nevertheless, the value of the livestock was about two-thirds that of Orton. In 1850 Kendal produced 156,000 pounds of rice. While less than half of that produced by Orton, it represents a nearly identical amount on a per acreage basis, indicating that both plantations were equally well managed. Kendal produced more corn and peas than Orton, although Orton produced a third more sweet potatoes.

The industrial schedule for 1850 reveals

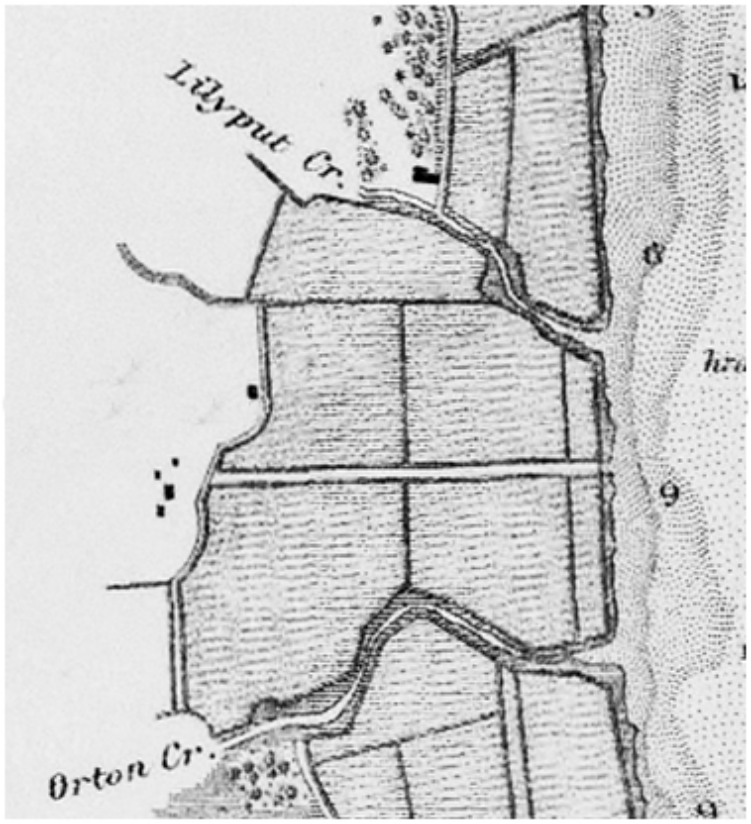

Figure 24. Portion of the 1856 *Preliminary Chart of Lower Part of Cape Fear River, North Carolina* showing Kendal Plantation.

that Owen D. Holmes possessed a rice threshing machine on Kendal which processed 106 tons of rice in 1850, producing 5,540 bushels of rough rice valued at $4,432. While less rice than found at Orton, the Kendal rice was valued at $1.25 per bushel, while that at Orton was valued at only $1.20 per bushel. A minor difference, but is seems that Kendal was in almost all respects comparable to Orton.

The earliest plan we have identified for Kendal dates from 1856 and illustrates a cluster of four structures that appear to represent a main structure, two flankers, and an ancillary building to the northeast. These structures are in a place of prominence overlooking the rice fields – like Orton – and at the end of a canal that would have provided a rice flat access to the high ground on which the plantation was constructed. In addition, the structure shown is almost certainly the wood frame structure that replaced the earlier brick main house sometime between 1806 and 1856.

Further to the northeast, at the edge of the rice fields, is a very large structure that was a rice barn where rice was stored and thrashed. The map also illustrates seven well defined rice fields.

In February 1860 Gabriel Holmes sold his one-third interest in Kendal to his brothers, Owen D. and William H. Holmes for $24,566, as well as his one-third interest in the 73 enslaved African Americans working the plantation (Brunswick County Register of Deeds, DB S, pg. 339). Also incorporated in the sale was his third interest in the "perishable property," but excluded was his interest in the rice crop made on the plantation in 1859. The deed is also of interest in that it specifies Kendal and the "piney land thereto attached," clearly a reference to the inland portions acquired from Swann and his wife in 1829.

The reason that Gabriel divested his interest is unknown, although his location in Columbus County may have made involvement too difficult (although William was located in Sampson County which is actually further away from Brunswick than Columbus).

The 1860 agricultural schedule for Kendal reveals that while improved acreage declined by only 23 acres from 1850, suggesting no substantive change in the area cultivated, value declined by $8,000, well over the estimated 8% inflation rate between 1850 and 1860. Livestock increased noticeably, nearly tripling in value, but rice production fell substantially. The 1860 slave schedule for Owen D. Holmes lists 58 enslaved African Americans: 22 females and 36 males.

Kendal also declined in comparison with Orton. The 1860 value was only 40% of Orton's value. The value of implements remained relatively stable between the two decades and was actually slightly more than reported for Orton. While Kendal's rice production fell to only 14% of that a decade earlier, Orton posted a 70% increase in production between 1850 and 1860. This suggests that the decline in Kendal's production was not weather related, but due to some other factor. With this limited information, it appears that Kendal's rice production peaked in the early antebellum and declined as the Civil War approached.

We failed to identify an industrial schedule for Kendal. Whether this means that the plantation no longer had the capability to thrash its own rice is unknown; it may simply represent an oversight.

Kendal and the Civil War

Owen Holmes and his family continued to live at Kendal at least through 1862 when his son, Arthur Hill Holmes, was born at Kendal (Fisher 1929:143; see also "Mr. Arthur H. Holmes," *Wilmington Morning Star*, March 27, 1909, pg. 1).

Curtis, however, notes that at some point Holmes moved his slaves,

> into Sampson county where they thought no enemy would ever discover them. But sad and bitter was their experience for they got right in the tract of Sherman and his bummers and all the negroes who had been so carefully taken to this place of safety went over to the enemy and assisted them in their work of destruction and depredation (Curtis 1900:31)

The Holmes family was still in Sampson County in the late 1860s when the IRS assessment lists reveal that the family took their silver with them when they left Kendal, as well as several gold pocket watches and 20 pigs. Their relocation from Kendal may be the reason that on January 17, 1865 the *Wilmington Daily Journal* advertised the capture of a "woman named Betsy and her son Elias, belonging to Owen D. Holmes" (quoted in Evans 1974:21). Their absence from the area would also explain a subsequent advertisement on February 13 which announced that Betsy and her son were being housed at the New Hanover County jail and Holmes was instructed to come forward to claim his "property, pay charges and take them away" or else suffer their loss (*The Daily Journal*, February 13, 1865, pg. 2). Since Wilmington fell to Union forces 10 days later, the fate of Betsy and her son is unknown.

Otherwise we have found nothing in the on-line Confederate Citizens Files. While Orton provided extensive supplies to Fort Anderson on the Cape Fear River to the south (Trinkley and Hacker 2012:52-53), we have found no evidence that materials such as rice straw and timber were acquired from Kendal.

Kendal in the Postbellum Under the Holmes Family

By 1870, Gabriel Holmes was still living in Sampson County and the census reports his family included him and his wife, now listed only as Carrie (instead of Mary C.) and five children ranging in age from 10 years to 8 months. Also listed are two black domestic servants and a 14 year old African American boy identified as working on the farm. By 1870 Gabriel's real estate was valued at $1,500 and his personal estate was listed as $700. The precipitous decline of course represents the loss of enslaved African Americans.

William Harding Holmes continues to be found in the 1870 and 1880 censuses. After the Civil War, however, he and his family moved to Monroe, Mississippi.

Owen Holmes continues to be found in the 1870 census for Smithville with his wife and 10 children, including twins Stonewall Jackson and Jefferson Davis. Also present in the household was an African American house servant, 14 year old Adaline Chesmer. Holmes identified himself as

a planter with $50 of personal estate and $1,350 in real estate – suggesting that Kendal had dramatically declined in value during the Civil War. We have not found a Holmes on the 1870 agricultural schedule for either Smithville or Town Creek township. By 1880 Holmes was listed in the Wilmington census.

With the fall of Fort Fisher as a result of the massive Union offensive of January 15, 1865, the Confederate hold on the Cape Fear began to collapse. By February 13, Union forces had advanced to Town Creek and on February 23, 1865 they entered Wilmington (Kennedy 1998:401-403).

Within the month Federal authorities in Wilmington realized that it was critical to find gainful employment for both blacks and whites. David Heaton, agent with the Treasury Department, announced,

> ". . . it seems an urgent military necessity that they [area plantations] should be occupied as far as possible, and put in the process of cultivation. After full consultation with the military authorities, the plan of leasing to active and reliable persons, white and colored, will for the present be adopted. Leases will be given to such parties for such amounts of land as they can give assurance of their ability to cultivate; also for turpentine and tar privileges. It will be required of all parties so leasing that every reasonable effort will be made to give immediate employment not only to freedmen and their families residing and remaining on said land, but to white and colored refugees, who have recently come within the federal lines. For the purpose of giving relief as far as possible to those in actual need, it is understood that the Commanding General has determined to take possession, as far as may seem necessary, of the present crops of rice [i.e., those harvested in 1864] and other articles of food on said abandoned lands . . . (*Wilmington Daily Herald*, April 21, 1865, pg. 2).

In addition, on April 11 General J.R. Hawley in Wilmington issued General Orders No. 7 which stipulated that the "Miller [Orton], Holmes [Kendal], Hill [Lilliput], and Taylor [Pleasant Oaks] plantations on the Cape Fear river, near fort Anderson, are set apart for the use of freedmen, and the destitute, and refugee colored people" (*Wilmington Herald*, April 21, 1865, pg. 2). What this meant, precisely, has not been explored by historians. But the set-aside did not last long since five months later Special Order 56 was issued from the Raleigh Freedmen's Bureau on September 29, 1865,

> In accordance with instructions from Maj. Genl. O.O. Howard, Commissioner, Bureau of Refugees, Freedmen and Abandoned Lands, dated Washington September 12, 1865, the following described property will be restored to O.D. Holmes who claims to be the legal owner thereof. At such time as the Lease under which the said property is now held shall expire; provided that the freedmen now occupying the land shall not be ejected nor disturbed until provision can be made for them elsewhere; One Plantation in Brunswick Co. known as the "Kendal Place" containing about 3400 acres land and one House Lot in Smithville (North Carolina Freedmen's Bureau, Commissioner's Records, 1862-1870, NARA Roll 21, Special Orders Issued, Vol. 1, June 28, 1865-July 12, 1867).

The only activity we have been able to identify on Kendal during this period was that "Dudley (white), Titus Hurrick, and Charles Harden (Freedmen) did in the months [sic] of August 1865 cut and hew timber on the Hill [Orton] and Holmes [Kendal] plantations without any authority." Apparently at least Harden had been receiving rations, but was "told that as he was able bodied he must support himself." Titus Hurrick cut 2,935 feet of timber from Kendal. The logs were sent to Wilmington for sale where they were seized by the Freedmen's Bureau and sold to Northop Saw Mill Company (North Carolina Freedmen's Bureau, Field Office Records, 1863-1872, Wilmington, Treasury Department Agent and War Department Financial Agent, NARA Roll 78, Applications for Restoration).

Otherwise we have been unable to identify any specific records, such as lease or rental agreements or evidence that freedmen were actually living on the plantation (North Carolina Freedmen's Bureau, Field Office Records, 1863-1872, Wilmington, Treasury Department Agent and War Department Financial Agent, NARA Roll 78, Register of Abandoned Property, March 1865-April 1866). This may be the result of the very short period that the property was under the control of the Bureau. Evidence suggests that most freedmen were situated on Fort Anderson, where there was ready access to rations and other assistance (North Carolina Freedmen's Bureau, Field Office Records, 1863-1872, Wilmington, Monthly and Semimonthly Reports of Operations and Conditions, May-December, 1866, NARA Roll 73).

With Kendal again in his possession, it appears that the first thing Holmes did was advertise the plantation for rent,

> Kendal
> This valuable Rice Plantation, containing three thousand five hundred acres in the tract, situated upon the west bank of Cape Fear River, 11½ miles below Wilmington, is offered for rent until January, 1867. On this tract there are 150 acres fit for the cultivation of rice, under fine banks and ditches; one hundred and fifty acres adapted to the production of corn, peas and potatoes, besides four or five turpentine tracts.
>
> OWEN D. HOLMES
> (*The Wilmington Herald*, February 8, 1866, pg. 3).

Kendal Leased to J.C. Mann

Holmes was apparently successful in finding someone to rent his property. In the October 20, 1866 issue of *Frank Lelsie's Illustrated Newspaper* there was a lengthy article entitled "Rice Culture in North Carolina." It focused on "the plantation leased by Major J.C. Mann, near Wilmington, North Carolina, which was owned by General Robert Howe, of Revolutionary fame. Mann hired a "Mr. Scott . . .a New Englander, who has mastered the science and manages the crop with great ability." One of the images accompanying the article illustrates the wood frame Kendal house, likely constructed between 1806 and 1856. At the time of the article the house had a two story porch overlooking the rice fields (Anonymous 1866).

James C. Mann next appears in Wilmington records in 1868 as both a manufacturer and dealer in timber items, and as a Republican candidate for the Superior Court Clerk in New Hanover. The 1870 census identifies him as born in New York and as 35 years old.[46] He was married to Amelia S. Mann and they had three children, Mary G., Benjamin A., and Archey S. In addition, their household consisted of Augustus Campbell and her child Augusta B. These were not identified as boarders, so may have been related. Also present were Annie Jones and Isaac Patrick, both African American domestic servants. His occupation in the census, and the 1871 Wilmington City Directory was "Probate Judge"

46 The 1860 census places Mann in Beliot, Wisconsin where he was a banker with $2,500 in real estate and $1,000 in personal estate.

(Haddock 1871:164).

By about 1872 he was the editor of the Wilmington *Evening Post*, which advertised that it had a large circulation "among laboring men and others who do not read the Local Democratic papers" (*The Evening Post*, Wilmington, N.C., May 16, 1872, pg. 4). As the Democrats came back into power Mann lost his judgeship and it was claimed that the criminal docket under his control, as well as other items, were missing (*Wilmington Morning Star*, May 9, 1875, pg. 1). By the end of July local Democrats alleged "the defalcation of James C. Mann" and proceeded against his bond (*The Daily Journal*, Wilmington, N.C., June 12, 1875, pg. 4; *The Wilmington Morning Star*, July 29, 1875, pg. 1).

Although identifying himself as "Colonel" in the *Leslie's* article, we have not been able to ascertain military service and it may be that he arrived in Wilmington after the Civil War.

Mann eventually moved to San Francisco, where his wife died in August 1879 (*The Wilmington Post*, September 14, 1878, pg. 1).

It seems unlikely that Mann was successful in his rice venture. The entire Cape Fear rice crop for 1867-1868 was not expected to exceed 2,000 casks. In contrast the Altamaha and Ogeechee rivers in Georgia were expected to produce between 12,550 and 15,000 casks (*The Wilmington Post*, October 2, 1867, pg. 3).

Loss of Kendal

Perhaps unable, or unwilling, to farm Kendal himself, Holmes faced increasing financial pressure. In 1871 a complaint to foreclose the Kendal mortgage was brought (Presly N. Stanback and Ellen Person, widow of Samuel J. Person v. Charles H. Pitts and Mary, his wife, Samuel J. Person, a minor under fourteen years, Robert H. Cowan, John L. Holmes, Owen D. Holmes and wife Ann M). The court ruled in the favor of the plaintiffs and turned the matter over to the Commissioner, W.G. Curtis. Curtis determined that Stanback was due $4,418, including principal and interest. It was also determined that it was in the interest of all of the parties "that the land should be sold in body" (Brunswick County Superior Court Minutes, vol. 2, pg. 46-47). Curtis advertised that in compliance with the court ruling he would sell the "Thirty-three Hundred and Sixty-five Acres of Land on the Cape Fear River below Wilmington, well known as Kendal Rice Plantation" on June 5, 1871 (*The Daily Journal*, Wilmington, N.C., April 19, 1871, pg. 2).

Kendal and Colonel Robert H. Cowan

Although we have not identified a deed for the 1871 sale of Kendal, we have found the newspaper notice that announced,

> The Kendal Plantation . . . was yesterday sold by public auction in this city. Col. R.H. Cowan was the purchaser at $3,100 cash (*The Daily Journal*, Wilmington, N.C., June 6, 1871, pg. 3).

Born in 1824, he was identified as a merchant in the 1850 census, at which time he reported very modest real estate holdings valued at $800. In 1860 Cowan and John C. McIlhenny were advertising for "eight negro men to work at a brick yard, for which the highest wages will be paid" (*Wilmington Daily Herald*, August 25, 1860, pg. 3), suggesting he had diversified interests.

Sprunt notes that he was "first chosen Lt. Colonel of the Third NC, but in the spring of 1862 was elected Colonel of the Eighteenth NC Infantry. After being wounded he resigned in November 1862, serving less than a year (Sprunt 2005:299-300).

In that year he was elected president of the Wilmington, Charlotte & Rutherford Railroad, a position he held until 1870. He was elected to the State General Assembly in 1869 and 1870 and was also the president of the Wilmington North Carolina Life Insurance Company (*Wilmington Morning Star*, November 12, 1872, pg. 2). In 1867 he formed a "general commission, shipping, and supply" partnership with John W. Cameron and James H. Hill (*Daily Journal*, Wilmington, N.C.,

August 3, 1867, pg. 1). By 1869 Cameron & Hill separated from Cowan (*Daily Journal*, Wilmington, N.C., June 5, 1869, pg. 4). The 1870 census identified Cowan as a wholesale commission merchant who claimed $100,000 in real estate and $70,000 in personal estate. Nine domestic servants were listed in the census working for Cowan.

In spite of the apparent wealth, it seems that Cowan was heavily leveraged with much of his property mortgaged. After his November 1872 death a Wilmington lot owned by Cowan was auctioned by M. Cronly, "in pursuance of a mortgage" (*Daily Journal,* Wilmington, N.C., December 13, 1872, pg. 2). A 1,300 acre plantation was auctioned along with "a gray horse, rockaway and harness, pair of carriage horses and carriage and harness" in January (*Daily Journal*, Wilmington, N.C., January 9, 1873). In February, Cowan's "interest . . . in the Street Railway, being 550 shares, was sold under mortgage" (*Wilmington Morning Star*, February 11, 1873, pg. 1).

Cowan, perhaps because of these financial problems late in life may have sold Kendal back to its owners, Owen D. Holmes and his wife, Ann M. Holmes.

Transfer of Kendal from Cowan to W.G. Curtis

Prior to May 1872, before the death of Robert H. Cowan, Owen D. and Ann M. Holmes again acquired Kendal. A subsequent deed reveals that Ann borrowed $2,700 from Richard Dosher to acquire the property (Brunswick County Register of Deeds, DB V, pg. 24).

Little is known about the Richard Dosher who fronted the money for Ann Holmes to re-acquire Kendal. He is listed in the 1870 as a 44 year old boat pilot, living in Smithville with his wife, Mary and a black house servant, 22 year old Nancy Hawkins. He listed no personal or real estate. The 1880 census continues to show him living in Smithville and working as a pilot.

Newspaper accounts identify his involvement in a law suit as plaintiff and holding a mortgage that went to auction for recovery (*Evening Post*, Wilmington, N.C., February 21, 1873, pg. 2; *Wilmington Morning Star*, June 13, 1876, pg. 4). Otherwise, he was the Democratic candidate for Brunswick County Treasurer in 1887 (*Weekly Star*, Wilmington, N.C., September 24, 1886, pg. 2) and obtained the contract for the Wilmington-Smithville mail boat (*Daily Review*, Wilmington, N.C., April 17, 1888, pg. 1). He also held a mortgage on property owned by the Smithville Methodist Episcopal Church, which he cancelled in 1891, allowing them to build a new church (*Wilmington Messenger*, May 8, 1891, pg. 4).

Although the May 1, 1872 appears to have Owen and Ann Holmes selling Kendal to W.G. Curtis for repayment of the $2,700 loan from Dosher and $5 on May 1, 1872 (Brunswick County Register of Deeds, DB V, pg. 24), in actuality, Ann Holmes and W.G. Curtis formed a partnership to operate the plantation (W.G. Curtis Account Book, W.G. Curtis Papers, Southern Historical Collection, University of North Carolina at Chapel Hill).

Kendal and W.G. Curtis

Walter G. Curtis was a native of Massachusetts, graduating from Dartmouth College in 1842 and subsequently attending Harvard for his medical training. By 1847 he arrived in Southport where he began an extensive medical practice. In 1852 he was appointed acting assistant surgeon in the United States Army. He was the "citizen physician" at the Smithville post hospital in at least 1868 and was the state quarantine officer for the port of Wilmington, from 1868 through 1895 (Julian 1910:87; W.G. Curtis Papers, Southern Historical Collection, University of North Carolina at Chapel Hill).

He first appears in the IRS Assessment List of 1864 when he claimed a salary of $265 and a gold watch. The 1870 federal census identified Curtis as a "Doctor of Medicine" with $3,000 in real estate and $750 in personal estate. In his household were his wife, Sarah and two African

American house servants, Elizabeth Davis, 16 years old, and Bena Wescott, 10 years old.

By 1880, at which time Curtis owned Kendal, the census still lists him in Smithville and that year information on wealth was not collected. Sarah was no longer listed and his new wife, Marjane J. was 30 years old and had borne him a son, identified as C.W. (later as Howard C.).

In spite of his northern roots, his third wife, Margaret Coit Curtis, wrote in her diary during reconstruction, "God help us if the Negroes get control; but they never will while a Southern white man lives to help prevent it (Diary of Margaret Coit Curtis, October, 1896, W.G. Curtis Papers, Southern Historical Collection, University of North Carolina at Chapel Hill).

1870-1875 Partnership

The early transactions identified in the accounts reveal that Ann M. Holmes paid $2,500 and Curtis paid only $600 toward the purchase, although the deed placed the property in Curtis's name. By November 1871, 100 acres of Kendal were sold, generating $300. We have not tracked this parcel. In addition, Curtis purchased adjacent Lilliput for $1,750 in cash and a series of four notes payable over 24 months, bringing the total purchase price to $7,000.

Almost immediately the account book reveals that Curtis and Holmes were nearly equal partners in the plantation, making purchases and repairs necessary to increase the profitability of the tract. The account books reveal, for example, that 14 head of cattle, 23 sheep, a sow and six pigs, and a mule were purchased, along with tools such as scythes, spades, axes, and rakes. Lumber was purchased and work was begun on a wharf. Stumps were cleaned out and work was conducted on trunks. Oxen were purchased in December 1871. All of these activities in 1871 make it appear that the plantation had been allowed to lapse into decay.

Almost immediately Curtis and Holmes hired Tom Clark and Robert Hooper to work on the plantations. Both are found in the 1870 federal census from Smithville and were listed as African American farmers. Hooper was being $12.34 a month, while Clark was being paid $7.43. Both were also paid a share of the sweet potato crop that they apparently raised on the property in 1871. Shortly thereafter turnips were planted. Hay was also being cut from the plantation. Other African Americans working on Kendal and Lilliput were noted only by their first names, and included Jam, Kali, Dick, Charles, Bob, Elias, Gilbert, and Scipio.

Many of the purchases were apparently for their African American laborers, most prominently tobacco for both Robert Hooper and "for negroes." Also purchased for the workers was "meal & pork."

The ledger reveals that Dosher's note was paid in full on October 15, 1871. After about this time Ann Holmes is no longer mentioned, and her husband, Owen D. Holmes, begins to be found as involved in the financial activities.

A memorandum from either late 1871 or early 1872 identified stock on Kendal (and perhaps including Lilliput) as two yoke of oxen (or four oxen), 10 cows, one bull, six yearlings, four calves, 22 sheep, 18 lambs, three mules, five sows, one boar, and 12 pigs.

In April 1872 the account book indicates that Kendal was valued at $4,000 (Lilliput was valued at $3,000). The stock was valued at $1,000, while the tools, wagons, carts, and other goods were valued at $150 and the flat boat, purchased the previous December, was valued at its purchase price of $150. A carpenter was being paid to work on the rice barn, suggesting that it required repair. Kendal was producing wool, although little other plantation production was identified in the accounts. Nevertheless, a variety of tools (axes, spikes, and handles) were still being acquired and there are several bills for "making wood racks." These were likely ricks used for the drying of rice sheaves.

In either late 1872 or early 1873 the records indicate that Tom, Moses, Frank, and

Aleck purchased unspecified acreage, with costs ranging from $30 to $118.50. These transactions have not been sought in the Register of Deed's office and it is not clear if they were outright purchases or in exchange for labor.

Almost no activity is identified for 1873, although by 1874 Kendal was producing wood for the steamships plying the Cape Fear River and beef was being sold. Payments were still being paid for plantation laborers such as Bob, Tom, Hart, and Bailey.

In 1874 Isaac Highfield and his wife Hannah arrived in Wilmington en route to Kendal ("Hotel Arrivals," *Wilmington Morning Star*, October 17, 1874, pg. 1). It is unclear if he was simply a visitor or had arrived to perform some work. In either event, Highfield settled in Wilmington, listing himself as an "engineer" in the 1875-6 city directory (Sheriff 1875:76). Highfield had served in the 2nd U.S. Artillery during the Civil War and was drawing a pension. He died in September 1876 and was buried at Oakdale.

In 1875 15 additional acres of Kendal were sold to William Bryant. Wood remained the primary product sold off the plantation, although minor sales of ham are also recorded.

Kendal and Owen McRee Holmes

In 1875 Walter G. Curtis and his wife, Sarah, sold Kendal for $5,000 to Owen M. Holmes (Brunswick County Register of Deeds, DB W, pg. 226). Holmes provided Curtis with five $1,000 promissory notes, mortgaging the property to Curtis to secure payment (Brunswick County Register of Deeds, DB W, pg. 228).

The sale may have been prompted by the plantation producing only 9,000 bushels of rough rice during the 1875 season. While 3,000 bushels more than produced at Lilliput, Orton to the south reported a production of 20,000 bushels (*Daily Journal*, Wilmington, N.C., December 1, 1875).

Owen McRee Holmes was the son of Owen D. Holmes and perhaps bought the plantation to restore his family's prominence in the area. The 1880 census identified then 25 year old Owen M. Holmes as farming, but he was still living with his parents, six siblings, and two boarders. Enumerated in Wilmington, it does not appear that any of the family was living at Kendal, at least during June when the census was taken.

We have unfortunately little information about Holmes's activities at Kendal. His effort to return the plantation to a profitable condition apparently did not succeed.

Even after selling Kendal, Curtis seems to have continued exploring options. An 1876 news article reported that he was attempting to raise investment to construct a paper mill "on his plantations, Kendall and Lilliput" (*Daily Journal*, Wilmington, N.C., February 26, 1876, pg. 4). Nothing appears to have come of this effort.

It appears that Holmes was just as interested in diversifying Kendal. An 1876 article reported on efforts to grow wheat on the rice lands:

> . . . a bunch of green wheat which was raised by him on the rice lands at Kendall plantation . . . . This is but an experiment made by Mr. Holmes this year and if it succeeds he expects to put in about fifty acres of wheat next year. To most people, as to us, the successful growth of wheat seems to be inseparable with high lands and stiff soil and we looked with much curiosity on this product of the rice alluvial soils of the river swamps ("Wheat on Rice Lands, *Daily Review*, Wilmington, D.C., May 19, 1876, pg. 1).

A second article revealed that the experience was apparently a success since "Mr. Holmes' crop averaged him thirteen bushels to the acre" and some areas produced "as high as twenty bushels"

("Cape Fear Wheat," *Wilmington Journal*, June 30, 1876, pg. 1).

Also in 1876, there was a "moonlight excursion" to Kendal. The event was on the steamer *J.S. Underhill*, on which "the Italian string band has been engaged and refreshments will be supplied on board at city prices." Once at Kendal "commodious buildings have been provided for Dancing" (*Wilmington Morning Star*, September 3, 1876, pg. 1). The following year an afternoon soirée included a picnic on the Kendal grounds,

> The house is on a high bluff about half a mile from the river and commands a splendid view. The yard is a very extensive one and is covered to a large extent with beautiful shade trees ("A Pic Nic on Historic Ground," *Daily Review*, Wilmington, N.C., May 25, 1877, pg. 1).

That same year the plantation hosted an excursion by the Young Catholic Friends' Society, "a pleasant day is anticipated and many will avail themselves of the opportunity offered to visit one of the most beautiful places on the Cape Fear river" (*Daily Review*, Wilmington, N.C., September 10, 1877, pg. 1).

On January 5, 1879, the fifth year of the mortgage, reveals that Holmes was attempting to find someone to either purchase or rent the plantation since he was unable to make the mortgage payments:

> For Sale or Rent
> Kendal Plantation, situated on Cape Fear River, 12 miles below Wilmington, with Working Implements, Stock, &c., consisting of 1 Clipper Mower, 1 Horse Rake, 1 Hay Press, 2 Mules, 25 Head Cattle, 30 Sheep, 1 Buggy, 1 Wagon and Harness, 1 Flat, Plows, &c. The Plantation consists of 150 acres Rice Land – 75 acres being banked and drained, 300 acres cleared Upland, fenced; 2,500 acres well-timbered Woodland, in which 5 to 10 crops of boxes can be cut; lightwood plentiful, with water facilities for flatting wood to wharf, (wharf belonging to Plantation) where wood can be sold readily at $3 per cord. There is a good Dwelling House, with six rooms, on Plantation, also an Office, Crib, Stables, &c. Terms of sale easy. For further information apply to O. McR. Holmes (*Morning Star*, Wilmington, NC, January 5, 1879).

This advertisement provides the most complete picture we have of activities at Kendal for Holmes' efforts.

The "Clipper Mower" mentioned in the ad was likely the Dutton patent manufactured by the Clipper Mower and Reaper Company although several others were available. This machine was designed to cut hay or grass (Greeley 1872:343-344).

As Ardrey observed, "The introduction of the mowing machine naturally created a desire for some speedier method of raking the mown hay" (Ardrey 1894:96). The revolving horse rake that dates prior to the Civil War was modified to make it a more practical tool. Whether the one at Kendal was an improved version can't be determined.

The last specified item was a hay press. This was a device that allowed hay to be made into compact bales easy to transport. One version produced bales measuring 24 by 24 by 48 inches and weighing 250 pounds (Ardrey 1894:102).

These devices suggest that Holmes was producing a significant amount of hay on his plantation – perhaps on the 300 acres of cleared and fenced upland. It may be important that the list includes no rice machinery, such as a rice thresher, a staple on virtually every rice plantation.

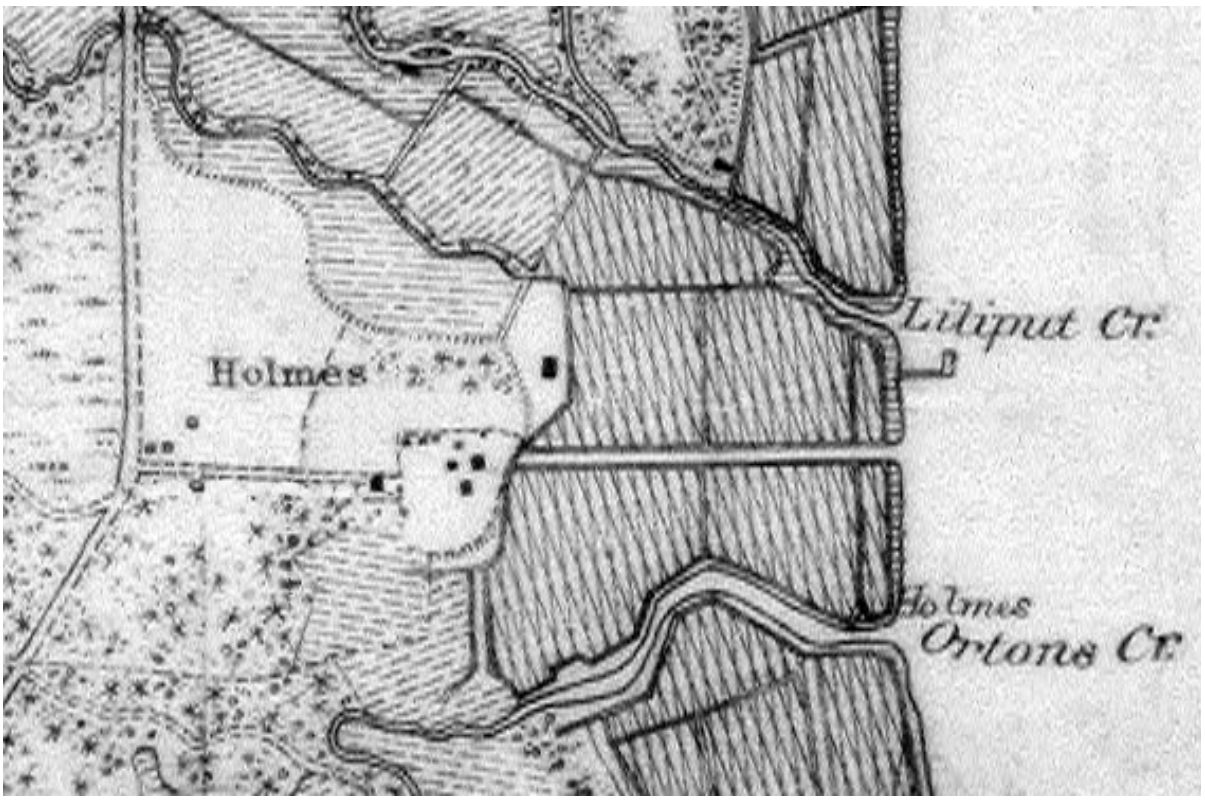

Figure 25. Portion of the 1878 Coastal Chart T-1464a Cape Fear River showing Kendal Plantation.

The advertisement also indicates that although there were 150 acres of rice land, only half of that was "banked and drained." Since it appears that in the antebellum there were perhaps 125 acres, the amount of rice lands increased at some point, although by the postbellum fully half of the fields had fallen out of production.

The reference to boxing pines and lighterwood indicates that naval stores were either being turned to once again on Kendal, or this was offered as an alternative to the more labor intensive rice production.

For the first time we learn that the structure on Kendal was considered "good" and while this may not be the same as "fine," it does suggest that the house was fit for habitation. The presence of six rooms might represent a two story structure with two bedrooms above and four rooms below. During the antebellum it was common to have one of the flankers serve as an office, while the other might be a guest house, kitchen, or other support service.

Apparently Holmes was unable to rent or sell Kendal and it was recovered by Walter G. Curtis and his wife in the fall of 1879.

1878 Map of Kendal

In 1878 another plan of Kendal was created and it continues to illustrate the cluster of four structures seen on the 1856 plan, as well as what we suggested was a rice barn to the northeast. The 1878 map also illustrates three additional structures to the west of the main house in a line. These appear to be dwellings for servants, perhaps former slave houses.

Another structure is located to the west of the Kendal settlement, on the road leading out to the Wilmington-Smithville Road. The function of

this structure is uncertain. Four structures are seen at the west end of the Kendal access road, clustered at the Wilmington-Smithville Road. These are houses for workers at Kendal.

Both rice fields and marshes are clearly differentiated. A canal is shown leading to the Cape Fear, although the plantation wharf is located north of this canal, close to Lilliput Creek. Presumably access would have been by a road on the outer dike. Materials unloaded at the wharf may have been carted along the dikes to the plantation yard or might have been loaded on flats and sent to the plantation by way of the canal.

The plantation complex is shown in a yard; to the west is cultivated land, presumably where much of the hay was being grown. Pasture or grass land is shown west of the Wilmington-Smithville Road along the areas of pine forest.

Kendal Again Operated by W.G. Curtis

Again finding himself operating Kendal, Curtis picked up where he left off in his account book (W.G. Curtis Papers, Southern Historical Collection, University of North Carolina at Chapel Hill).

Once of the first activities was a census of Kendal's stock, which on September 1, 1879 included 24 ewes, one Southdown ram, 10 cows, three heifer calves, four bull calves, two bulls, 2 oxen, one pair mules, and one horse. No pigs were identified.

The accounts identify a flurry of activity in 1879, suggesting that the property had been allowed to decline during the few years that the Holmes' were owners. A variety of minor items were acquired, such as milk pans, a stone jar, a churn, a milk pail, a wood bowl. In addition tools were acquired, such as a square, a drawing knife, caulking irons, and trace chains. We discover that relatively large amounts of shingles and wood were being purchased and there is a notation that the Kendal house was repaired and a "large shed" was constructed. Nine of the tenant or laborer houses were "repaired" with work on six of their chimneys, at a cost of $43. There are payments for both brick (from Preston Cuming and Company in Wilmington) and lime (from Worth and Worth, also in Wilmington). Curtis was careful to pay his $9 insurance on the Kendal House immediately after taking over the property.

There is evidence that banks and trucks were again put in order, using Tom, Bob, W. Brown, Frank Brown, Virgil Smith, George Clark, Nick Clark, and other local laborers. The hayfield was being worked and wood was being cut for sale, as it had been before. Occasionally eggs, a lamb, or butter would be sold off the plantation. In fact, wood was the primary product, generating $263 income. Stock sales produced an additional $137.

In January 1880 the account itemizes payments for "cleaning bank[s] and ditches, [repair of] trunks, hauling wood, [cutting and making fence] rails, and [repair or construction of] fences – all the activities required on an active rice plantation. In February there were several charges for "building store," suggesting that Curtis constructed a plantation store to sell supplies to his laborers. Although much activity was devoted to the cutting and hauling of wood for the steamers, in March 1880 Curtis purchased 350 bushels of seed rice at a cost of $958.11; 200 bushels were acquired from Ogeechee, Georgia and 150 bushels came from Orton. Small portions of this seed rice were sold by Curtis to his "hands," suggesting that at least some fields were planted by African Americans using some form of tenancy. The purchase at the same time of a barrel of coal tar suggests that he may have been tarring his seed in an effort to prevent it being eaten by rice birds. In September and October there was additional work conducted on the flat and rice barn. Additional gates were put in during December and trunks continued to be repaired.

In April of 1880 Curtis received $400 for the sale of the plantation's steam engine and boiler. Although this suggests that he might have decided to send his rough rice to Wilmington for

processing, in August 1881 he purchased a "threshing machine" at a cost of $414. Porcher and Judd (2014:150-152) only briefly discuss stationary and portable threshers used in the postbellum, but both would have required either water or steam power. While no details are provided, Curtis did purchase an "engine" for $70.

In 1881 Curtis itemized the costs for building a tram leading from shore to the bank, including "ditching for tram" and a "keg of spikes for tram." Work continued to be put in the banks and trunks.

In spite of his best efforts, Curtis was unable to make Kendal profitable, losing over $1,900 on the 1881 and 1882 rice crops.

Frederic Kidder and Kendal

In February 1882 Curtis and his wife sold both Kendal and Lilliput plantations to Frederick [sic] Kidder for $15,000 (Brunswick County Register of Deeds, DB AA, pg. 266). Thus, after a decade and one failed attempt to get himself out from under the plantations, Curtis not only found a purchaser, but was able to make $10,000 more than if his sale to Holmes had been successful.

An interesting history of Frederic Kidder has been compiled by Susan Taylor Block (2011). Born on November 12, 1847 Block reports that he was educated at Harvard before returning to Wilmington. In 1870, at the age of 22 he was living with his parents and his three siblings, in a household with a white seamstress, a white housekeeper, and no fewer than six African American "domestic servants." His father, Edward Kidder, a wholesale lumber dealer, reported real estate valued at $127,000 and a personal estate of $246,000. Frederic's older brother, George, already claimed real estate valued at $12,000 and was in the lumber business with his father. Frederic was listed as having "no occupation."

Frederic's father Edward and his uncle Frederic were born in New England, the sons of Isaiah and Hepsey Kidder. Isaiah Kidder was a merchant, farmer, and cotton mill owner. In the late 1820s Edward and Frederic moved south, opening a mercantile business in Wilmington. Edward eventually found a position with a much larger firm and Frederic returned north to become an antiquarian and author (Dean 1887).

In August 1878, young Frederic Kidder took a trip to England, returning from Liverpool via New York on the *Egypt*. In 1880, Frederic Kidder, now 32 was still living in Wilmington with his father and two older brothers, by this time all listed as mill owners. Present in the household was George's wife, as well as eight African American servants. Frederic's occupation was listed as "rice." Since he had not yet purchased Kendal this may indicate that he was renting a plantation and planting rice ahead of his purchase – and if he was renting Kendal, this would certainly explain his very good "first" year showings in terms of acreage and rice production.

Edward and his son George were owners of the Cowan Saw and Planning Mills in Wilmington which covered 10 acres of ground. They exported about 8,000,000 feet of timber to the West Indies and South America yearly (Reilly1884:113-114).

In 1890 Frederic Kidder took his second overseas voyage, this time to France and in a party of four.

It appears that Kidder immediately redoubled efforts to make Kendal a paying rice plantation and within a year Sprunt reported that Kidder had 130 acres in rice (far more than the 75 acres reported in the earlier advertisement) and planned an additional 70 acres, to make a full 200 acres of rice, 50 more acres than reported (Sprunt 1883:210). This suggests that Kidder was not simply planting – he was expanding the plantation. He had raised 5,000 bushels (or about 225,000 pounds) of rice. This represents only 38 bushels per acre, short of what defined a fair or good crop during the antebellum, but for an initial showing it was impressive. Nevertheless Kidder was in fifth place, behind Orton (50 bushels per acre); Feliz, owned by his brother George W. Kidder (45 bushels per acre); Green Island (40

bushels per acre); and Dudley's (40 bushels per acre). With an overall average of 33 bushels per acre, Kidder was able to do slightly better than average on his first year.

Between 1882, when Kidder purchased Kendal, and 1885, he was the local postmaster with mail being delivered to his dock for distribution to other residents (Winter 2008:16). Service to Kendal ceased in 1885, but in 1892 the pre-existing post office at St. Phillip was reopened with Kidder serving as postmaster until 1906 (*Southport Leader*, March 24, 1892, pg. 4).

A news article also reported that in 1882 Kidder's plantation store at Kendal was robbed:

> the store of Mr. Fred Kidder, at the Kendall plantation . . . was broken open and robbed of $25 or $30 in money, which seemed to be the sole object of the thieves, as nothing else was missing. On Monday morning, when the robbery was discovered, Mr. J.T. Batson, who has been clerking for Mr. Kidder, came up to the city and saw Officer Carr, securing his services to hunt up the thieves. Suspicion rested upon two colored men who have been working the neighborhood, and it was supposed they would come up to the city on one of the steamers Monday evening. While waiting for the boats at the foot of Market street the officer detected David Statcher – one of the suspected men – in the crowd, dressed in a new suit of clothes, with new shoes, etc., which coupled with the fact that the man came to store in question on Saturday and professed to be entirely destitute, being dressed at the time in nothing better than rags, was taken as pretty strong circumstantial evidence of his guilt ("Store Robbery," *Morning Star*, Wilmington, NC, June 28, 1882).

Reference to the 1880 census revealed a John T. Batson in nearby Pender County who at the time was a farmer. No David Statcher could be identified, although a Henry Statcher, a 22 year old African American laborer, was found in Wilmington. The Kendal store is likely the same store that was constructed by Curtis in 1880.

Kendal next appears in the news as a result of an October 11-12, 1885 storm that dumped nearly 5 inches of rain in Wilmington, with the tides in Smithville reported the highest in a decade (*Wilmington Morning Star*, October 13, 1885, pg. 1). At Kendal, banks were broken and "some injury done to the crop" (*Weekly Star*, Wilmington, N.C., October 16, 1885, pg. 2).

Over the following five years Kendal attracted little attention. In 1887 the plantation was reported to be in "fine condition" (Bill Reaves collection, New Hanover Public Library). A group visited "Fred Kidder's Kendall plantation" in January 1888, where "the well known hospitality of Mr. Kidder insures a most enjoyable visit" (*Wilmington Messenger*, January 29, 1888, pg. 8).

In 1889 Frederick Jones advertised that "small black horse mule" had strayed from an Orton pasture, listing his address as "Kendall Plantation" (*Wilmington Messenger*, July 17, 1889, pg. 8). There were a number of African Americans identified in the 1870 and 1890 federal census in the area, so it isn't certain who this individual was, but we image he was either a farm worker or domestic servant for Mr. Kidder.

Kidder hosted a February 1889 party at Kendal that generated multiple news reports. Kidder invited about 75 guests to Kendal, all being transported by boat. Leaving about 5:00 pm from the Wilmington wharfs, it unloaded passengers at the Kendal wharf from which they were "conveyed" to the main house,

> The weather was dark and

> stormy and was quite a contrast to the ruddy glow of the blazing fires in the old plantation home and the gladsome welcome received. . . . the party proceeded to the pavilion, and soon the tones of sweet music were heard . . . . At 12 o'clock supper was announced and all repaired to the house, where a sumptuous repast was spread and partaken of most heartily. When supper was finished all adjourned to the parlor and dancing was again resumed, interspersed with various other amusements. In this manner the whole night was passed ("A Party at Kendal," *Wilmington Morning Star*, February 23, 1889, pg. 1).

They were returned to the city about 8:00 am the following morning. Another news account described those attending as "society folks" (*Wilmington Messenger*, February 22, 1889, pg. 8).

In 1891 Kendal was found more often being mentioned in the news. In January a local paper reported that three men had been accidentally left by the steamer *Passport* at the Kendal wharf. The article reported that they "preferred walking to Southport" rather than "staying at Kendal all night" (*The Southport Leader*, January 15, 1891, pg. 4). No further explanation was offered.

By April, Frederic Kidder's "naphtha launch Clarendon," seating 25 and presenting "a gay appearance," was actively running between Kendal and Wilmington (*The Southport Leader*, April 9, 1891, pg. 4). Naphtha powered boats become popular when the United States law required steam power vessels to have a licensed engineer on board. The naphtha engine was similar to small steam engines, having a small vertical boiler and vertical cylinders, except its fuel was naphtha.[47] Such vessels were typically about 24-feet in length.

Brief notes reported that Kendal's rice was "growing well" in May, and Orton and Kendal had "between five and six hundred acres" under cultivation (*Wilmington Morning Star*, May 2, 1891, pg. 1). Cutting of the rice was being conducted in late August and early September at Kendal, although the rice birds had already arrived. It was also reported that a "new dock just below [south of] the old one . . . with a depth of ten feet of water at low tide" was being built at Kendal (*The Southport Leader*, August 27, 1891, pg. 4; September 10, 1891, pg. 4). Also in 1891 it appears that Kidder purchased new equipment for processing the Kendal rice crop. The Southport newspaper reported that "the boiler and machinery to be used on Kendal Plantation, came down on flat, last Tuesday" (*The Southport Leader,* October 29, 1891, pg. 4).

At the conclusion of the harvest it was reported that while both Orton and Kendal showed "good results," it was Kendal that was the more productive of the two, averaging 53 bushels per acre, compared to only 35 bushels per acre at Orton. This was attributed to Kidder himself overseeing the work (*The Southport Leader*, February 18, 1892, pg. 4).

In 1892 the fields at Kendal were being plowed by late February and in that year a very late frost occurred, although no damage was reported to the rice crop (*The Southport Leader*, February 25, 1892, pg. 4; April 14, 1892, pg. 4). In June and again in August the rice crop appeared excellent (*The Southport Leader*, June 9, 1892, pg. 4; *Wilmington Messenger*, August 4, 1892, pg. 3). Unlike the year before, the papers don't provide any yields, although the crop was reported as "large" and a "fine one." Prices, however, were depressed and this no doubt affected the profitability (*The Southport Leader*, March 2, 1893, pg. 4). Otherwise, several articles commented on the fine deer hunting at Kendal (*The Southport Leader*, November 14, 1892, pg. 4; November 24, 1892, pg. 4).

[47] Naphtha is a distillate of coal tar consisting of aromatic hydrocarbons. It is a clear flammable liquid.

By early April 1893 the Kendal fields were planted and by early May was "further advanced" than on other Cape Fear plantations (*The Southport Leader*, April 6, 1893, pg. 4; May 4, 1893, pg. 4). A late August hurricane hit a glancing blow to the Wilmington area with heavy rains, high seas, and higher than normal tides. While little damage was done to Wilmington or Southport, Kendal reported that banks were broken and some had washed away (*Wilmington Morning Star*, August 29, 1893, pg. 1; August 30, 1893, pg. 1). A subsequent article indicated some damage to the crops, although of greater impact were the low prices. It was reported that "it looks very probable that the plantations of Orton and Kendal will not be planted in rice next spring" (*The Southport Leader*, September 21, 1893, pg. 4). A second storm occurred in mid-October and although the rice crop had already been gathered, the Kendal wharf "was wrecked" and the causeway leading to the house was "badly washed" (*Wilmington Morning Star*, October 15, 1893, pg, 1; *The Southport Leader*, October 19, 1893, pg. 4). By the end of November it was reported that damages were being repaired and for whatever reason both Orton and Kendal would indeed be planted for a crop the following year. The article commented that the decision "will prove a great blessing to hundreds of people who would otherwise have had to give up their homes and seek work elsewhere (*The Southport Leader,* November 30, 1893, pg. 4).

The following year, 1894, began normally with reports of the Kendal fields being plowed in late January (*The Southport Leader,* January 25, 1894, pg. 4). The next report from Kendal, however, was unusual,

> Several colored men living near Kendal Plantation were brought up before Squire Williams last Monday and paid small fines. A disturbance had taken place at Kendal last Saturday night and some threats made by those arrested against other parties who were said to have "conjured" them, hence the disturbance and effort to break the "charm" (*The Southport Leader*, March 15, 1894, pg. 4).

This is one of the few articles where African American voodoo practices were reported by the white media.

It is also in 1894 that we have the first evidence that Kendal was engaged in "truck farming," with Kidder shipping nearly 500 cabbages to Philadelphia in late March. Additional cabbages were also being sold in Wilmington (*The Southport Leader*, March 29, 1893, pg. 4; April 5, 1893, pg. 4) and Kendal was also producing early cucumbers (*Wilmington Messenger*, May 24, 1893, pg. 4).

Although giving a "fine appearance" earlier in the season, by December the harvest was found to be disappointing. The low harvest, blamed on the rice birds, was especially disappointing since the low prices of the previous two years began to surge (*The Southport Leader*, August 30, 1894, pg. 4; December 13, 1894, pg. 4).

Kidder nevertheless went about his normal routine and his fine hunting was reported in late November (*The Southport Leader*, November 22, 1894, pg. 4). This may have caused an increase in illegal hunting since in late December Kidder began publishing newspaper notices that Kendal and Lilliput were private property and that "all persons are strictly forbidden against hunting, fishing or in any way trespassing" (*The Southport Leader*, December 27, 1893, pg. 4).

It is about this time that careful attention to rice planting on the Cape Fear begins to wane. In 1895 there were only announcements that the rice stubble was being burned off and that plowing was beginning (*The Southport Leader*, January 31, 1895, pg. 4; February 28, 1894, pg. 4).

The 1897 crop at Kendal (inclusive of Lilliput) was reported to have been 10,500 bushels. In contrast, Orton produced 13,000 bushels, the largest amount in the county

(*Wilmington Morning Star*, March 5, 1898, pg. 1).

Another hurricane struck the area on October 30, 1899. It was reported that only the tides of the September 1893 storm were higher and damage, primarily from flooding, was extensive. While the rice crops had been gathered, it was reported that at Kendal the banks required rebuilding and the wharf once again needed repairs (*Wilmington Morning Star*, November 1, 1899, pg. 1; *Wilmington Daily Dispatch*, November 15, 1899).

After about 1899 information on rice cultivation is very scarce. One of the few reports is from 1901 when the crop was reported to be very light as a result of the "high waters early in the spring" (*Wilmington Messenger*, September 19, 1901, pg. 4). Another reports that a storm hit Kendal as the cut rice was drying the fields ("Result of Storm," *Wilmington Morning Star*, October 23, 1906, pg. 1). While this may only reflect a change in the societal interests, it may also reflect a changing use of the Kendal property. Instead of rice-related news there are an increasing number of articles related to Kidder's visitors and social activities.

In 1901 Annie Kidder[48] and her guest, a "Miss Cocke" visited Kendal (*Wilmington Morning Star*, January 13, 1901, pg. 1). In 1903 Mr. James Kidder and Mrs. Paul Leister Ford[49] of Brooklyn arrived to visit Kendal (*Wilmington Messenger*, February 8, 1903, pg. 6). In 1903, Henry M. Flagler (1830-1913) [50], American industrialist and founder of Standard Oil, visited Frederic Kidder at Kendal (*Wilmington Morning Star*, May 12, 1903, pg. 1). In 1904 Annie Kidder invited "Miss Symonds and her classes in Domestic Science in the Wilmington public schools" to take an "excursion" to Kendal to study rice cultivation. Accompanying them was "Superintendent Blair," from the Wilmington City Schools (Hill Directory Company 1902:54).

In the spring of 1903 the industrialist and a founder of Standard Oil, Henry Flagler, visited with Kidder at Kendal. They also traveled to Florida on Flagler's private railroad car. After being gone for about a week, they returned to Wilmington and Kidder announced that his rice plantation would not be discontinued, but would be "only partially cultivated in the future," dividing his time between Kendal and "his work in Florida . . . where he will engaged in the cultivation of fruit and early truck [crops]" (*Wilmington Messenger*, October 16, 1903, pg. 4; see also *Wilmington Messenger*, April 28, 1903, pg. 8; *Wilmington Morning Star*, April 28, 1903, pg. 1; and *Wilmington Morning Star*, May 12, 1903, pg. 1).

Perhaps because of this division of time, a series of advertisements appeared in the Wilmington newspaper announcing that Kidder was rescinding all previous permits to hunt or fish on the Kendal property (*Wilmington Messenger*, December 23, 1903, pg. 8).

There is little to help us understand how Kidder operated Kendal – there are no account books, no journals, nor even any family papers. The one exception is a draft agreement for plantation workers, dated 1904 and adapted by Kidder from a similar document used at Orton. Kidder provided seed rice and land, advanced pay of 25¢ per day to men with families and 12½¢ a day to men without families, in exchange for one-half of the rice raised. The agreement specified that Kidder would have the authority to sell the full crop and take out all advances.

The agreement specifically named Thomas Allen as having "charge of the planting and supervising the cultivation of said crop, and paying off the hands."

[48] "Miss Annie Kidder" was Ann Potter Kidder (1851-1927), a sister of Frederic Kidder who never married.

[49] James Kidder was likely James H. Kidder (1869-1958) and Mrs. Paul Leister Ford was Mary Grace Kidder whose first husband was Paul Leister Ford (1865-1902). They were both children of Edward Hartwell Kidder, Frederic's brother.

[50] Block (2011:62) reports that Kidder accompanied Pembroke Jones (a financier and social leader) and Flagler on a railroad trip to Colorado.

Table 13.
Biographic Information about Postbellum African Americans at Kendal

Charles Allen
Father of Thomas Allen, Charles Allen was born about 1843 and married Mary Frances Brown Allen. In the 1880 census they are shown with five children, Thomas, Mary A., Mary Jane, Elizabeth A. and Harriet A. In 1900 they had three additional children, Eddie (or Edward) W., Margaret, and Julia. Charles was identified as able to read and write and owned his own farm in the Town Creek area clear of a mortgage. Charles was last listed in the 1910 census, still married to Frances.

Thomas Allen
Son of Charles Allen, Thomas was born about 1875. In the 1900 census he identified himself as the foreman on a farm, which we know was Kendal. He could read and write and lived in the rented house in the Smithville area. He had been married to Harriett E. Allen since about 1894. By 1910 he and Harriett had one child, Elizabeth, and Thomas listed his occupation as "rice farm." By 1920 he was working at the fish factory in the Brunswick town area. By this time he and wife had a number of Bryant children living with them. Still in the Smithville area by 1930, Thomas listed his occupation as a farm laborer. Living with them was Sippie Allen (20 years old), Hester Allen (6 years old), and Sarah Clark (20 years old). Thomas Allen died on June 12, 1930 at the age of 55 and was buried at "Old Town," likely in the Town Creek area of his childhood. At the time of his death he was employed by James L. Sprunt, Jr.

Peyton Bonham
Peyton Bonham was found only in the 1880 census at which time he was living in the Rocky Point area, the servant of the white Hocutt family.

Miles Brewington
Miles Brewington is found in 1880 census married to Monah (actually Maria). Miles (also Mike) Brewington was born about 1845 and his wife was born about 1855. They had three children, Josephine, 7, John, 3, and Emma 1. He listed his occupation as a laborer and, at the time of the census, his wife was listed as suffering from "dropsy"(swelling or edema). In the 1900 census the family was living in the Town Creek area. Listed as children at home were Josephine, now 18, Margaret, 16, Miles J., 4, and Susan, 2. He was again listed as a farm laborer. Although we don't know when Miles died, his wife Maria died on May 30, 1925 at the reported age of 70, and was buried at Lilliput Plantation. Emma Brewington Alridge died in 1949 at Orton Plantation and was also buried at Lilliput Plantation. Josephine Brewington married Solomon King and died in 1959 at the age of 85. She, too, is buried at Lilliput.

James Brown
James Brown, born about 1872, is found in the 1910 census married to Sarah Brown in the Town Creek area. They had two children, William (19 years old) and Sarah B. (17 years old). He was listed as a general farmer on his own account and it was reported that he could read and write. By 1920 he is employed at the fish factory in the Brunswick Town area and two children are listed: Samuel (12) and Edie W. (6).

Lucy Bryant
Lucy Bryant was born about October 1868 and in 1900 was married to Anderson Bryant, a teamster. She reported that she could read and write. She and Anderson had five children, Arthur, Mary, Martha, James H., and Jan. In 1910 they reported four children. Anderson, identified as Alexander in this census, was working on a rice farm; she is no longer listed as being able to read or write. Lucy died on December 24, 1924. She was born in the Dark Branch area, the daughter of Ned Clark and Catherine Clark. She was buried at "Kendall Plantation."

Scipio Clark
Scipio Clark was found in the 1880 census, married to Nancy Clark and reported that he born about 1848. He listed his occupation as a "farm hand" and the family had four children, Lizzie, Clara, Julia, and Louisa living in the Wilmington area. In 1900 he and his wife were living alone in the Smithville area. Scipio died on December 12, 1912. J.L. Sprunt, when Scipio died, wrote in the Kendal guest book that "Scip died this day – the last link with the olden time – a mighty hunter – a faithful friend – a good Christian." His wife, Nancy, died nearly a year later, on September 12, 1913 at the age of 63 of chronic interstitial nephritis (kidney disease). Her death certificate indicates she was buried at "Kendall."

John Henry
John Henry is first seen as a 12 year old child of James Henry and his wife, Phyllis, in the 1870 census. He next appears in the 1900 census, as the son-in-law of Jane McDonald in the Smithville area. He was apparently widowed, listing his occupation as day laborer. He reported being able to read and write.

Joseph Hooper
Joseph Hooper could be identified in only the 1900 census. He was born about December 1867 and was listed in northwest Brunswick County. He had been married to Mariah for seven years and they had one child, Jessie P. Hooper, 7 years old. Both he and his wife could read and he listed his occupation as "day laborer."

William Johnson
William Johnson is first found in the 1880 census living in the Smithville area and was born about 1854. He was single and listed himself working on a rice plantation. He is next identified in the 1900 census, being listed as 52 years old but still living in the Smithville area. He reported being born in South Carolina and by this time was married to Elizabeth Johnson. They had one child, Rachel Reaves.

Frazier Morant
Frazier (or Fraser) Morant appears only in the 1910 census. He was born about 1875 and was married to Jane Morant. They had one child at the time, Fanny, who was 4 years old. Frazier and Jane had been married for 7 years and he reported that he was farm labor. A Jessie Morant died on July 31, 1925 at the age of about 26 of a hemorrhage. The death certificate listed his father as Frazier Morant and mother as Jane Morant. He was buried in Dark Branch and the funeral director was listed as Solomon King.

Lizzie Smith
Lizzie Smith appears only in the 1900 census at which time she was 50 years old, reporting a birth date of July 1849. She was married to Virgil Smith and had two children still living at home, Frederick Smith, 19, and Tammy Smith, 8. Lizzie could not read or write and Virgil could read, but was not able to write. He reported his occupation as farm labor.

King Solomon
King Solomon is first found in the 1880 census living in the south half of the Town Creek district in the household of Caesar and Hager Gallway. He was 13 years old at the time and was identified as a nephew. In spite of his age he was working as a farm laborer and could neither read nor write. He is found again in 1920, reporting a birth date of about 1865. He was married to Josephine and they had one son, Lewis, 3 years old at the time. Solomon reported that while he did not attend school, he could read and write at this point in his life. He was working at the fish factory in the Brunswick Town area and was still living in the Town Creek area.

The workers also agreed to "look after the welfare of the Plantation, keeping out hogs and cattle, and prevent shooting or hunting on the place. . . ." In case of damage to the banks, flood gates, or other issues, the workers agreed to "repair promptly . . . without charge." Unruly conduct or quarrelling was not allowed. Kidder also provided use of tools, thrasher and other equipment to "cultivate, harvest, and prepare said crop for market, without charge, except the machinery necessary for threshing for which they are to pay one-half. . . ."

The draft document lists 10 individuals: Thomas Allen, King Solomon, James Henry, Jim Broom, William Johnson, Joe Hooper, Lucy Bryant, Charles Allen, Frazier Morant, and Miles Brewington (see Table 11).

In 1907 an article reported on a large party at Kendal,

> A delightful week-end house party is in progress at Kendall, the delightful and charming Kidder plantation . . . Miss Florence Kidder [51] being the gracious hostess of the merry party of young people. Various delightful amusements have been arranged for the pleasure of the happy young people and they are enjoying a pleasant outing. In the party are Misses Florence Kidder, Jennie Murchison [52], Virginia Bailey, Alice Wright, Mary Ella Moore[53] and Bessie Bridgers and Messrs Markley Crosswell, Louis Moore[54], Richard Meares[55], Ed Bailey, Houghton James, Rob Calder and Marion James (*Wilmington Messenger*, November 17, 1907, pg. 5).

Another excursion was reported in April 1909 when Florence Kidder and a variety of others spent the day with Capt. Clarence D. Maffitt on the Captain's "handsome little launch, the 'Virginia Dare'." They visited Kendal, as well as Orton (*The Wilmington Morning Star*, April 25, 1909).

Frederic Kidder died on October 27, 1908 in a Litchfield, Connecticut sanitarium where he had been "for some time," but was brought back to Wilmington to be buried in Oakdale Cemetery ("Mr. Fred Kidder Dead," *Wilmington Morning Star*, October 29, 1908, pg. 1; "Funeral of Late Mr. Frederick [sic] Kidder to be Held This Afternoon, *Wilmington Morning Star*, October 30, 1908, pg. 1). Perhaps one of the most beautiful comments, written by "A Friend,"

> During the many months of his long illness his mind often turned to the old plantation, which he longed to see again as he had seen it when he looked out upon the wide expanse and watched the white winged vessels sailing by, or when, after a busy day, he had sat far into the quiet night and gazed into the great arch above, resplendent with the tranquil glory of the stars ("In Memoriam – Frederick [sic] Kidder, of Kendal," *Wilmington Morning Star*, October 29, 1908, pg. 4).

After Kidder's death there was little additional news reported from Kendal. In 1911, however, it was reported that Melvin Smith, "an aged negro" living on Kendal had "gone raving

[51] Florence Kidder (1888-1971) was the daughter of Frederic's brother, George Wilson Kidder and his wife, Florence Hill.

[52] Jennie Murchison was Catherine Jennie Murchison (b. 1854), the daughter of Kenneth M. Murchison, owner of Orton.

[53] Mary Ella Moore (1887-1977) was the 4th great granddaughter of Kendal's founder, Roger Moore.

[54] Louis Moore (1885-1961) would eventually marry Florence Kidder. Moore was the 4th great grandson of Kendal's founder, Roger Moore.

[55] Richard Meares was the son of Thomas D. Meares, an agent with the Seaboard Air Line Railroad.

crazy and he is in such a violent state that it is necessary to keep him bound hand and foot" (*Wilmington Morning Star*, October 28, 1911, pg. 6). The 1910 census reported that Melvin Smith was 70 years old at the time and his third marriage was to 37 year old Lena. They both listed their occupation as farm labor, but Smith owned his house.

Kidder's Plans

At some point prior to Kidder's death he retained Boston architect John Lavalle to develop a set of plans for a rather elaborate colonial style two-story house. Only three renderings of the house survive, accompanied by detailed construction specifications. The associated plan sheets have not been found. The renderings are undated and are identified only as "House for Frederick [sic] Kidder, Esq. North Carolina." The specifications are a little more informative, indicating they are for a "dwelling house for Frederick [sic] Kidder, Esq., in Wilmington, North Carolina."

Lavalle was born in Lima, Peru of Scottish parents. He studied at St. Paul's School in Concord, New Hampshire, the Massachusetts Institute of Technology, and Ecole des Beaux Arts in France. He worked in Helena, Montana before moving to Boston and working with the firm of Rotch & Tilden (Obituary, *Boston Evening Transcript*, June 14, 1916; *Boston Post*, July 21, 1895). In 1895 he married Alice C. Johnson, a noted Boston socialite "*Boston Post*, April 21, 1895, pg. 16), They had two children, John Lavalle and Alice Lavalle before divorcing. Lavalle not only "made a speciality of" colonial architecture, but also designed a number of notable North Shore summer residences.

It has been assumed that these plans represent his desire to replace the Kendal house with a more modern and comfortable structure, but the plans went unfulfilled because of money problems. It is highly unlikely, given his love of Kendal that he would consider removing the existing house.

It has been suggested that the plans are out of scale for the Kendal plantation property. We believe, however, the specifications directly naming Wilmington, rather than Kendal or Winnabow or even "country house," offer more conclusive evidence that the plans were intended for a second home, making it easier to participate in Wilmington society. Kidder, unlike many wealthy plantation owners, did not have a Wilmington house, living on his plantation year-round. His only Wilmington address was an office he maintained in the National Bank Building by 1900 (J.L. Hill 1899:122).

The specifications provide additional evidence that the structure was intended for an urban area. For example, while a holding tank was planned for the attic, it was too small for anything except back-up service. In addition, the plumbing specifications indicate that the owner would run the water line; the sewage line was to be run 30 feet from the house where the owner would make final connections.

In 1902 Lavalle entered four items in the Architectural Exhibition of the Boston Architectural Club. One of these entries, number 166, was identified as a "sketch for Bachelor's Lodge near Wilmington, N.C." (Boston Architectural Club 1902:36). It seems probable that this entry was that of Frederic Kidder's Wilmington house.

The specifications provide some clues concerning the probable date. The reference to Portland cement indicates a post-1871 date, while the reference to Rosendale cement suggests a date range no earlier than 1870. Products such as Eureka Chemical Paint, Walker & Pratt's Lakewood stove, and Chicago Varnish Company are all suggestive of a ca. 1890 date.

The evidence taken together suggests that Kidder intended to build himself a Wilmington residence during the last decade of the nineteenth century. While funds may have been the issue, Kidder's declining health may have been an additional factor in abandoning the plans.

Kidder's Estate

Kidder's will was prepared a little over

two years prior to his death, being signed on March 30, 1906. It was probated in Brunswick County on November 5, 1908 (Brunswick County Record of Wills, WB A, pg. 235).

Kidder's will contained a relatively elaborate series of bequeaths. For example, to his sister, Anne P. Kidder, he bequeathed his Dresden china[56] and the "cabinet containing the same." His friend, Dr. George G. Thomas, was to receive the two bronzes on the dining room mantle. Even his "old leather chair used by me in my college days" was specifically gifted.

One item is of special interest. His "friend Mrs. Luola Sprunt, wife of James Sprunt" was to receive his etching, "Darby and Joan" which she specifically admired. McCauley noted that this etching was by:

> W.H. Boucher after Walter Dendy Sadler's leading painting shown in the Grosvenor Gallery exhibit of 1889. In it Mr. Sadler sympathetically and poetically dealt with the happier autumnal aspects of human life. . . . The picture represents a dining-room of the Queen Anne period where a comely old gentleman, the Darby of the composition, sits at table with his still handsome and now venerable Joan. In the background in a panel in the wainscot is the portrait by Gainsborough (McCauley 1907:58-59).

A great many other etchings were likewise distributed to family and friends by Kidder's will.

Kidder gave his "old servants" Liza Smith, Tom Allen, Peyton Boneham, and Scip Clark each $100. Tom Allen is the Thomas Allen mentioned as being in charge of the workers in the 1904 draft agreement with the farm laborers.

With no wife or children of his own, Kendal and all of its associated items not otherwise bequeathed were given to his nephew, George E. Kidder, and his three nieces, Annie K. Smith, Florence Kidder, and Elise Kidder.

If we base our judgment on the inventory of the estate, the Kendal Plantation was Spartan. The furniture at Kendal was valued at only $124. The 26 etchings were valued at $614, the Dresden china was valued at $100, the student's chair was valued at only $1, a bookcase and books were valued at $100, and a sideboard was valued at $10. The silver at the plantation, identified as "mostly plated," was valued at only $10.

The four mules on the plantation were characterized as "old" and given a value of only $25 each. The farming implements were equally as old and were worth only $41.

The current year's rice crop, apparently not yet harvested, was valued at $2,500. Kidder's total personal estate was valued at only $12,579 (NCDAH, Brunswick County, Frederic Kidder Estate, 1908).

As the 1908 crop was harvested, it brought $3,095.43, although we have no information on the acres planted or the size of the harvest. The estate papers do tell us that the cost of maturing, harvesting, and selling this rice and straw was $1,460.15, resulting in a return to the estate of only $1,635.28. Factoring in the cost of the seed, planting, and tending, it seems that by 1908 rice was only a marginally profitable crop.

There is nothing in the inventory or estate records to suggest that Kidder was involved in any other plantation activities. For example, there was no corn on hand, there was no evidence of turpentine or tar production, and there was not even evidence that the plantation had its own threshing machine for rice (in spite of the 1904

[56] There were a large number of porcelain studios in or near the city of Dresden, Germany. The term therefore refers more to an artistic movement than a particular porcelain company. By 1883, four prominent ceramic decorators had registered the Dresden blue crown mark.

draft agreement with the workers previously discussed). Coupled with the limited contents of the plantation house, such as the silver plate, it seems that Kendal was a "flower-crowned waste" in the words of Henry James and that Frederic Kidder was, in the words of Peter Coclanis (1989), living in the "shadow of a dream."

In the final accounting, Kidder's estate was worth $18,352.68.[57] Of this, 25% was his share of the estate of his father, Edward Kidder. An additional 51% included stocks and bonds. Possessions at Kendal accounted for only 7% of the total estate.

Kidder's Heirs and Kendal

A letter from Edward H. Kidder to his brother George W. Kidder dated June 3, 1909 briefly commented on the family's effort to rent Kendal, "I am very glad indeed, to know there [is] a prospect of renting Kendall and it does seem to me that with Rice and his friends wanting Clarendon[58] so badly, they will be able to make the raise some how [sic]" (Kidder Files, Belvedere Property Management, New York, New York).

There was apparently a prospect for the sale of Kendal and Louis T. Moore, attorney for the heirs, granted an option on the property to James N. Bryant, a manager of a lumber company. The option was to expire on May 30, 1918 and Bryant paid $20,000 to Moore, but no deed was ever delivered (Brunswick County Register of Deeds, DB 29, pg. 390).

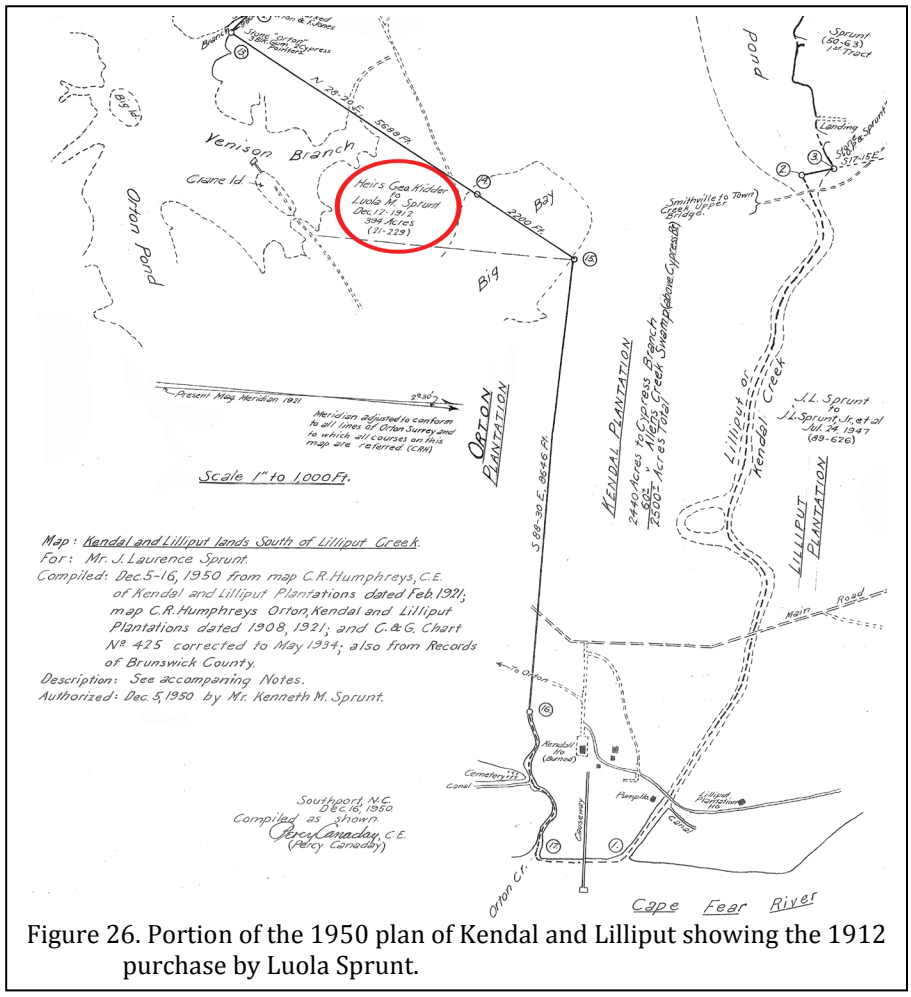

Figure 26. Portion of the 1950 plan of Kendal and Lilliput showing the 1912 purchase by Luola Sprunt.

In 1912 the heirs sold 394 acres of the plantation to Luola M. Sprunt for "Ten Dollars and other good and valuable considerations" (Brunswick County Register of Deeds, DB 21, pg. 229). What these other considerations are we don't know, but the portion sold represents a triangular tract abutting the west property line of Orton. To the south was Orton Pond (Figure 26).

The remaining portion of Kendal (as well as Lilliput) was sold by the Kidder heirs, six years

[57] This represents about $476,000 in 2015$.

[58] Not mentioned in Kidder's will, Clarendon Plantation was owned jointly with New Yorker Henry Walters, vice president of The Wilmington Savings and Trust Company.

later on May 16, 1918, to James Sprunt for $10,000 "and other valuable considerations" (Brunswick County Register of Deeds, DB 29, pg. 388). It appears that this additional "consideration" may have been an extra $10,000 not listed in the deed, since the Sprunt account book listed the purchase price at $20,000 (Sprunt Account Books, Belvedere Property Management, New York, New York).

As a result of this sale it became necessary for Sprunt to the clear the title by payment of an additional $1,500 to Bryant for his option on the tract (Brunswick County Register of Deeds, DB 29, pg. 390).

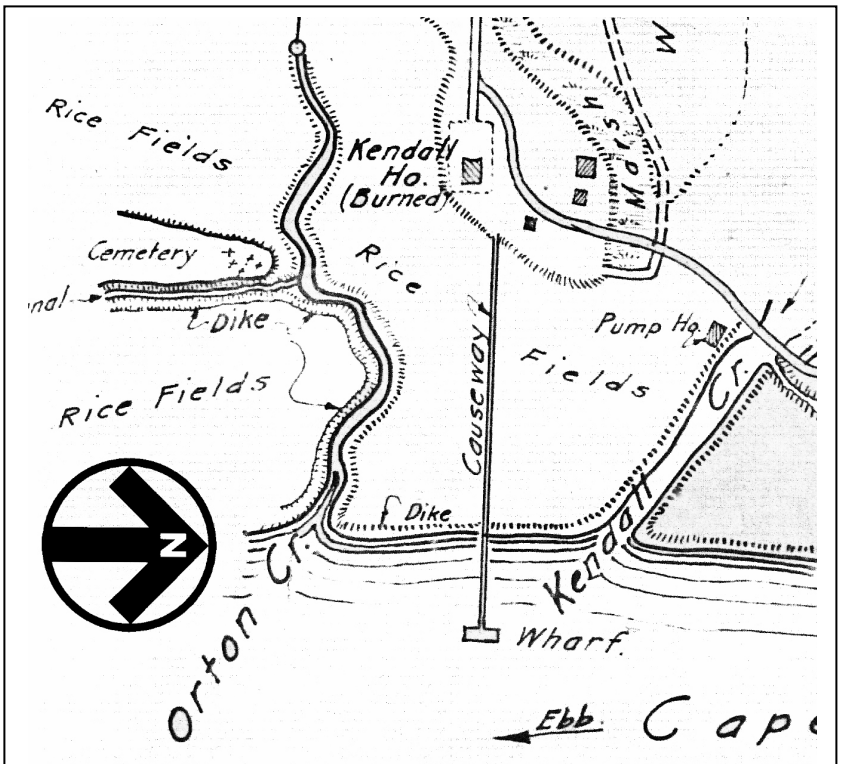

Figure 27. Portion of the Humphreys 1921 map of Kendal and Lilliput map.

Kendal and the Sprunt Family

While we have found no evidence of how Sprunt intended to use Kendal, we know that he hired a "superintendent" and placed him in the Kendal house. On Saturday noon, February 15, 1919 the wood shingle roof of the attached kitchen caught on fire. High winds spread the fire to the main portion of the building, likely through walls, since the main house had a metal roof. It was reported that "very little of the furniture of the residence was saved" ("Fire Destroys Historic Mansion," *Wilmington Morning Star*, February 16, 1919, pg. 5).

The article reports that "the loss is only partially covered by insurance" and that Sprunt was "as yet undecided as to whether he will rebuild Kendal." We know, of course, that the mansion was not rebuilt, but Sprunt's Kendal account identifies three insurance policies, all held by "J.H.B. & Son" or J. H. Boatwright and Son with offices in the Murchison Bank Building, paid a total of $8,250 for the loss. The funds were transferred to Sprunt's private ledger.

We have been unable to identify Rudwick Fields, the superintendent living in the Kendal house when it burned, in any census record or in local newspapers before or after this incident.

There are only very occasional references to Kendal in the Sprunt account books. One of the earliest references is on April 1, 1919 in the amount of $50 for "ex work, a/c Kendal Dam." On February 5, 1921 Sprunt collected $24 from the rental of Kendal houses to laborers. There is anecdotal information that Kendal was rented during much of Sprunt's ownership, but there is nothing in these account books to confirm this. Nor is there anything to confirm payments to Rudwick Fields. We suspect there are additional account books that have not been identified.

The 1921 plan showing Kendal and Lilliput (made by C.R. Humphreys) shows the Kendal house as burned. There are three additional structures shown to the north on high

Figure 28. Aerials of Kendal Plantation. At the top is a portion of the April 4, 1938 aerial AOQ-39-67. While the main plantation complex is gone, there remain three cultivated fields and one field that has gone out of cultivation. To the west, at the road is the field in which the structures seen in the 1939 plan are located. Also visible is the main road into Kendal. Below is the January 12, 1959 aerial showing that only a small field remains on the rice fields. The area of the structures along the main road in 1939 has become wooded, although a new area of cultivation to the north has been opened and structures are present in this area.

ground. Two are west of the Kendal road leading across Kendal Creek to Lilliput, the other is on the east side of this road. Only the structure on the east side of the road, thought to be the rice barn, is found on earlier maps. This is the first time a road is shown in this area. Also present on this plan is a pump house situated in the rice field, just within the dike and on the edge of Kendal Creek.

The 1939 plan shows all of the structures in the plantation core now gone. Only those structures at the west edge of the property along the avenue are still present and these can be seen in the 1938 aerial.

There is evidence that daffodils and perhaps other bulb plants were grown on Kendal and Lilliput during the 1930s and 1940s. This may account for some of the foundation damage observed during the archaeological studies. In addition, we know that in 1943 Orton purchased a very large quantity of clay pots; these may have been the source of the large quantities of fragments found in the burned servant's quarters at Kendal (Trinkley and Hacker 2016).

By the mid-1930s we begin to have reputable oral history. Eugene Vaught, who was born in 1932, explained that the houses seen since at least 1888 were known as Hagfield and the last person living there in his memory was the mother of Robert Eno; by his time the houses were gone and the area was occasionally planted in provision crops by his father.

Mr. Vaught's family lived in the new settlement to the north of Hagfield and between the two areas was a swamp. The bamboo that is now so prevalent in the area was planted by his father from a few slips taken from Orton.

He was raised in a family of three boys and three girls in a four room house. There were two bedrooms, one for his parents and another for the children, a kitchen, and a main parlor. Later Sprunt built a smaller house to the west, consisting of just one room, where Mr. Vaught's father lived alone. The family moved off the property about 1950.

There were never any trees around his house, only the fields in which the family grew potatoes, corn, and vegetables. They had two horses. While his father tended the farm, his mother worked in the Orton gardens. His grandfather lived on neighboring Lilliput.

He also recalls that all travel around the plantations was by ox cart, even into the 1940s. The main road – River Road – that is shown in the various pre-1950 aerials and maps was dirt and can still be seen today within the plantation boundaries. His mother told him that there was a road that used to run from Kendal, crossing the rice fields, through the white cemetery, to Orton (Eugene Vaught interview by Debi Hacker, May 23, 2012). Block mentions that Kidder "would walk to Sprunt's house at twilight, braving the graveyard cut-through" (Block 2011:66), probably taking this road.

Kendal had burned before he was born, but Mr. Vaught did recall that he and his brother would scavenge brick from Kendal (Eugene Vaught interview by Debi Hacker, May 23, 2012). He also reported that the fields around Kendal were being plowed and the Sprunts were using the fields to grow daffodil bulbs (Eugene Vaught interview by Michael Trinkley, April 13, 2015).

While Mr. Vaught didn't recall the reason that they moved off Kendal, it was in 1947 and 1950 that J. Laurence Sprunt sold Kendal to his children, James L. Sprunt, Jr., Kenneth M. Sprunt, Sam N. Sprunt, and Laurence Gray Sprunt for $1 (Brunswick County Register of Deeds, DB 79, pg. 626; DB 102, pg. 143). Betsy Vaught, however, was still living on Kendal as late as 1960 (Trinkley and Hacker 2016: Table 8).

The 1950 plan of Kendal shows the houses along the west edge of the property, including those associated with the Vaughn family, gone – confirming the oral history. The location of the burnt house, the three nearby structures, and the pump house are still present, suggesting that they remained visible on the landscape.

Excavations

Methods

Background

As a result of the initial reconnaissance survey (Trinkley and Hacker 2012:203-208), a pedestrian surface collection was made at the Kendal site and the immediately recognizable ruins of the Kendal House were mapped. The site boundaries were estimated to be about 300 by 400 feet, but this was based on the scatter created by the Kendal House and its associated brick features. These included two obvious brick chimney falls, foundation ruins, a cistern, a third chimney thought to be associated with a slave house to the north, and a large depression thought to be an ice house to the south. Also recognized were a large number of gardenias to the west of the site, which we assumed to be remnants of Frederic Kidder's gardens.

The artifacts provided a mean ceramic date of 1826. The collection was dominated by creamware, although both earlier (lead glazed slipware) and later (whiteware) ceramics were present. Subsequent visits and surface collections also began to collect white saltglazed stoneware. Not unexpectedly, the surface collections were dominated by Kitchen Group artifacts since they are easy to identify. In fact, the only architectural remains, in spite of the Kendal House burning and collapsing on-site, was window glass.

Nevertheless, our initial surveys identified the Kendal House site as "very important" and we noted that it possessed "excellent integrity, evidenced by the well- preserved foundations, the intact cistern, the intact gardenia gardens, the still recognizable avenue to the mansion, and the abundant artifacts" (Trinkley and Hacker 2014:207-208).

The recommendation at the time was preservation, with test excavations and careful mapping of all surface features. As previously explained, preservation turned out to be impossible, so these far more detailed excavations were undertaken.

Archaeological Methods

Horizontal control for the site was maintained using a modified Chicago grid system. An existing survey bench mark with the coordinates N117154.26 E2318306.16 (an existing grid that has been established for all of Orton and Kendal) was used as our 170R100 point. This will allow ready reconstruction of the grid in the future. This system assumes an off-site 0R0 point and the southeast corner of each unit designates the feet north and right (or east) of this arbitrary 0R0 point. Hence, the southeast corner of unit 10R50 would be 10 feet north and 50 feet right, or east, of the 0R0 point. It was necessary to expand the grid to the west past our R0 point; those to the west were designated L10, L20, L30, and so forth.

Vertical control at the site was established by reference to this same site datum, which has an elevation of 15.75 feet above mean sea level (AMSL). All elevations were taken in relation to this point, allowing two widely separated areas of the site to be precisely compared.

The grid (Figure 29) was established over an area encompassing 360 feet north-south and 640 feet east-west, although not all points were staked. A total of 393 grid points were staked at 20 foot intervals and these points were subjected to auger testing to allow determination of site density and help determine which areas would be further explored.

Figure 29. Grid, auger tests (in pink), and excavations (in yellow) at Kendal Plantation.

Figure 30. Site clearing and auger testing. The upper photo shows the Kendal site cleared of vegetation and initial efforts to remove loose brick to reveal structural details. The lower photo shows auger testing and screening of the tests.

Figure 31. Site excavation and screening. The upper photo shows excavation and screening in the Colonial Kitchen area. The lower photo shows Maleah Inboden (left) and Elise Agne (right) sorting a screen load from the slave cabin area under cover of a tent.

Figure 32. Troweling and feature excavation. Upper photo shows troweling of an excavation block. The lower photo shows Breanna Bigger (left) and Andrew Hyder (right) removing features in 255R280.

Figure 33. Field processing of collections. Upper photo shows washing and drying station set up at Kendal to process collections. Lower photo shows Debi Hacker conducting initial lab processing of collections in a small office on-site.

The auger tests were excavated using a 12-inch power auger (producing an excavation with a volume of 0.78 ft^2 – or about three-quarters the size of a traditional shovel test). After excavation the fill was hand-screened through ¼-inch mesh, with brick and shell being quantified in the field and discarded. The results of this auger testing (described below) were mapped in the field and used to direct the placement of hand excavated units.

The minimal excavation unit was a 5 by 5 foot unit, although typically 10 by 10 foot units were used for horizontal control. Chicora has adopted engineering measurements (feet and tenths of feet) for consistency in its work, especially on European sites where structural measurements are most often in feet.

The excavations were by natural soil zones, although upper zones were typically combined. For example, in areas where there was not brick rubble, the soils often consisted of very dark brown (10YR3/2 or 3/3) loamy sand or sand overlying brown (10YR4/3 to 5/3) sand. In other areas there was a dark brown (10YR3/3) sand and elsewhere there was a gray (10YR5/1) loamy sand. These soil zones were removed as level 1 in order to expose a lighter colored soil, often a very pale brown (10YR8/3) or light yellowish brown (10YR6/4) sand in which features could be discerned. There were occasional plow scars and plow ridges, although generally these were removed with the upper levels. Flat shoveling was often necessary to better reveal features, given the low contrast between the gray and brown soils and subsoil. Excavation was by hand with all fill dry-screened through ¼-inch mesh using both mechanical and hand sifters.

A one-quart soil sample was collected from each provenience for soil chemistry needs. We also collected pollen and phytolith samples from identifiable structures or discrete midden areas. The methodology of their analysis is available in a following section.

We have found from past experience on historic sites that routine flotation of samples is not cost-effective — they simply don't provide samples large enough for meaningful analysis. It is far better to search for samples which are likely to produce quantities of food remains than to float materials by rote in the hope of finding adequate samples.

Munsell soil color notations were made during the course of excavations, typically on moist soils freshly exposed. All materials except brick, mortar, and shell were retained by provenience. The brick, mortar, and shell from the screens were collected, weighed, and discarded in the field. These brick and mortar weights provide information on total brick weight and assist in evaluating construction details. It can also be used as an indicator of salvage or possible reuse of brick. The shell weights may provide clues on the utilization of shellfish as a dietary resource.

Each unit was troweled at the top of subsoil and digitally photographed. Units were drawn at a scale of 1-inch to 2-feet. Profiles were drawn at an exaggerated vertical scale of 1-inch to 1-foot, with a horizontal scale of 1-inch to 2-feet.

Features encountered during the excavations were plotted and photographed. Features were designated by consecutive numbers (beginning with Feature 1). Features, or samples of redundant features, were bisected to provide profiles. All feature fill was screened through ¼-inch mesh, with samples, typically about 5 gallons in volume, also screened through ⅛-inch mesh. Samples retained minimally included a soil sample and flotation samples.

Post holes were consecutively numbered by excavation area (not by unit as is the common method).

As a result of these excavations a total of 3,786.5 person hours were spent in the field and a total of 5,000 square feet of primary excavation were opened and 5,174 ft^3 of soil and rubble were moved. The investigations produced 763 pounds of shell and 59,103 pounds (or 29.5 tons) of brick and mortar rubble. These brick weights do not include loose rubble that was initially removed

Figure 34. Mechanical site stripping and visit by professional colleagues. The upper photo shows stripping of the topsoil in the northeast quadrant of the site after excavations. The lower photo shows a site visit arranged by Belvedere Property Management after the completion of the field investigations.

from the site core in order to better discern intact structural remains.

The field crew consisted of Elise Agne, Breanna Bigger, Andrew Hyder, Maleah Inboden, Jason McKeller, and Colton Tinker. On-site laboratory processing was conducted by Debi Hacker. The principal investigator and field director, Michael Trinkley, was on-site throughout the project.

Laboratory processing on-site included washing all of the collections using a 500 gallon water tank sprayer provided by and constantly refilled by the Orton Plantation staff. Collections were then dried and rough sorted. As time permitted, more intensive sorting was also conducted. However, by the conclusion of the three-month field investigations, virtually all of the collections were sorted and packed into 50 shipping crates, representing 90 cubic feet of recovered materials. Additional information on laboratory processing methods is found in a following section.

Extraordinary assistance was provided throughout the excavations by the Orton Plantation staff under the direction of Michael Claffy. Belvedere Property Management also assisted by providing tents, allowing us to work during inclement weather, and ensuring that back dirt was moved to allow expansion of excavation blocks. At the conclusion of the field investigations Belvedere Property Management and the Moore Charitable Foundation hosted an event bringing area professionals together to explore the work that had been done at Kendal and to examine a small sample of the recovered artifacts.

At the conclusion of the excavation it became necessary to strip a portion of the site situated in the northeast corner, shown in Figure 29. This work was conducted by a track hoe using a 3-foot bucket without teeth. The work was monitored by Hyder, Hacker, and Trinkley. Identified features were roughly cleaned by shovel skimming and photographed. Many of the features were sampled to allow some recovery of artifacts. The features were afterward mapped and are shown in Figure 29, identified within the stripped area by letter designations.

Auger Testing

Main Site Area

Figures 35-40 illustrate the results of the auger testing for various historic and prehistoric artifacts.

Figure 35 examines the density of architectural artifacts, revealing a small concentration in the vicinity of 180R0 and a much larger concentration to the east, around 120R160, which represents the ruins of the Kendal House. Surprisingly, the ruins of the slave structure to the north of the Kendal House failed to be distinguished by the auger tests. Otherwise, the entire site exhibits a thin smear of nails and window glass, which we attribute to significant post-occupation plowing.

Figure 36 plots the density of specific eighteenth century ceramics, including lead glazed slipwares, white saltglazed stonewares, clouded wares, and delft. All have mean dates prior to the American Revolution (i.e., 1733, 1758, 1755, and 1750, respectively). Most obviously, these ceramics are found primarily in the southern half of the study area, with a strong concentration around 160R40. A second area is found along the N100 line from about R60 through R140.

Figure 37 identifies the location of creamwares, which date from the late eighteenth through early nineteenth century; essentially from the Revolution to shortly thereafter. These remains are more widespread than the eighteenth century wares, but still tend to be found more commonly south of the N200 line. In particular, there is a concentration around 160R120, as well as a low density smear in the southwest corner of the site, near the marsh.

Combined pearlware and whiteware densities are shown in Figure 38. These are clearly concentrated around the 180R160 area, although there appears to be secondary concentration around

Figure 35. Architectural artifact density from auger tests.

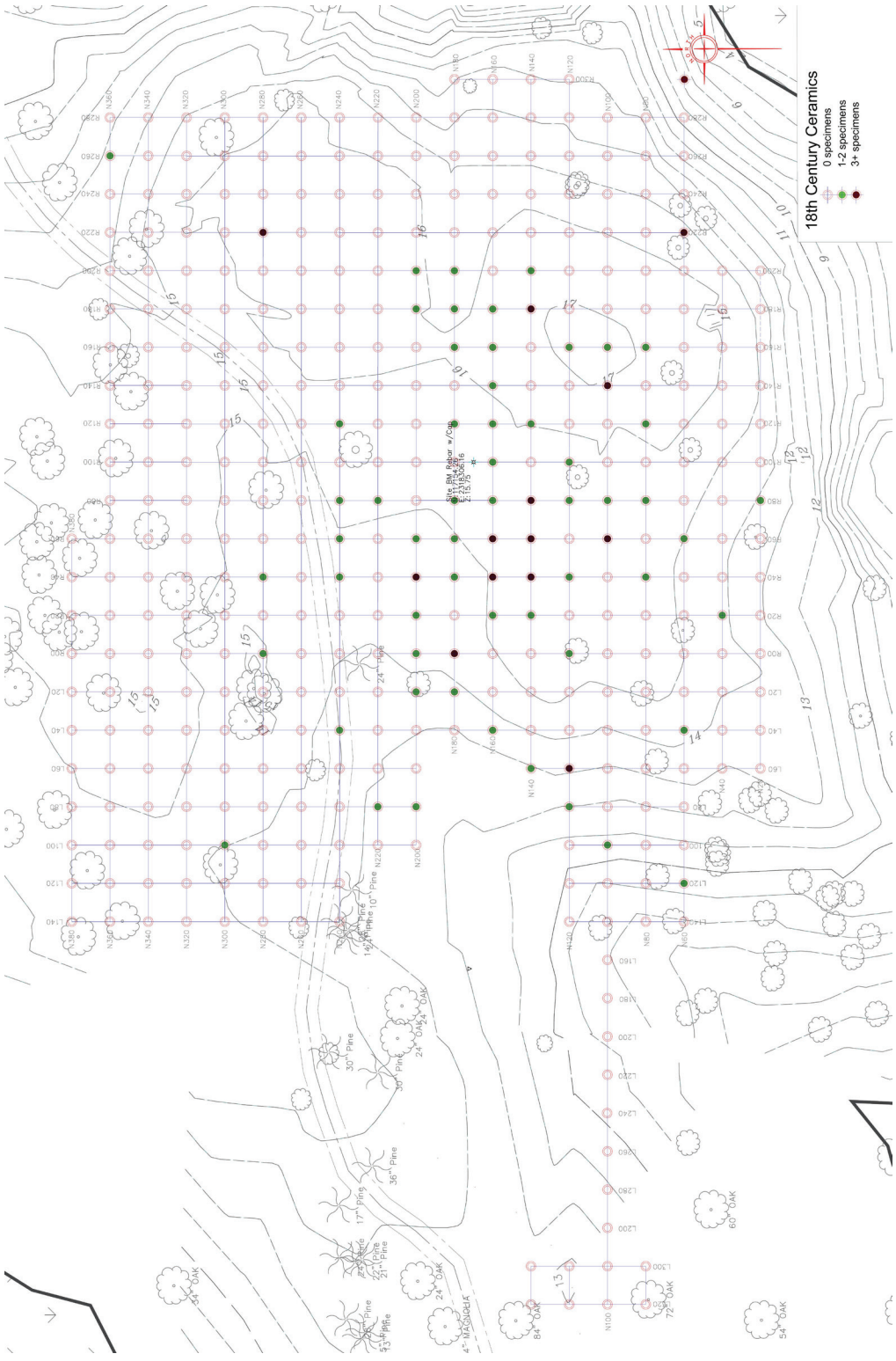

Figure 36. Eighteenth century ceramic (lead glazed slipwares, white saltglazed stonewares, clouded wares, and delft) artifact density.

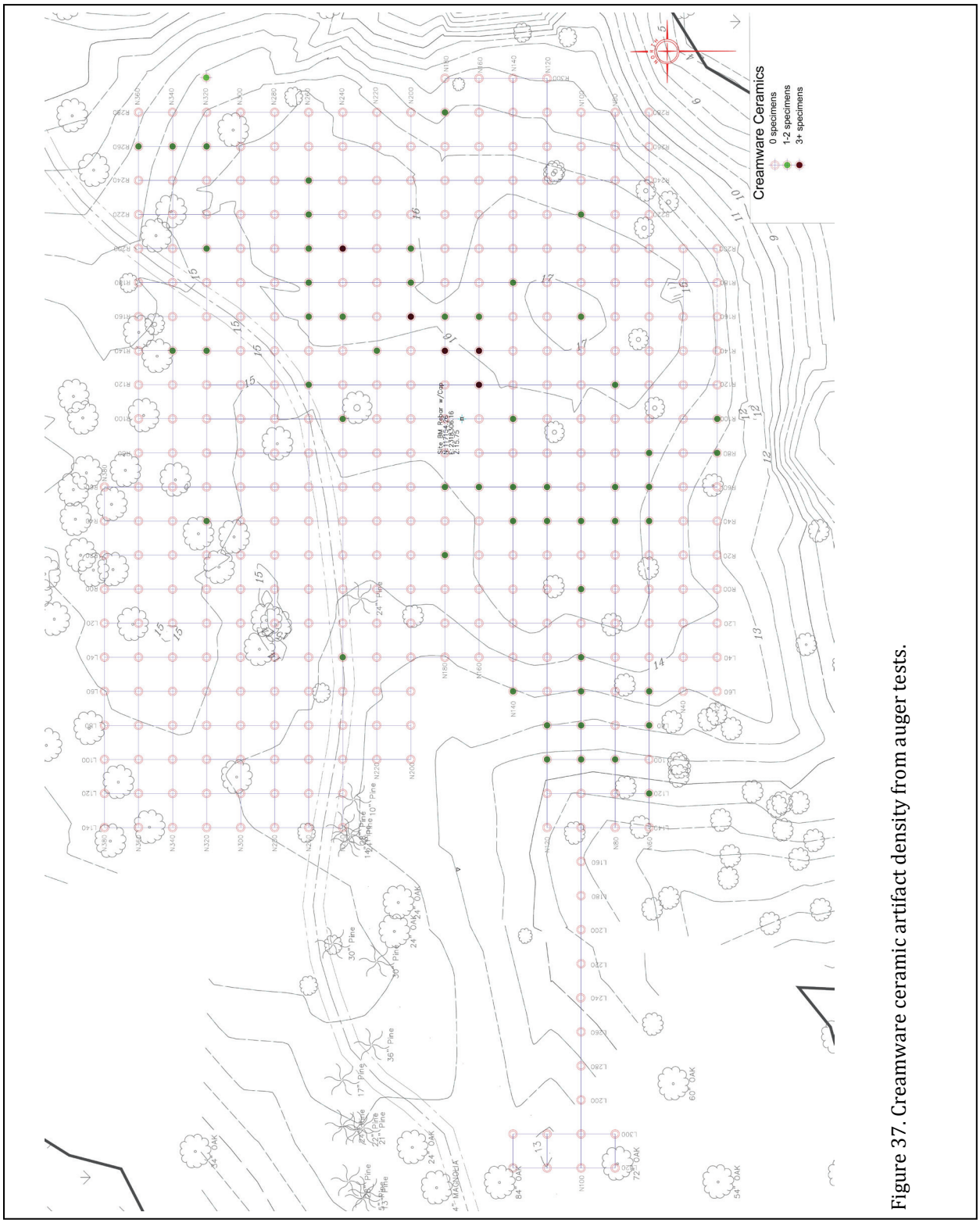

Figure 37. Creamware ceramic artifact density from auger tests.

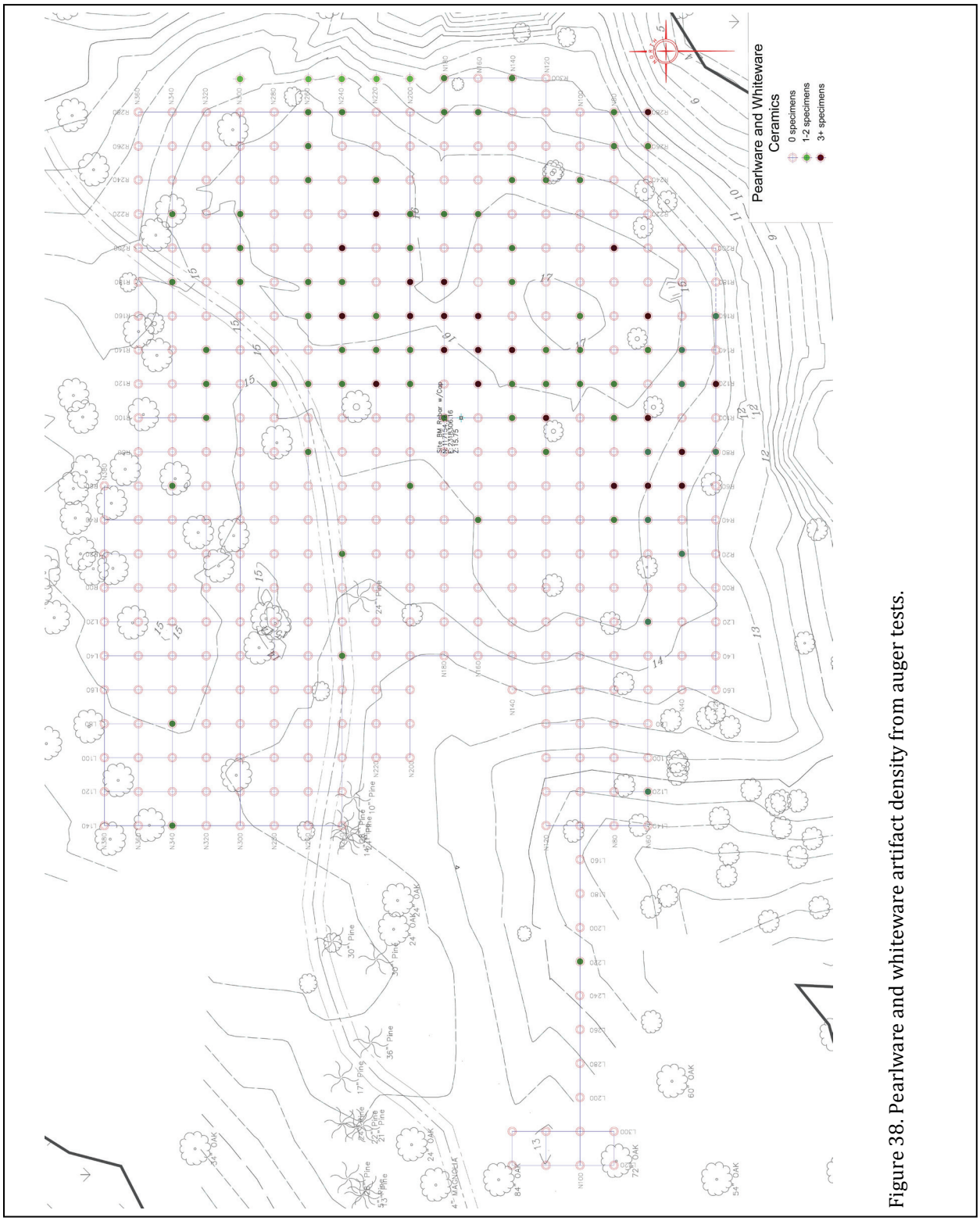

Figure 38. Pearlware and whiteware artifact density from auger tests.

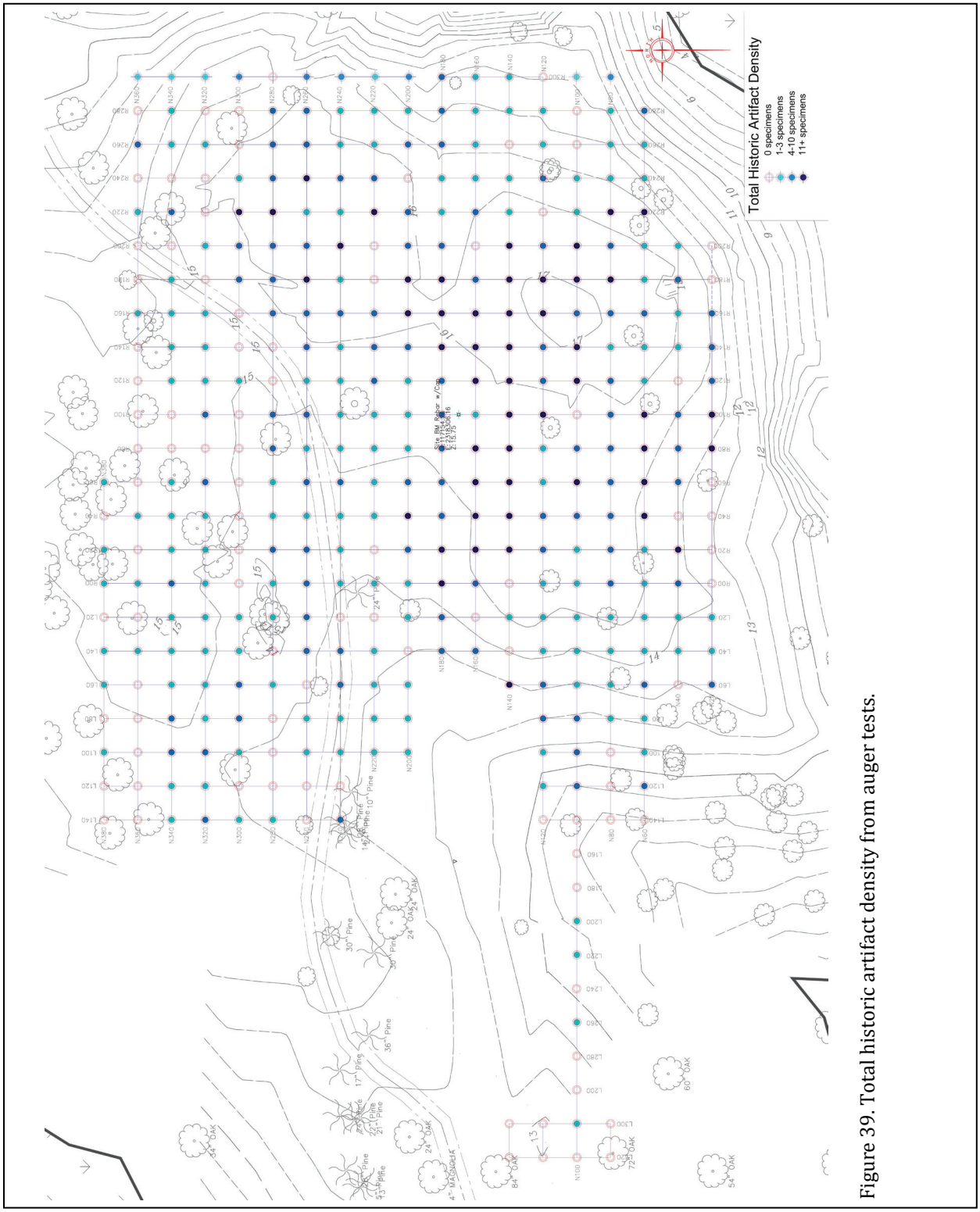

Figure 39. Total historic artifact density from auger tests.

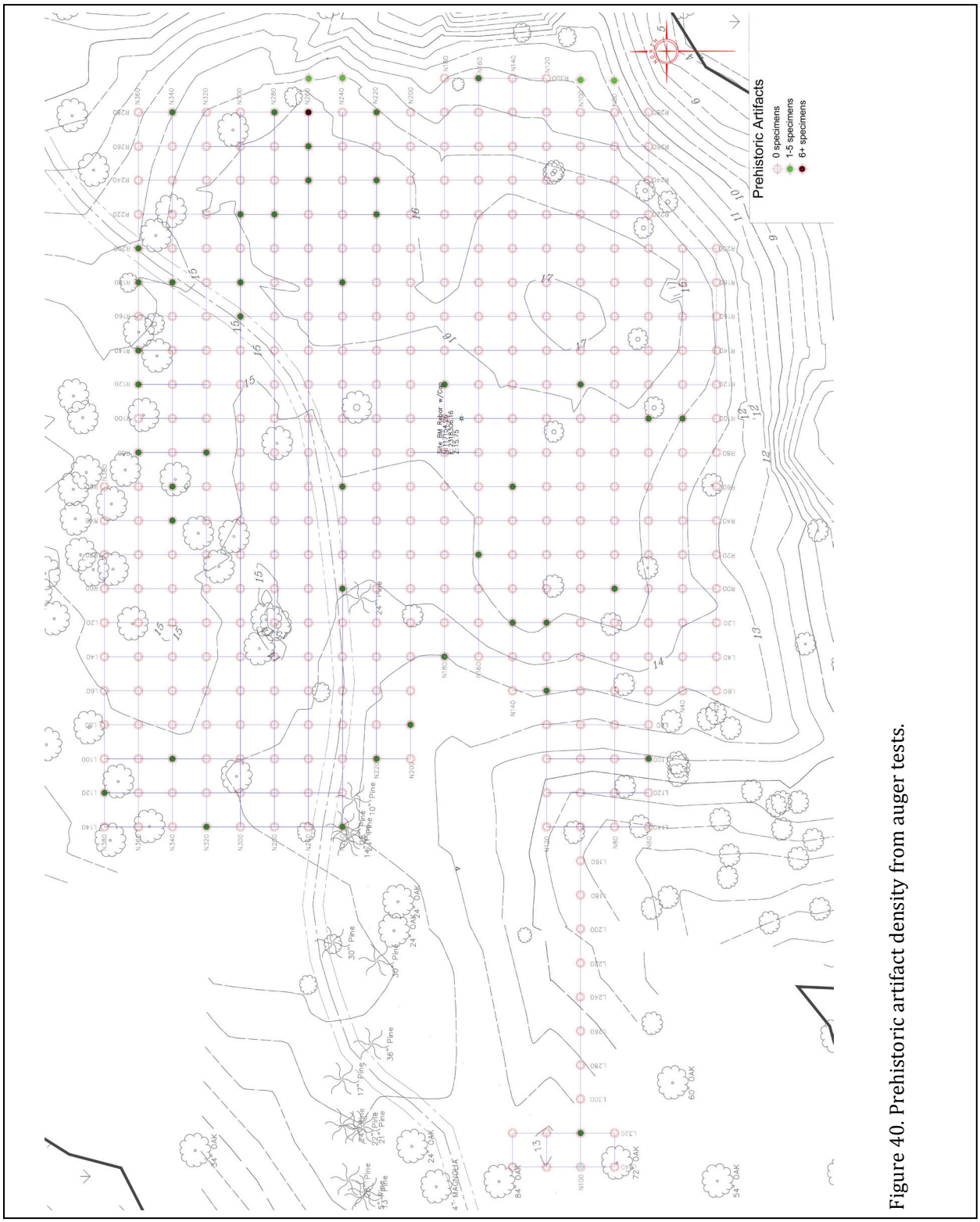

Figure 40. Prehistoric artifact density from auger tests.

60R60 to the southwest. These ceramics are almost nonexistent to the northwest and west, failing to reveal any good evidence for slave houses or other structures shown on late period maps.

Figure 39 provides an overall artifact density map for the site, combining all of the recovered historic materials. There is a dense concentration in the south central site area, centered around 140R140. Although many of these artifacts, especially in the vicinity of 120R180, are associated with the burned Kendal House, the density expands far outside the footprint of the burned house. Density declines to the north and west, as observed with specific artifact categories. There is a smaller concentration about 160R40.

The final map, Figure 40, examines only prehistoric artifacts such as pottery. There is only a weak concentration of materials in the northeast quadrant of the site, with a single very dense auger test at 260R280. Prehistoric remains do not appear concentrated along the bank edges, but are scattered far inland and are nearly absent from the south marsh edge. While prehistoric remains are present, there does not seem to be any specific area that was repeatedly reoccupied over time.

Combined, these density maps revealed two distinct areas that were considered essential to investigate. One incorporated an 80 by 80 foot area centered at 160R40. This area, while nearly devoid of creamware, pearlware, and whiteware ceramics, produced dense architectural remains, dense eighteenth century remains, and a high density of total artifacts.

The second area revealed by the auger tests was centered at 140R140 and incorporated an area measuring about 140 feet north-south by about 100 feet east-west, based on total artifact density. Pearlwares and whitewares were found primarily in the northern half of this area, creamware ceramics were found in the center, and eighteenth century ceramics were found primarily at the southeastern edge. Architectural remains were found primarily in the southern portion of the distribution. Clearly the burned Kendal House made a significant contribution to these auger test artifacts, but there appeared to be additional occupations also present.

Pearlware and whiteware ceramics also extended northward from this large concentration, encompassing the area where the standing ruins of a chimney were present.

Taken in context, the auger testing at 20 foot intervals was able to clearly define several areas of dense artifacts. The work helped define areas of attention, refocusing research efforts from a site area that seemed dominated by obvious ruins to a much larger area which included eighteenth century remains.

Nevertheless, at Kendal even auger testing at 20 foot intervals did not seem to provide clear structural definition. This was somewhat surprising given previous work (see, for example Keel 1999:78; Trinkley 1987:111-117; Trinkley 1993:78) where auger testing at 25-foot intervals was found to be more than sufficient to discern individual structures.

The difference, we believe, is a combination of two features recognized at Kendal after the fact. First, archaeological features are found in a relatively small area and, second, the site appears to have been shallowly, but intensively plowed. These two combined to smear and merge artifact concentrations, making it difficult to distinguish specific events or structures. Nevertheless, the data generated by the auger tests revealed a site that was far more complex than surface features (such as the burned Kendal House, the slave chimney, and the below-ground structure to the south) initially revealed.

The auger testing, however, failed to reveal two site components that were of special interest to our investigations. Although we extended a grid line west over 200 feet from the “core” area, we could find no indication of the structure shown on late nineteenth century maps and which we interpreted to be the “pavilion”

mentioned in historic accounts.

This auger testing did, however, reveal the site access road shown on the various maps as running straight into the southern edge of the site. The road was distinguished in the auger tests through the presence of a very thin brown sand A horizon, representing the erosion or lack of organic deposition in the heavily used road area.

Similarly, we extended auger testing northward and westward in the expectation of finding several structures shown on the nineteenth century maps. This work was also unsuccessful. Figures 35 and 39 do reveal a thin deposit of architectural remains, as well as total artifacts, although almost no ceramics are present. Nevertheless, we could not distinguish any clearly defined structures based on brick density or artifact concentrations. Thus, the posited slave houses were not located.

This work did, however, further reveal the extent of a large mass of heirloom gardenias first identified in the area during our earlier reconnaissance survey (Trinkley and Hacker 2012:203). Many of these gardenias have been excavated and are currently being propagated by the Orton grounds crew.

Rice Barn Area

Although not part of our research design, we wanted to take at least a brief look at the location shown on nineteenth century maps as the probable rice barn location to the north of the Kendal site. This function is attributed to the structure based on its proximity to the rice fields and apparent size.

A series of 21 auger tests were excavated in this area (Figure 41). Although no grid was established, all of the tests were added to the Kendal map, ensuring vertical control.

Fifteen of the 21 auger tests produced 35 artifacts, thinly spread across the flat area and trailing off down slope to the east and south. The collection is dominated by eighteenth century ceramics. Architectural remains included unidentifiable nails and several fragments of window glass. Other domestic artifacts included bottle glass and a pipe stem fragment.

Previous investigations of rice barns (see, for example, Michie 1984:78, 88) suggest that artifacts will be exceedingly uncommon and likely dominated by architectural remains. The domestic remains found at the Kendal rice barn suggest there may have been an earlier occupation in the area prior to the rice barn construction. The recovered ceramics yield a mean ceramic date of 1748.

Excavation Blocks

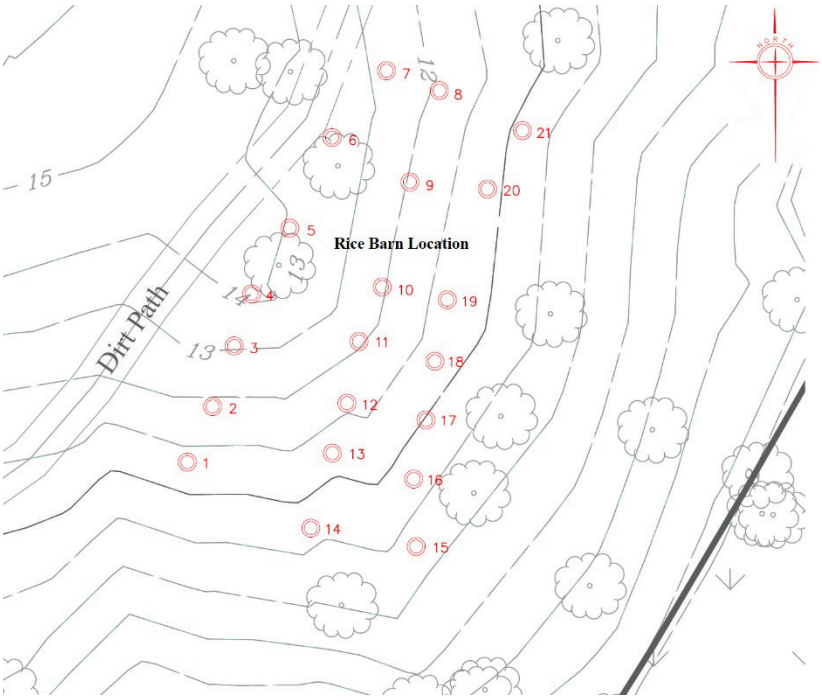

Figure 41. Auger tests at the Kendal rice barn.

Table 14.
Artifacts Recovered from the Rice Barn Area

	2	3	4	5	6	9	10	11	12	13	14	15	17	18	20	Totals
delft, undecorated		1														1
delft, blue hand painted	1		1													2
white salt glazed stoneware, undecorated											1	1				2
lead glazed slipware											1					1
porcelain, English														1		1
coarse red earthenware, black lead glaze			1						1							2
Colono ware					1											1
glass, black				1	1				1							3
glass, manganese					1											1
glass melted					2			1	1							4
glass, light green													1	1		2
window glass			1		1	1								1		4
nail, UID			1				1								6	8
pipe stem											1					1
UID iron fragment			1							1						2
Totals	1	1	5	1	6	1	1	1	3	1	3	1	1	3	6	35

The remainder of this section will explore the 12 areas incorporated into these investigations (11 excavation blocks and the area that was stripped at the conclusion of the project). Table 16 provides a list of the units incorporated into each block for easy reference, although the discussions will provide additional details. Figure 29 shows the location of the various excavation units.

Table 15.
Mean Ceramic Date for the Rice Barn

	Date Range	Mean Date (xi)	(fi)	fi x xi
English porcelain	1745-1795	1770	1	1770
White salt glazed stoneware	1740-1775	1758	2	3516
Lead glazed slipware	1670-1795	1733	1	1733
Decorated delft	1600-1802	1750	2	3500
Plain delft	1640-1800	1720	1	1720
Buckley ware	1720-1775	1748	2	3496
Total			9	15735
Mean Ceramic Date	1748.3			

Colonial Kitchen Midden 1

The five units included in this block (175L5, 175-180R0, 175R10-20) consist of 300 square feet of excavation forming a 10 by 30 foot block. Excavations were conducted here based on dense bone and early ceramics recovered from a nearby auger test. The work produced an exceptional density of remains with the best recovery of faunal material found at the site. Additional units would have been excavated here had there been additional time.

The block is situated down slope from the colonial kitchen, about 70 feet to the southeast.

Stratigraphy in this area consisted of "modern" very dark grayish brown (10YR3/3) sand about 0.4 to 0.5 foot in depth overlying a brown (10YR5/3) sand about 0.8 to 1.0 foot in depth. The upper soil zone, removed as Level 1, may be an erosion deposit from the higher area to the southeast. The lower zone of brown sand, removed as Level 2, produced a very dense midden of ceramics and faunal remains. Below this midden was a mottled very pale brown (10YR7/4) sand at which point it was possible to plot features. A remnant plow scar was observed in the eastern portion of 175R20 running north-south, but otherwise we observed little evidence of plowing; for example, the faunal remains were not noticeably dispersed or fragmented.

The block produced two features. Feature 6 was centered at 182.5L6.5 in the northwest quadrant of 175L5, at an elevation of 12.98 feet. The feature was bisected by the L10 line and continues an unknown distance to the west. The feature was removed as an E½ and W½, revealing

Table 16.
Excavation Blocks at Kendal Plantation, 31Bw788
(Feature 13 is not included since it produced no artifacts)

Block	Units	Size
Colonial Kitchen Midden 1		
	175L5	5x10
	175R0	5x5
	180R0	5x5
	175R10	10x10
	175R20	10x10
Colonial Kitchen Middens 2		
	160R50	5x5
	160R55	5x5
	165R55	5x10
Colonial Kitchen Front Yard		
	80R60	10x10
Colonial Kitchen		
	120R40	5x5
	125R40	5x10
	135R40	5x10
	115R50	10x10
	125R50	10x10
	115R60	10x10
	125R60	10x10
	140R55	5x5
	130R70	5x10
	140R70	5x5
	115R80	10x10
	125R80	10x10
	140R75	5x5
	140R80	5x5
	140R85	5x5
Colonial House		
	145R120	5x10
	145R130	5x10
	150R130	10x10
	140R140	10x10
	150R140	10x10
	160R140	10x10
	145R150	5x10
	150R150	5x10
	160R150	10x10
	160R160	10x10
	140R170	10x10
	150R170	10x10
	160R170	10x10
19th c House		
	80R190	10x10
	100R170	10x10
	100R200	10x10
	120R170	10x10
	130R170	10x10
	130R200	10x10
19th c Slave House		
	180R205	5x10
	190R205	5x10
	200R210	10x10
	200R220	10x10
	200R230	10x10

Block	Units	Size
19th c Slave House, cont.	215R210	5x10
	210R220	10x10
	210R230	10x10
	220R205	5x10
	230R205	5X10
	240R205	5x10
	240R220	5x5
19th c Storehouses		
	185R110	5x10
	190R110	10x10
	190R115	5x10
	200R105	5x10
	200R115	5x10
	200R125	5x10
19th c Root Cellar		
	40R180	10x10
	50R180	10x10
Mixed 18th & 19th c middens		
	190R160	5x10
	190R165	5x5
	195R165	5x5
	190R175	10x10
	190R180	5x10
	190R185	5x10
Misc Yard Units		
	220R140	5x5
	210R165	5x5
	235R180	5x5
	275R230	5x10
	255R280	10x10
Features		
	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	14	
	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
	J	
Stripped Area		

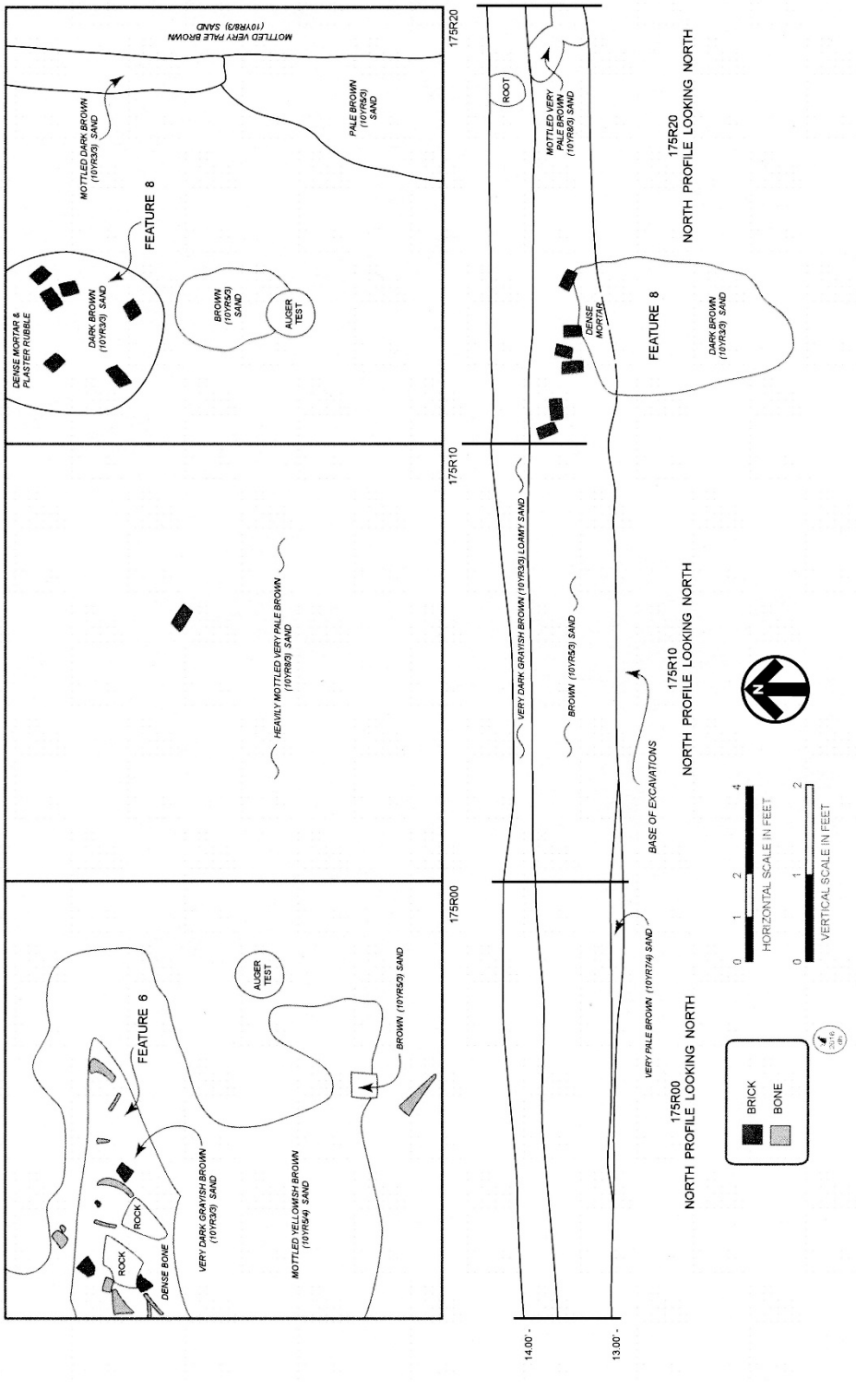

Figure 42. Plan and profile of excavations at the Colonial Kitchen Midden 1.

Figure 43. Colonial Kitchen Midden 1 excavations. Upper photo shows the block looking northeast. Feature 6 is shown at the lower left, Feature 8 is seen in the upper left. Lower photo shows a portion of the south profile looking south with numerous bones still in place.

a profile that was gully-like, running down slope to the west. The bottom elevation at the east end was 12.64 feet. At the west end the elevation was 12.84 feet. Thus, the maximum depth was about 0.8 foot. The maximum length of the feature was 6.8 feet and the maximum width was 2.6 feet. Bone was found throughout the feature. There was no evidence of lensing, indicating that the gully was filled quickly with midden trash.

Feature 8 was found in the northwest quadrant of 175R20, bisected by the N185 line at 183.6R12.6 The feature was plotted at the base of the midden at an elevation of 13.07 feet. The maximum length of Feature 8 was 3.65 feet; the maximum width was 3.3 feet. The feature was roughly circular in shape, with a rounded bottom at a depth of 2.25 feet. The feature was filled primarily with architectural rubble such as brick and plaster and appears to be a trash pit. While it seems unlikely a hole would be dug specifically for the disposal of rubble, no other function was obvious.

Prior to the use of the area for midden deposits Feature 8 was created and subsequently covered over with large quantities of butchered bone remains. The deposit was open sufficiently long for a gully (Feature 6) to form and be quickly filled in with animal bone remains. We assume the deposit represents multiple fall season butchering episodes, likely associated with the kitchen 70 feet to the southeast. Since these decomposing deposits would have been noxious, the distance from the kitchen must reflect what was culturally considered minimally sufficient. It nevertheless leaves unaddressed the behavioral

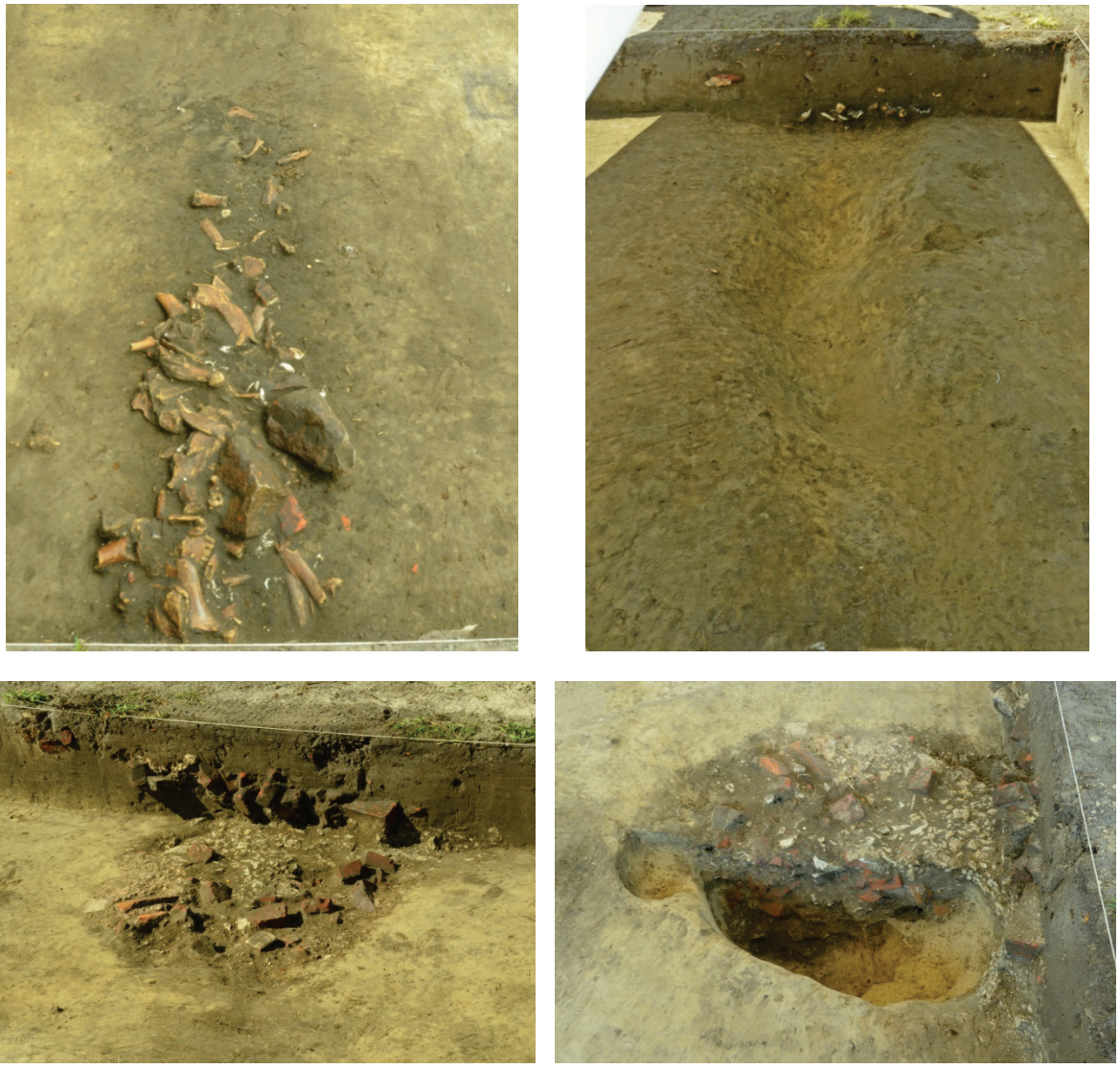

Figure 44. Features 6 and 8. Upper left photo shows Feature 6 before excavation looking east. Upper right photo shows Feature 6 after excavation looking west. Lower left photo shows Feature 8 before excavation looking north-northwest. Lower right photo shows the E½ of Feature 6 excavated, looking west.

factors that prevented disposal of such refuse in the nearby marshes. Given the length of time Kendal was occupied, there must be additional disposal areas, perhaps including marsh edges as found by Zierden and Calhoun (1983:46) at the Campfield settlement in Georgetown, South Carolina.

Perhaps the most intriguing artifacts recovered, however, were several wine bottle seals marked "R. Moore," clearly associating the midden to Roger Moore's occupation of Kendal. This also suggests that the faunal remains from the midden are from Moore's kitchen, if not his table.

Colonial Kitchen Midden 2

This 100 square foot block represents

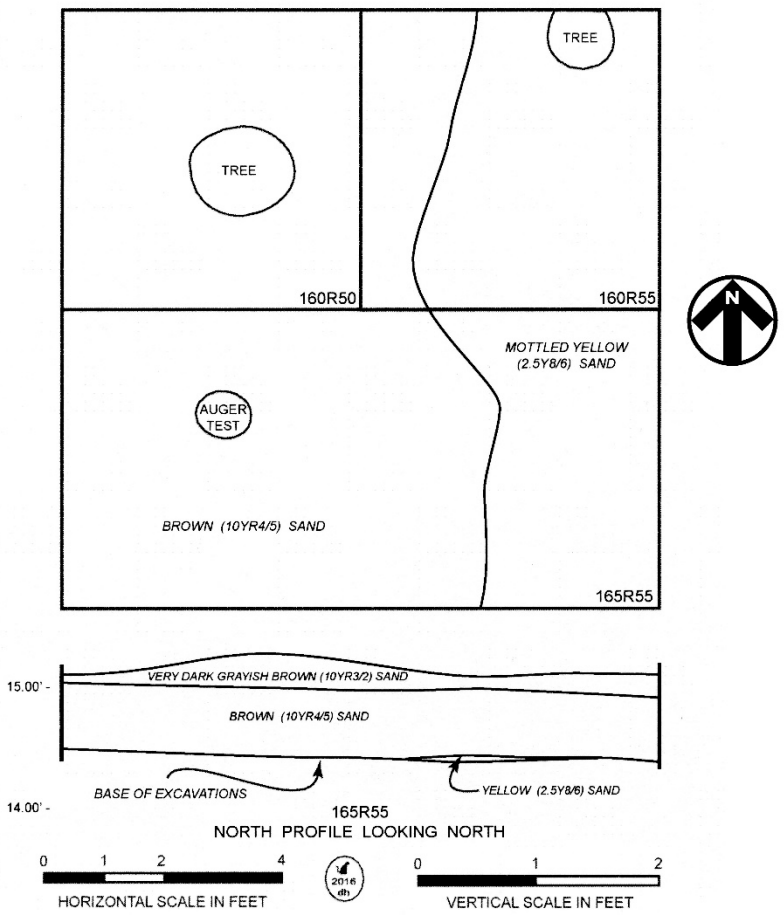

Figure 45. Plan and profile of excavations at the Colonial Kitchen Midden 2.

two 5 foot units (160R50-55) and one 5 by 10 foot unit (165R55) placed about 20 feet north of the colonial kitchen. The units were placed based on the dense recovery of materials from an auger test. Stratigraphy was very similar to that found in Colonial Midden 1 with about 0.3 to 0.4 foot of very dark grayish brown (10YR3/2) sand removed as Level 1 overlying Level 2, a brown (10YR4/5) sand to depths of 0.7 to 0.8 foot below grade. At the base of the units on the east edge was mottled yellow (2.5Y8/6) sand that graded into a brown (10YR4/5) sand to the east, suggesting that had there been additional time, the units could have been taken deeper.

Excavations produced what appeared to be kitchen trash, with ceramics and nails. While bone was present, the density was not as great as found in the midden to the northwest. Nevertheless, had there been additional time, further expansion of this block would have been warranted.

While two tree stains were present, no features were encountered.

Colonial Kitchen Front Yard

Auger tests in this area produced a slightly higher density of remains than elsewhere, coupled with topographic features that suggested the plantation avenue ran east-west through this immediate area. A single 10-foot unit (80R60) was laid out on the south edge of the road.

The excavation was conducted in one level of brown (10YR4/3) humic sand overlying predominately mottled very pale brown (10YR8/4) and brown (10YR4/3) sands. In the northwest corner of the unit was an area of mottled orange and dark yellowish brown (10YR4/4) clay and sand with some admixed brick.

This clay and sand area appears natural and was not removed as a feature. In addition, a tree (removed during the excavations) was growing

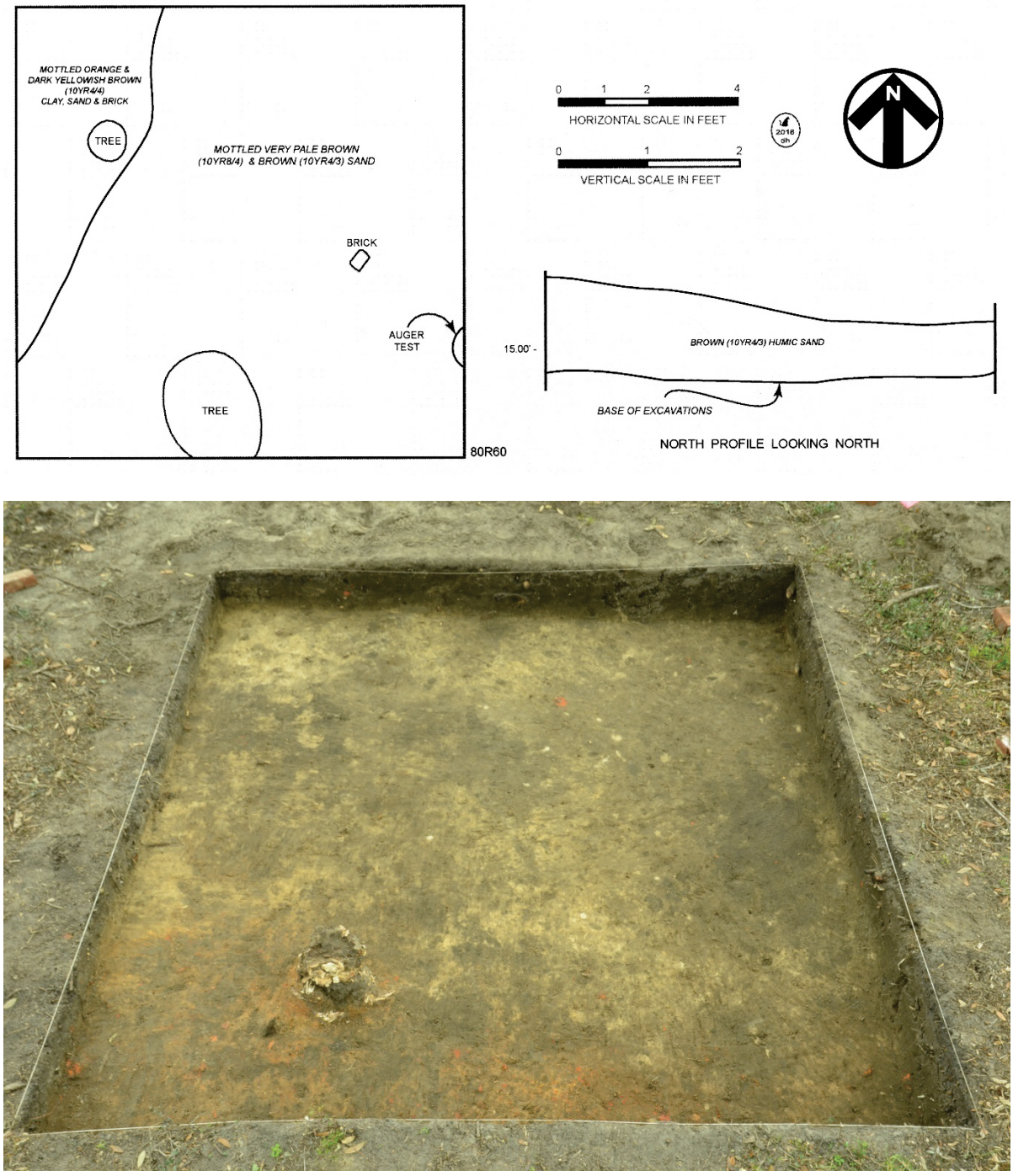

Figure 46. Colonial Kitchen Front Yard (80R60). At the top is a plan and profile of the excavation. Below is a photograph of the unit looking to the east. Note the depressed roadway to the north (left).

in the clay dome.

This single unit produced a broad range of artifacts which seem to be from a surface trash deposit, likely originating from the kitchen since it was common in the eighteenth century to dispose of household refuse near where it was generated.

Colonial Kitchen

Fifteen units (120-125R40, 135R40, 115R50, 125R50, 115R60, 125R60, 140R55, 130-140R70, 115R80, 125R80, and 140R75-85) comprised the 900 square feet of colonial kitchen excavations. Excavations in this area were based on dense auger test finds, including brick and plaster.

Most of the units were removed in two levels. Level 1 generally consisted of dark brown (7.5YR3/2) sand, sometimes mixed with, but most often overlying, a very dense rubble layer consisting of brick, mortar, and plaster. Below the rubble was Level 2, a black (7.5YR2.5/1) sand. Level 2 was typically removed as either interior of the structure or exterior of the structure. The subsoil was generally a yellow (2.5YR7/6) to mottled pale yellow (2.5Y8/3) sand.

Ground elevations in the area of the kitchen ranged from about 15.5 to 16.1 feet AMSL. Excavations often went nearly 2 feet in depth. Many of the kitchen walls were still extant as little as 0.2 foot below the surface and where walls had been completely removed, large masses of rubble were still present. It was consistently possible to trace the removed walls, based on remnant rubble filled trenches. The area produced 14,464 pounds of brick rubble.

The kitchen walls were a brick and a half thick. Neve's *The City and Country Purchaser's and Builder's Dictionary* comments that, "a Wall of a Brick and half thick, with the Joint, will be in Thickness 14 Inches, or very near" (Neve 1736:364). Yet those in the kitchen are fairly consistently 1.5 feet thick. Neve notes there are many "uncertainties," but perhaps the most consistent issue is that "when Bricks are dear, and Lime cheap, the Workman (by the Great) will use more Mortar, and make the ampler Joints, which is much worse for the Building" (Neve 1736:365). Thus, the kitchen walls are a standard thickness, but the brick work suggests slave masons with relatively little experience.

The walls, at least below grade, were laid up in English bond, made from alternating courses of headers with courses of stretchers. This is among the oldest bonding patterns and was popular throughout the seventeenth century and into the eighteenth century (Lounsbury 1994:38).

The structure measures 43 feet east-west by 20 feet north-south. At the west end was a chimney measuring 7.5 feet in breadth and 4 feet in depth. This generally conforms to the recommendations by Neve (1736:106) for kitchen fireplaces, although the depth is slightly greater. The height to the mantle-tree would likely have been about 5 feet.

The hearth was found intact, paved with small, very hard fired brick. There was no evidence of the interior floor, but we presume that a wood floor, similar to that found by South at the Hepburn-Reynolds (or Reonalds) House in Brunswick (South 2010:66), was originally present.

At the east end of the structure excavations identified two small rooms, measuring 14 by 10 feet, which we believe housed slaves. The partition walls were 1 brick in thickness or 0.7 foot and a small fireplace was found in the southeast corner of the northern room and the northeast corner of the southern room, sharing a single chimney. Each fireplace opening was about 3.5 feet in breadth and 1.7 feet in depth. These dimensions are also consistent with Neve's recommendations (1736:106) for chambers. The height to the mantle-tree would have been about 4 feet.

The rooms each provided 140 square feet, consistent with Adams' argument that colonial slave structures tended to be relatively small, averaging about 143 square feet (Adams 1990:89) and Morgan notes that at the low end, eighteenth century slaves were assigned spaces as small as 7

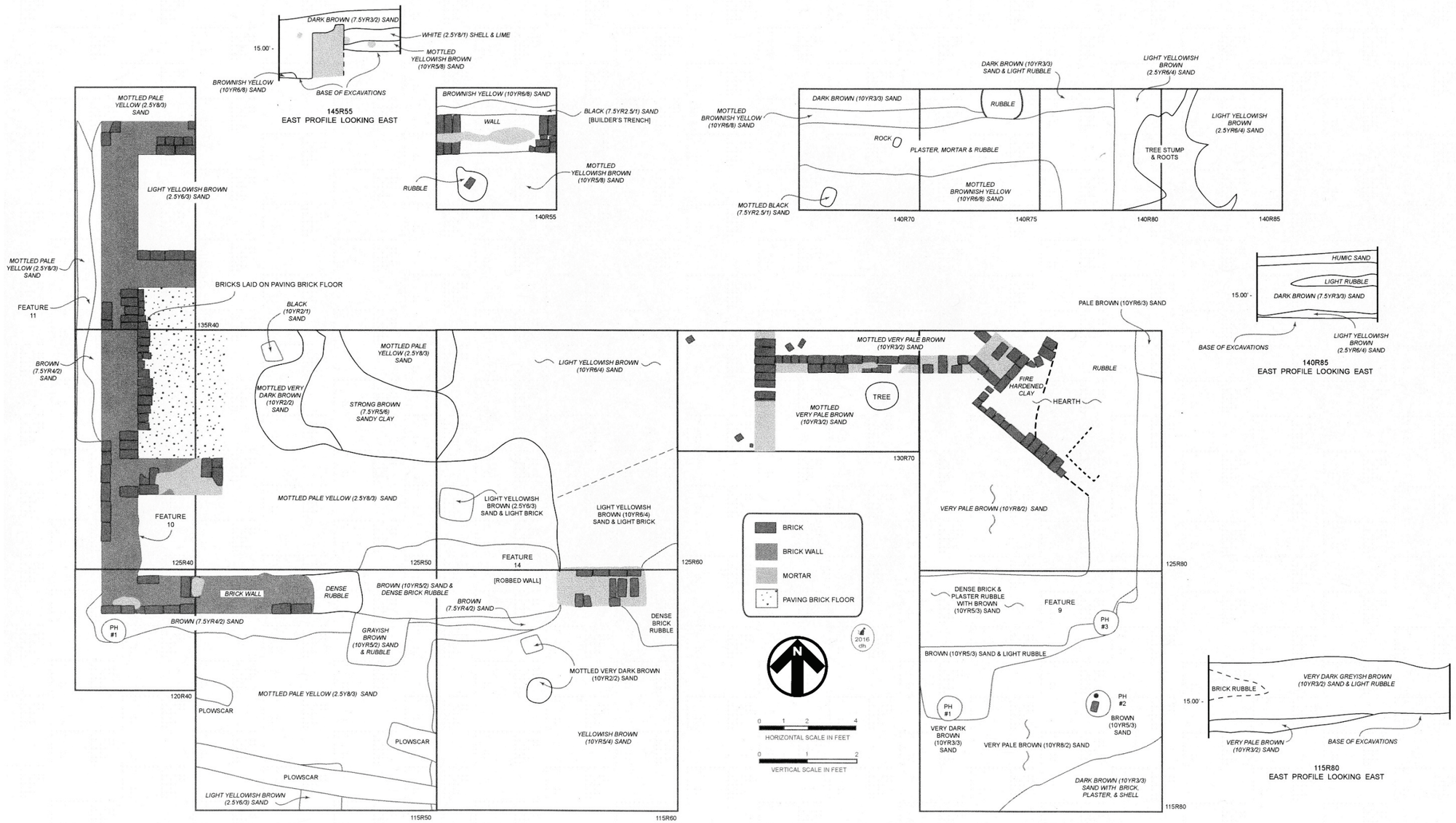

Figure 47. Plan and profiles of the Colonial Kitchen.

Figure 48. Colonial Kitchen. Upper photo shows the south side of the structure looking west. Lower photo shows the kitchen hearth looking northeast.

Figure 49. Colonial Kitchen. Upper photo shows slave hearth in 125R80, looking northeast. The structure's robbed southeast corner is seen to the right. Lower photo shows the structure's intact southwest corner and Feature 10, a builder's trench on the outside of the wall.

by 8 feet, or 52 square feet (Morgan 1998:111; see also Hamer and Trinkley 1997).

Plaster was abundant, but likely was from the upper floor since no plaster was found in place on the remnant basement walls.

Four features were partially removed from the Colonial Kitchen, Features 9, 10, 11, and 14. Features 9 and 14 represent robbed wall sections; Features 10 and 11 represent sections of builder's trenches.

Feature 9 was situated in the northern quadrant of 115R80, centered at 123.5R174. It was plotted at the base of Level 1, about 14.36 feet. It was found in the southeast corner of the structure and represented a robbed foundation wall. The length of the section removed was about 9 feet and the feature, at its widest, was 5.8 feet. It was about 1.4 feet in depth, although the base was not level and appeared to contain multiple areas where excavation for the removal of the foundation had gone further than was necessary.

The fill for Feature 9 contained dense brick rubble, suggesting that after the wall was removed, unusable brick was used to refill the excavation. There are accounts of local African Americans robbing brick from the site in the early twentieth century, an activity that would have not only provided brick for their own use, but also would have removed impediments to plowing.

Feature 10 was found in the center of 120R40 at the base of Level 1 on the exterior of the kitchen wall. The center point was 122.8R32.5 and the feature was removed at 15.80 feet AMSL. The fill contained brown (7.5YR4/2) sand and was very shallow, extending into the subsoil only 0.2 foot. It does not fully expose the brick wall, suggesting that the wall was laid up from the interior of the structure.

A single post hole was identified penetrating the builder's trench. This post hole was a foot in diameter and tapered to the base, 1.2 feet below the excavation level. Located only 0.3 foot from the brick wall, it seems likely that this was a scaffold support for the structure's construction (see Lounsbury 1994:318), although the size seems excessive.

Feature 11 was also a builder's trench, found at the base of Level 1 in units 125-135R40 along the west exterior side of the kitchen. The center point was 137R35.9. About 13.2 feet of the feature was recognizable and was removed to a depth of about 0.1 foot. The maximum width of the trench was 0.4 foot. As with Feature 10, the trench did not extend to the base of the wall, suggesting that the walls were laid up from the interior of the structure. Very few artifacts were recovered. While this is certainly the result of the shallow depth, it is also likely the result of the structure being the first historic occupation of the Kendal site.

Figure 50. Feature 14 excavated, looking to the west.

Feature 14, like Feature 10, represents a section of robbed wall that was examined. It was located at 124R152.5, in the northwest quadrant of 115R60 at the base of Level 1. The length of the section removed was 3 feet and the maximum width of the robbed section removed was 2.9 feet (the feature was bisected along its east-west axis, with only the southern portion in 115R60 being removed; that portion in 125R60 was not excavated). The feature had a maximum depth of 1.2 feet. Fill consisted of dense brick rubble and small shovel loads of sand that were thrown back in the trench once the useable brick was removed.

The robbed area extended about 0.5 feet below the base of the wall, which was encountered at 14.05. No footer was encountered.

Colonial House

Thirteen units (145R120-130, 150R130, 140-160R140, 145R150, 150-160R150, 160R160, and 140-160R170) comprised the 1,100 square feet of colonial house excavations. Excavations in this area were based on dense auger test finds, including brick and plaster, as well as anomalous findings while working on southern extensions of the Kendal House itself.

There were marked similarities with the Colonial Kitchen, including the significant proportion of the house that had been robbed out, leaving behind robbed wall trenches with abundant rubble. Nevertheless, there were sufficient remaining wall sections to reconstruct at least some aspects of the structure. Most of these intact sections were in proximity to the Kendal House, where presumably there was no interest in plowing or where yard disturbance was prohibited.

Brick was very common, with 18,798 pounds being excavated during this work. More shell was found in this excavation block than anywhere else at the site.

Soil profiles ranged from a very dark grayish brown (10YR3/2) loamy sand to a dark brown (10YR3/3) sand as the upper surface horizon. Close to the Kendal House the soils were a black (7.5YR5/2) sand, likely the result of the large amount of charcoal added to the soil by the burning of the Kendal House. This upper soil varied from about 0.1 to 0.5 foot in depth.

Below was a brown (10YR5/3 to 10YR4/3) or grayish brown (10YR5/2) sand, often mixed with rubble. This level ranged from 0.3 to over a foot in depth. The subsoil over most of the area ranged from a mottled very pale brown (10YR7/4) sand to a mottled light yellowish brown (2.5YR6/4) sand to a light gray (10YR7/2) sand. In some areas the subsoil still exhibited small amounts of rubble. Because of the poor distinction between soil zones, most of the units in this block were removed to subsoil as one level.

As with the kitchen, our effort focused on tracing wall segments in order to better define the structure limits and form.

The remaining walls, like the kitchen, were a brick and a half in thickness, with measurements ranging from 1.2 to 1.5 feet. Since some of the walls are much closer to the width specified by Neve (1736:364) for such walls, the masons employed on this structure may have been better trained or the work more closely supervised. As with the Kitchen, this structure was also laid up in English Bond.

The structure measured 40 feet east-west by 15 feet north-south, with internal gable end chimneys. The western chimney had been robbed out, leaving only rubble, but the eastern chimney was intact, measuring 3 feet in breadth and 2.2 feet in depth. This is slightly narrower than recommended by Neve (1736:106).

There is, in addition, a portion of a southern projection about 6 feet in width that we assume ran along the entire south face of the structure. This may have supported a porch, but it seems more likely that it represents a support for the first floor, which overhung the partial basement level. If so, then the structure would measure 40 feet by 21 feet, with a partial basement and offset chimneys. While such chimneys were not common, Lane illustrates several

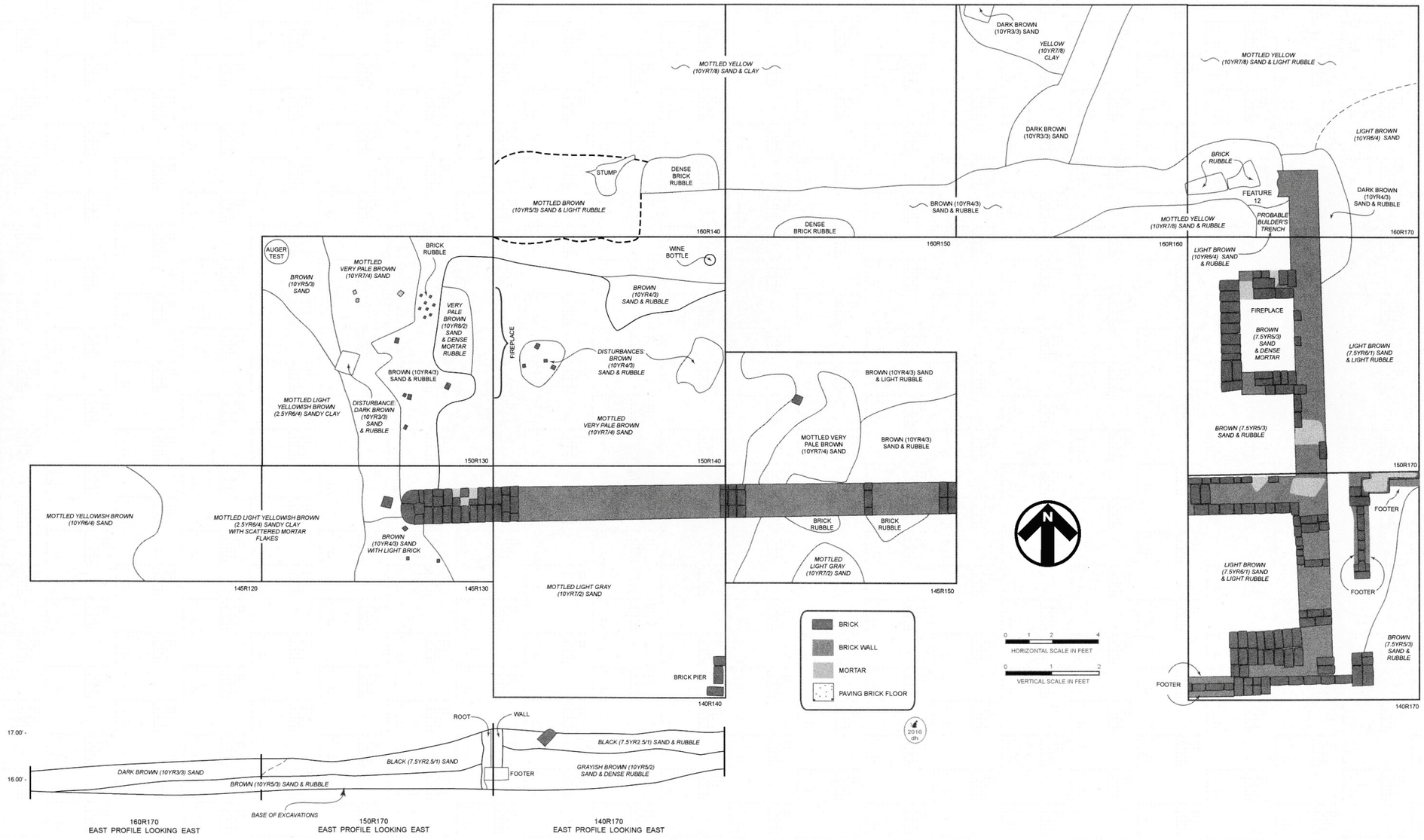

Figure 51. Plan and profiles of the Colonial House.

Figure 52. Colonial House. Upper photo shows the excavation blocks looking east. Lower photo shows the eastern wall looking southeast.

Figure 53. Colonial House. Upper photo shows the eastern chimney, looking east. Lower photo shows the southern extension, looking east. Walls to the east and south (above and right of the colonial house are portions of the Kendal House).

examples during the colonial period, including for the Palmer-Marsh house (Beaufort County) and the Old Brick House (c. 1760, Pasquotank County). At least one off-center chimney was also identified by South (2010:122) at Nath Moore's Front in Brunswick.

As with the kitchen, there was no evidence of basement flooring, but we presume it was wood which was removed or simply rotted away during abandonment.

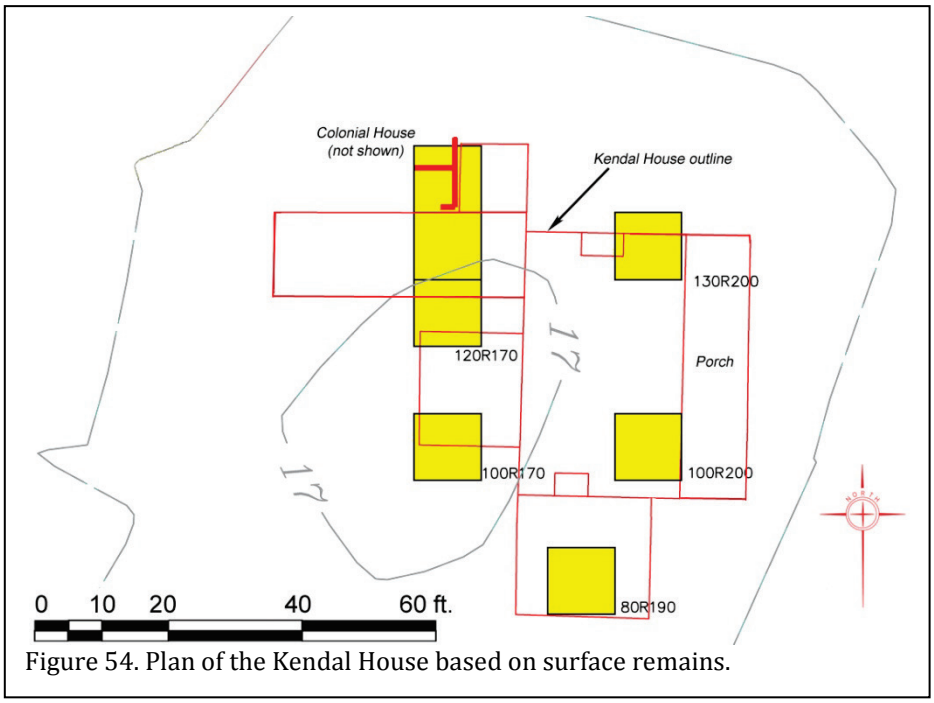

Figure 54. Plan of the Kendal House based on surface remains.

Only one feature was removed from the Colonial House – a portion of a robbed wall. Designated Feature 12 it was situated in 160R170 and was plotted at the base of Level 1 with a center point of 162.8R162.5. It merged with the pre-existing builder's trench on the east side of the extant north-south wall.

As with the cases of the other robbed wall sections from the Colonial Kitchen, when the removal effort was complete, the unwanted rubble had been used to fill the hole. In this case, there were several large wall fragments that had been dumped back into the robber's hole. The excavation began at 15.32 feet AMSL and terminated at 13.34 feet.

While there was no footer found on the north house wall, we did identify a footer on the east wall. The wall extended 1.25 feet above the footer and the footer extended 0.75 foot below the wall. It has a width of 0.2 foot.

19th Century Kendal House

The Kendal House is relatively well documented in late nineteenth century photographs and much of the structure outline was readily identifiable on the surface. Figure 54 shows the surface outline of the structure once loose rubble had been removed and Figure 55 shows views of house while standing prior to the 1919 fire. Consequently, it was given a low research significance. Nevertheless, we sought to examine the different "rooms" with at least one 10-foot unit. As a result, 600 square feet were excavated, consisting of units 80R190, 100R170, 100R200, 120-130R170, and 130R200).

Our excavations found that the central core of the house measured 40 feet north-south by 24 feet east-west (960 square feet a floor or about 1,920 square feet). The photographs reveal a rectangular two-story frame structure with a lateral gable roof, and four wings that probably represent two periods of enlargement.

Based on our excavations, the 1866 sketch of the house, and the later photographs, the form of the Kendal House was an I-house, an architectural type that was characteristic of eastern North Carolina. The broad front façade, lateral gable roof, interior end chimneys and low foundation of brick piers are features of I-houses

Figure 55. Photographs of the Kendal House prior to its destruction by fire in 1919. Upper photo shows the front of the house, with the root cellar to the left. Lower photo shows the rear of the house with the root cellar roof visible at the right. To the left are two servant's quarters.

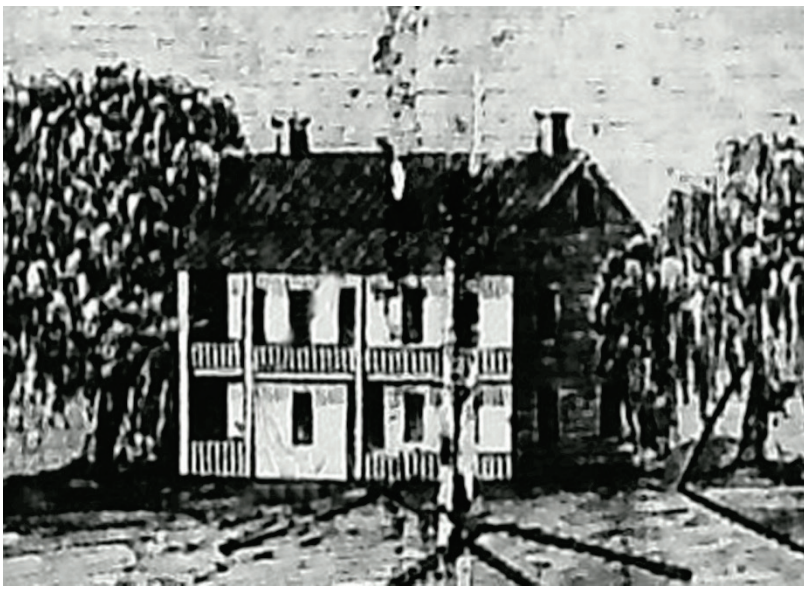

Figure 56. Drawing of the Kendal House from 1866 (adapted from the October 20, 1866 issue of *Frank Leslie's Illustrated Newspaper*).

throughout the region.

Most plantation houses had a south orientation. This allowed the structure to absorb the sun's warmth in the winter. Porches and overhangs kept the building cool in the summer. The Kendal House, however, faced east. We presume this was to catch breezes from the Cape Fear River, as well as to be visible to ships on the water – serving as a visual indicator of the family's prestige.

The full-height front porch had a shed structure that was engaged, or continuous with the house. The photographs show standing-seam metal at both roof surfaces. The porch was supported by fluted pillars on low wood bases. The drawing shows the porch as two tiers, with balustrades at both levels and an off-center second level entry. The second level floor system and balustrades were removed before the photographs were taken. The photograph shows no damage to the wood shingles in the area where the second level floor and its supports would have rested, indicating that siding at the façade (if not the entire house) was replaced after the porch was reworked. The presence of shingles is unusual; we normally expect weatherboard on an antebellum house, perhaps beaded weather-board if it was very finely built. Thus, it may be that the shingles are a late replacement, perhaps used because of their local availability.

There is not enough information to speculate why the façade doors were not aligned; it was an unusual feature in a five-bay wide house.

Like the front porch, the chimneys were modified between 1866 and the time the photographs were taken. The 1866 drawing reveals two interior, gable end chimneys. By the time of the photographs the northern chimney appears unaltered, but the southern interior chimney had been removed. A new exterior chimney at the south side served a one-story hipped wing that had been added. The photo of the rear elevation shows two other chimneys, one at a two-story hipped wing across two bays of the original house, and one at a two-story gabled wing attached at the side of the rear elevation (this wing is seen in the other photo extending north of the façade; a small wing north of the addition is also visible in the façade photo). The wood shingle siding seen at the façade was also used to clad all three wings, suggesting it was not the original siding material, as discussed above. The photograph shows low brick foundations at the three visible additions. It is not clear whether the original supports were brick piers later enclosed with solid brick.

Our excavations confirmed that there were four separate additions to the original I-house. Two were probably made at the same time, probably in the late nineteenth century. Off center at the south end of the structure was a one-story addition measuring 18 feet east-west by 20 feet north-south (360 square feet). This space has one window on the front or east elevation, two

windows and a central door on the south elevation, and on the west there are two windows. The main core's southern chimney stack was reconfigured westward to provide heat to this space. Archaeological investigations discussed below reveal that at least a portion of this space was a "modern" bathroom addition.

On the rear was an off-center two-story, nearly square addition, measuring 16 feet east-west by 15 feet north-south (240 square feet a floor or about 480 square feet total). This likely added no more than two additional rooms (one on each floor) based on the chimney stack (located in the southeastern corner of the addition). Based on an 1879 advertisement that described the house as having six rooms, this addition alone was present by that time .

This addition was constructed so that the center back door lined up with the first floor front door.

At the northwest (rear) corner of the main core was a two-story addition measuring 14 feet north-south by 37 feet east-west (518 square feet per floor for a total of 1,036 square feet). There was a ground floor entrance at the south end, with at least two windows on the ground floor and four on the second floor. Exterior stairs ran between the two rear additions. The gabled wing and associated stairs are awkward. It is possible that it was a separate building that was moved and attached. All that is obvious archaeologically is that the piers are clearly much more poorly constructed than those associated with the main house core or the smaller two-story rear addition.

The archaeological research suggests that the west end of the first floor was an added kitchen and we speculate that a vent for the stove may have penetrated the north wall. There is a chimney between this addition and the main core, likely providing heat to living spaces on the first and second floor.

Finally, there is a very small one-story addition, measuring about 10 by 10 feet (100 square feet) at the northeast corner of this kitchen and living space. We know there were no windows or doors on the north elevation and no doors (since there are no steps) on the north elevation. Otherwise, we have no information concerning this space.

The photos show windows and doors as they were in the early twentieth century, although the configuration of the openings themselves was likely unchanged from the original construction. The façade had five evenly-spaced single openings at each level, with simple transoms above the center door openings (as mentioned above, the second level door is considerably off-center). Door openings at the south and center-rear additions had similar transoms. Screen doors obscured the first floor doors at façade and rear; the second-level façade door appears to have been a six-paneled design. The gabled rear wing had a simple single door, not clearly visible in the photo.

The double-hung windows had 9/6 sash at the upper level and late nineteenth/early twentieth century 1/1 sash at the first floor. Rear sash are not visible because shutters were closed when the photo was taken; open shutters at the façade and north elevation show that the wood shutters were still operable.

Thus, the Kendal House had, at most, 3,900 square feet of living space. Excluding stairs, halls, bath, and kitchen, the space was likely closer to 2,800 square feet in perhaps nine or 10 rooms.

While excavations in the Kendal House produced 11,698 pounds of brick rubble, only 22 pounds of shellfish, primarily oyster, were recovered. There is a noticeable difference in the occurrence of shellfish in the eighteenth and nineteenth century assemblages.

80R90

This 10 foot unit was excavated in the southern addition. The profile revealed a black (10YR2/1) sand rubble zone overlying brown (10YR4/2) sand. The upper zone represented fire debris and chimney fall, much of which was relatively intact, while the lower soil appeared to

represent original humus found under the structure. Both were removed as one level. At the base was a mottled very dark yellow brown (2.5YR 3/2) sand.

This unit produced a large variety of bathroom fixture fragments, including sink, backsplash, toilet, and bathtub. There were no features present.

100R170

This unit was situated partially within the southwest addition, but primarily encompassing the cistern and other plumbing features.

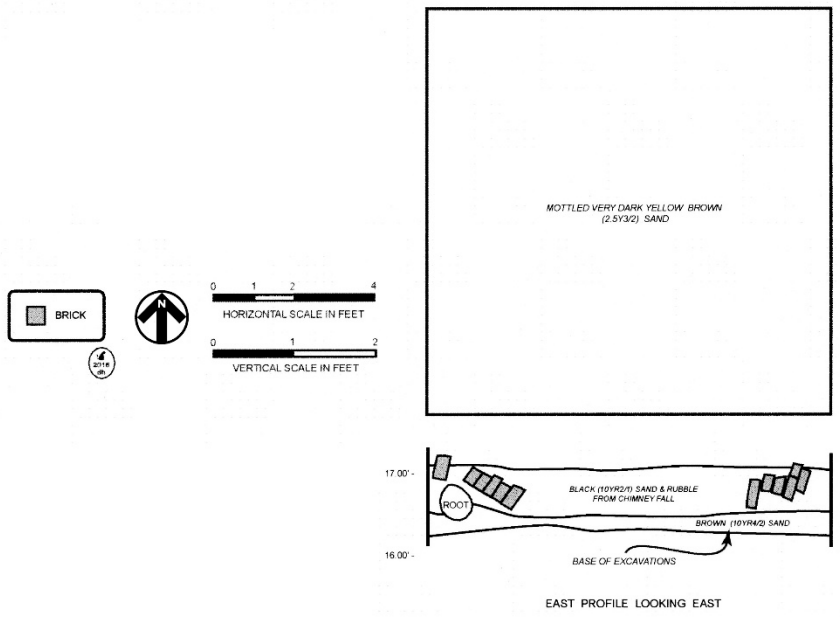

Figure 57. Plan and profile of 80R90.

The unit was excavated as one level. The upper 0.3 foot consisted of black (10YR2/1) loamy sand and rubble, representing fire debris. Below was a brown (10YR4/2) sand 0.3 to 0.4 foot in depth that appeared to represent the original yard soil. Outside the structure the subsoil consisted of lightly mottled grayish brown (2.5YR5/2) sand, while inside the addition the subsoil was a heavily mottled grayish brown (2.5YR5/2) sand and clay.

The excavations revealed a brick corner pier for the southwest corner of the addition, as well as brick infill or skirting to the north and east. Three features were identified on the exterior of the space. Feature 1 consisted of a parged brick box measuring 2.85 by 2.00 feet on the exterior and 1.5 feet in depth into which the roof drainage water was directed. This box originally contained a fabricated metal box which set on a brick ledge 0.8 foot below the surface. This box contained two screens consisting of circular holes to filter the water. The first series of holes were about ¼-inch in diameter, the second series were about ⅛-inch in diameter. While there may have been some additional filtration material originally, the box upon excavation was filled with very loamy, organic soils that appear to represent building debris. This box would have provided initial filtration and easy access for periodic cleaning of the screens.

There was a square parged outlet from the base of this box sloping downward into the cistern to the southwest.

The cistern itself was designated Feature 4. Given other demands, the cistern was only briefly examined. The opening measures 1.6 feet and was originally sealed with a sandstone disk that was recovered from the bottom of the cistern; it was broken and fell into the cistern, perhaps as a result of the structure fire. It has a square central hole that was likely used to remove the cover. The opening is situated in the center of the domed cistern that measured 9 feet in width and was 11.9 feet in depth. The cistern walls were parged brick. The floor, while brick, was not parged. The entrance from Feature 1 is found at the top of the cistern at an east-northeast location. There is an identical opening in the brick at the top of the south-southwest wall. The function of this opening

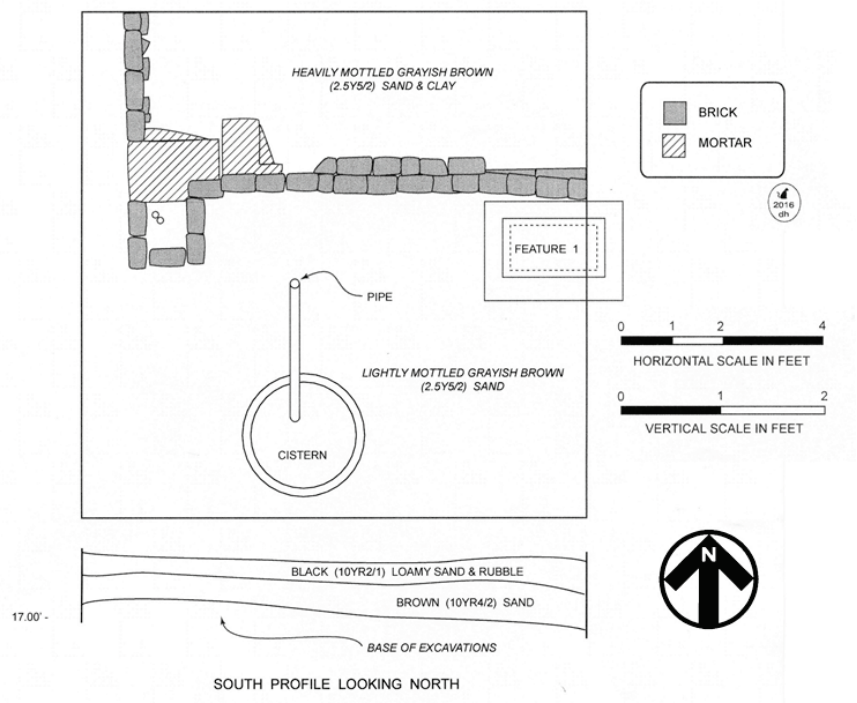

Figure 58. Unit 100R170. At the top is a plan and profile of the unit. Below is a photograph of the unit looking east.

Figure 59. Feature 4, cistern. Upper photo shows the sandstone cover recovered from the bottom of the cistern. Lower photo shows the domed roof of the cistern. On the right is the entrance from Feature 1, the initial feature. On the left is a pipe whose function is uncertain.

Figure 60. Feature 4, cistern. Photo on left shows the brick filtration column at the bottom of the cistern. Photo on the right shows the parged tube containing the iron pipe that drew water to the structure.

was not further explored, but it seems reasonable that it represented an overflow pipe, probably leading to a drain line.

At the northeast edge of the cistern there was a 3 by 2.5 foot brick column 4.1 feet in height. It is likely that the water filtered through the brick into what was perhaps a reservoir. Other cisterns frequently used brick baffles or similar devices to provide the final stage of filtration. Above this was a 1.5 by 1.2 parged and tapering brick column that contained some mechanism for pumping the water from the cistern into the house. A 1½-inch outside diameter iron pipe exits the cistern at the surface, presumably from the pumping mechanism and flowing into the structure.

There was a second 1½-inch pipe, entering from the roof of the cistern in the southeast quadrant. This pipe extended from the roof to about 0.1 foot above the surface of the cistern floor. Its function is unknown.

This cistern is estimated to hold about 4,700 gallons.

The water, once removed from the cistern is thought to have then been pumped into the two pipes found at the southeast corner of the house foundation surrounded by a brick box filled with coal. These pipes would then have taken the water to various points in the Kendal House.

100R200

Unit 100R200 was located in the southern room of the main Kendal House core exposing an eastern pier and the brick infill wall between piers. Also exposed in profile along the N110 are two internal brick piers (Figure 61).

The unit was removed in one level, with the entire fill coming from the interior of the structure. Soils in this area were not heavily disturbed after the house burned, so we identified a complex stratigraphy of black (5Y2.5/1) sand and rubble, concentrations of mortar and plaster, gray (5Y6/1) ash, and brown (10YR4/3) sand and charcoal. At the base of the unit was a mottled yellow (2.5Y8/6) yellow sand subsoil.

As might be imagined, architectural remains – primarily melted window glass and nails – dominated the collections. Other architectural remains, however, included large quantities of melted lead. This represents the solder from the metal roof, which melted during the long, and very hot, fire.

Found in the southwest corner of the unit was a cast iron flat sprocket with a bottom (or outside) diameter of 28½-inches. Teeth were set 2-inches apart. Mount evidence suggests the sprocket was stationary. While certainly associated with either the steam engine or rice milling apparatus used at Kendal, no direct analogy can be found in Porcher and Judd (2014). Nevertheless, the location of this item suggests that it was originally being stored on the first floor of the house and fell through during the fire.

120R170

This 10-foot unit was located at the rear of the structure (west side), between the northwest (kitchen addition) and southwest additions, with the exterior stairs in the middle of the unit. The stratigraphy under the stairs was very simple, reflecting the low intensity of use. The upper soil was black (7.5YR2.5/1) sand, representing a burn layer, overlying the old humus, a grayish brown (10YR5/2) sand. Below was a heavily mottled dark brown (10YR3/3) sand and rubble layer, which was associated with the remains of the colonial house.

Under the kitchen addition to the north was a similar burn layer of black (7.5YR2.5/1) sand overlying the same grayish-brown (10YR5/2) sand. At the base of this sand was dense rubble, representing the demolition or remains of the Colonial House. Below was a similar sand and rubble layer.

The piers for the kitchen addition were found to be rather insubstantial, only two bricks in width and very poorly constructed. The infill wall was also poorly constructed with very sandy mortar. It appears that very little effort was put into the construction of these walls.

In contrast, the southwest addition appears much better built. The piers are substantial and well built. The infill wall was built with footers, lacking on the kitchen addition. This addition also produced what appeared to be a fireplace, although full exposure was not possible within the allotted time. Consequently, the function of this feature is not fully understood.

A 1-inch iron water pipe was found within the kitchen addition, just north of the kitchen wall.

130R170

Situated immediately north of 120R170, this unit is within the kitchen addition, but it exhibits several features that are almost certainly associated with the much earlier Colonial House. The area was not fully explored, so many of these features cannot be meaningfully interpreted.

As elsewhere, the soil stratigraphy incorporates a black (7.5YR2.5/1) sand overlying brown (10YR4/3) sand. The subsoil is a light brown (7.5YR6/1) to brown (7.5YR5/3) sand and rubble that represents remains of the Colonial House.

There are two features of special interest in this unit. The first is a substantial brick pier bisected by the N130 line in the southwest corner

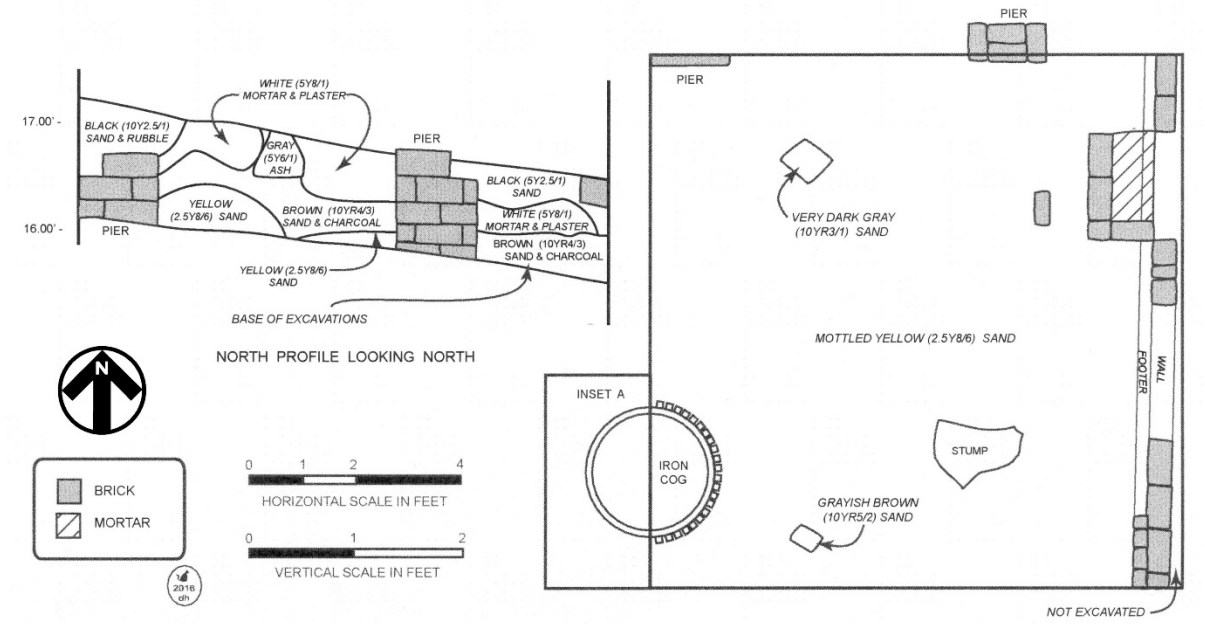

Figure 61. Unit 100R200. At the top is a plan and profile of the unit. Below is a photograph of the unit looking west.

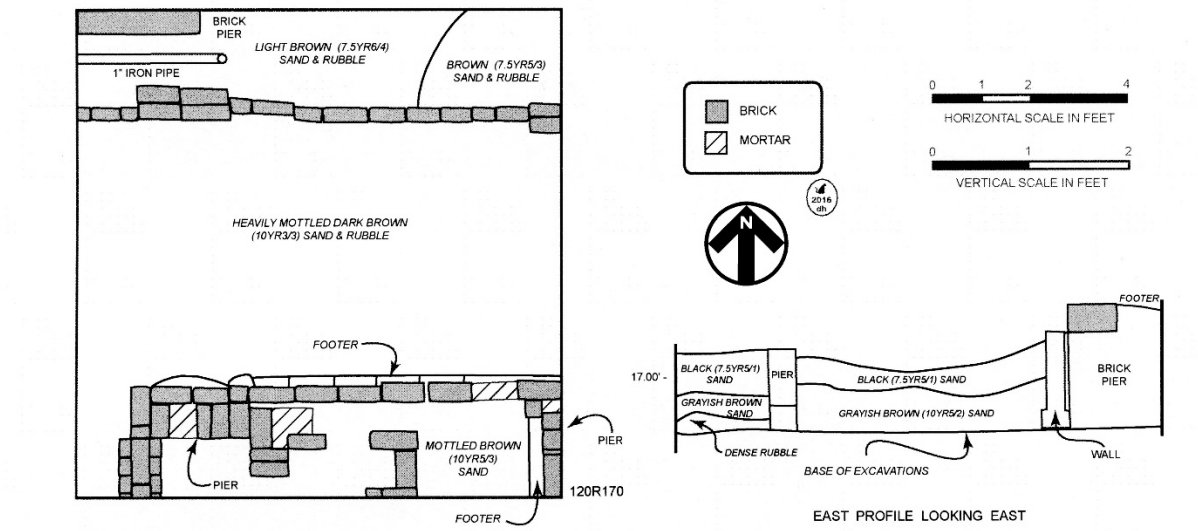

Figure 62. Unit 120R170. At the top is a plan and profile of the unit. Below is a photograph of the unit looking west.

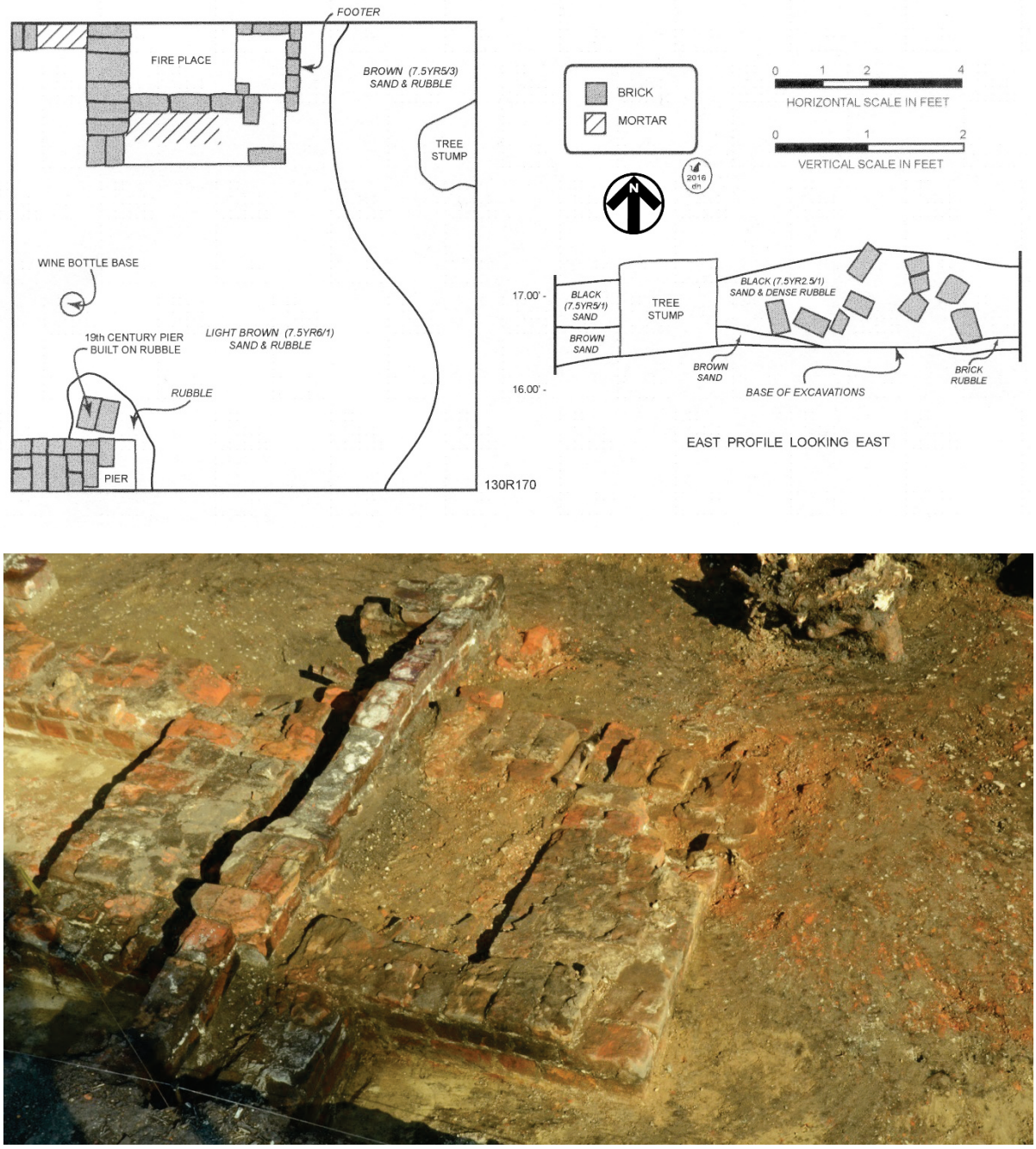

Figure 63. Unit 130R170. At the top is a plan and profile of the unit. Below is a photograph of the unit looking northeast, showing the posited fireplace south of the Colonial House and bisected by the south wall of the northwest addition.

of the unit. The second is a probable colonial fireplace located in the northwest corner of the unit. This feature appears to be associated with the southeast corner of the Colonial House. The interpretation of these features and what they mean to the reconstruction of the Colonial House are uncertain. Additional investigations focusing on the removal of at least an additional 400 to 500 square feet would be required to address these issues.

130R200

This 10-foot unit was placed in the north room of the main Kendal House core, partially exposing the north chimney base and the north brick infill wall. Inside the structure the soils included a black (10YR2/1) sand level 0.5 foot in depth overlying remnant A horizon consisting of brown (7.5YR4/2) sand. On the exterior of the structure was black (10YR2/1) sand and rubble mounded up against the brick infill wall resting of brown (7.5YR4/2) sand. Slightly farther away was gray (10YR5/1) sand that was characteristic of the subsoil.

A small portion of the north chimney base was found in the unit. During excavation small sections of in situ fireplace tiles were identified and photographed before removal. The chimney support measures 6.7 east-west by 3.0 feet north-south. In contrast, the southern chimney base is smaller, measuring only 5.1 by 2.8 feet. Fireplace tools from both the first and second floor fireplaces were found in the excavation, suggesting that at least some furnishings were still present in the main core prior to the fire.

The brick infill wall for the main house core exhibited a carefully laid footer, identical to the findings in 120R170 for the southwest addition. This suggests that the infill walls for the main house core and the southwest addition were laid at the same time, receiving the same construction treatments.

Feature 13

This feature, while associated with the Kendal House, was not located in a designated excavation unit. It was observed partially exposed on the surface and was eventually removed for safekeeping. It was centered at 105R203, on the porch, up against the house wall, at the time of the fire.

The item is a 9-foot 3-inch solid iron shaft 5½-inches in diameter with a large eccentric sheave device at one end. An eccentric is a disk fixed to a rotating axle with its center offset from that of the axle (in this case by 10¾-inches) typically used with steam engines to convert rotary into linear reciprocating motion. This in turn drives a sliding valve or pump ram. Its function at Kendal is uncertain, although it was most likely associated with the plantation's rice milling operations. Unfortunately no direct comparison could be found in Porcher and Judd (2014).

19th Century Slave House

This excavation block was situated north of the nineteenth century Kendal House and consisted of 12 units (180-190R205, 200R210-230, 215R210, 210R220-230, 220-240R205, and 240R220) comprising 825 square feet. The work produced 4,070 pounds of brick, primarily representing chimney fall. Only 6 pounds of oyster shell were recovered, suggesting that shellfish were declining in importance during the nineteenth and early twentieth centuries.

Excavations here were based on the obvious chimney ruins and the fact that we were told that the new Kendal House would destroy this particular area. Thus it became critical to recover as much as possible in this area. Excavations exposed most of the structure, as well as a substantial portion of the associated yard area.

In those areas more distant from the structural remains the soils were similar to elsewhere on the site with a dark grayish brown (10YR4/2) or dark brown (10YR3/3) sand overlying brown (10YR5/3) or light yellowish brown (10YR6/4) sand. The subsoil is a mottled yellow (10YR7/6) sand.

In the immediate area of the structure the soils are dark brown (10YR3/3) or black

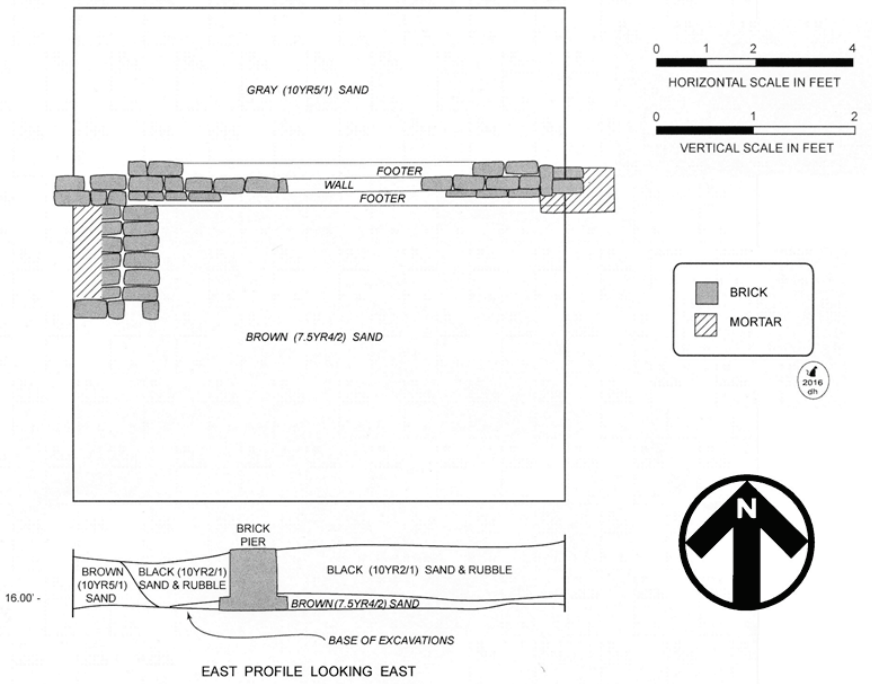

Figure 64. Unit 130R200. At the top is a plan and profile of the unit. Below is a photograph of the unit looking west. The east side of the chimney support is seen at the top center of the unit.

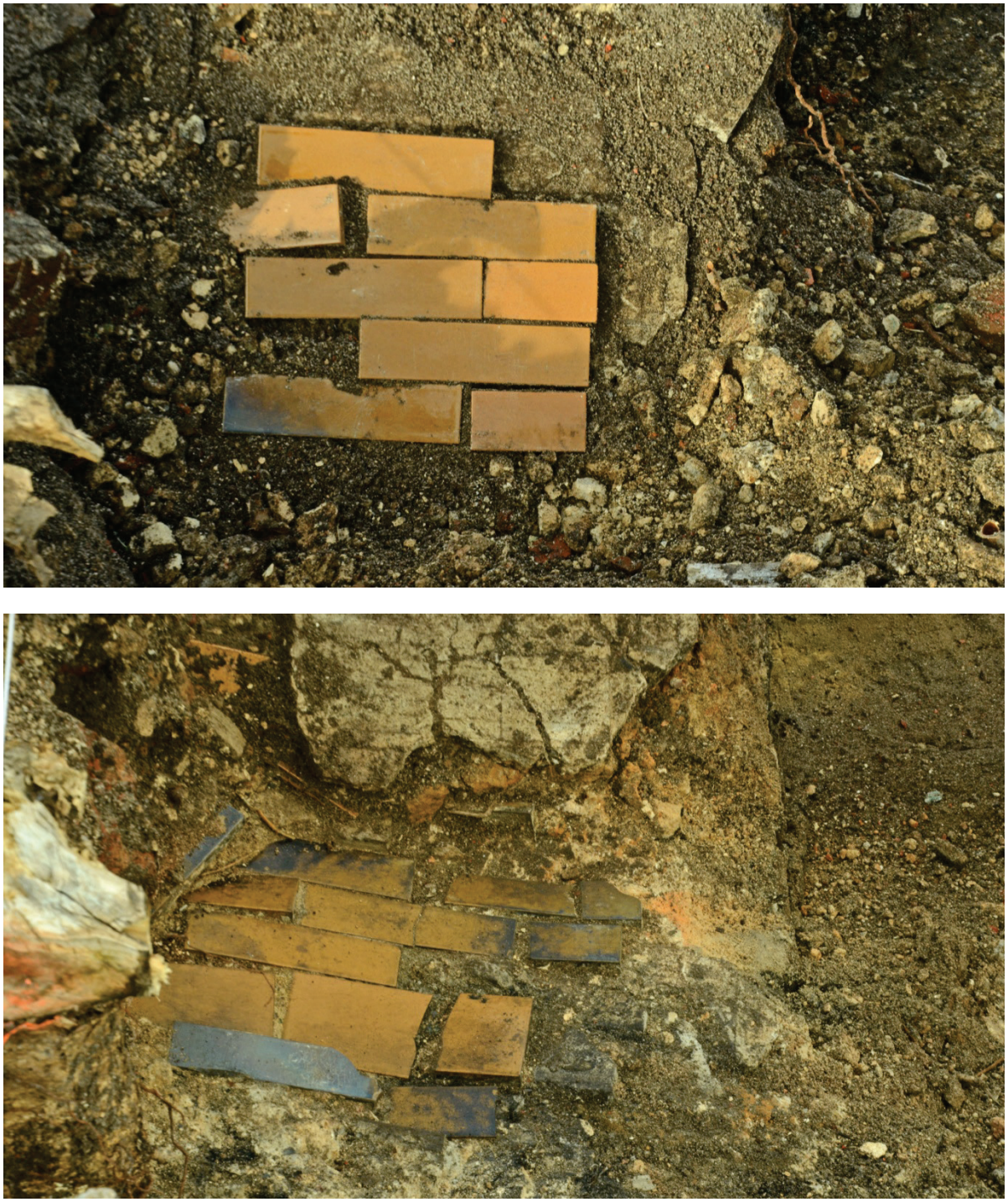

Figure 65. Unit 130R200 showing two in situ deposits of fireplace tiles. At the top of the lower photo is a large mass of intact plaster. Similar tiles were likely present on the first and second floors of the structure.

Figure 66. Feature 13 found at the Kendal House. Top left shows shaft and eccentric cleaned. Top right shows Mike Claffey directing its removal. Bottom photo shows the eccentric .

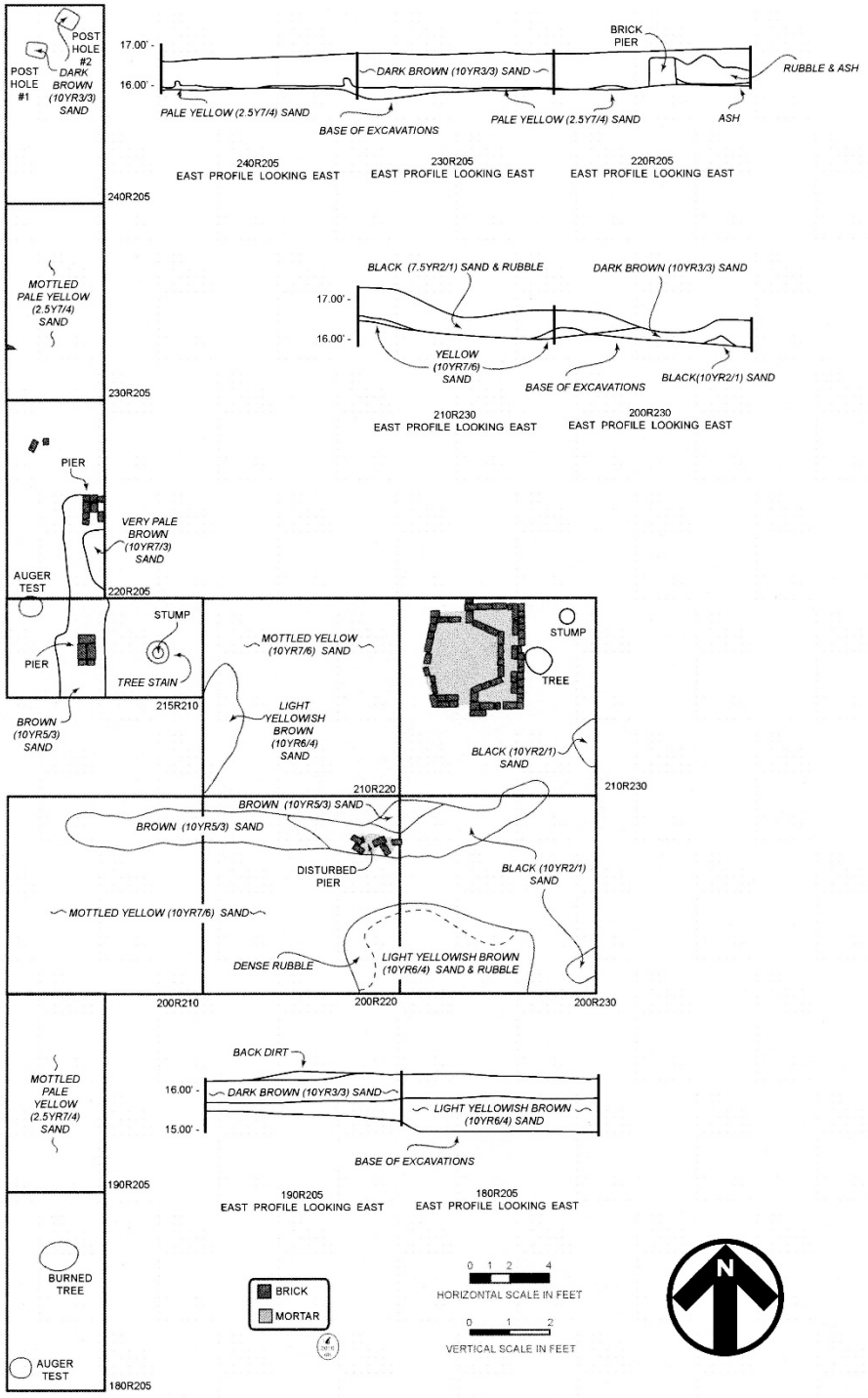

Figure 67. Plan and profiles of the Nineteenth Century Slave House.

Figure 68. Nineteenth Century Slave House. Upper photo shows the block excavation, including fireplace and piers looking northeast. Lower photo shows the fireplace looking east.

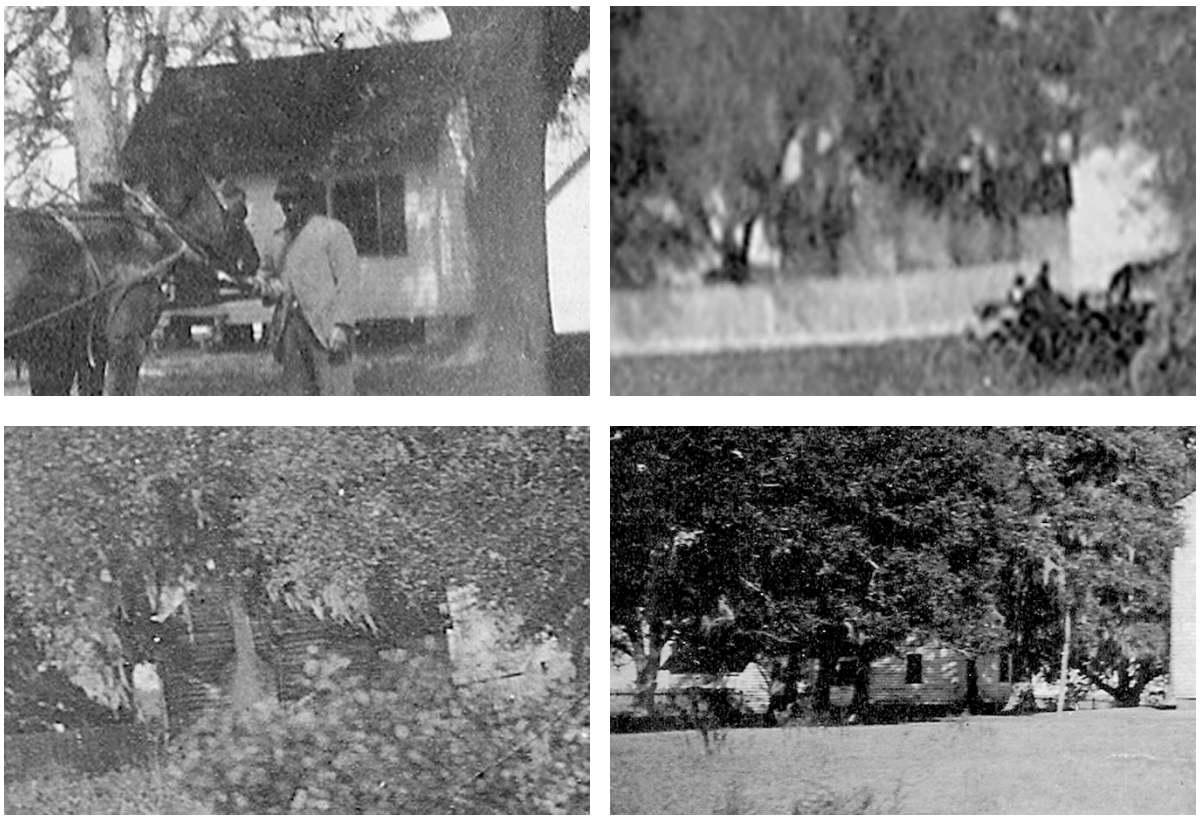

Figure 69. Four views of the slave cabin, all from the late nineteenth century. Upper left photo shows the front of the structure looking northeast. Upper right photo shows the chimney gable end looking west. Lower left photo shows the chimney gable end looking west. Lower right photo shows several buildings looking east.

(7.5YR2.5/1) sand overlying yellow sand (10YR7/6) sand.

The large mass of rubble identified as chimney fall was carefully excavated to reveal a Rumford-style firebox and extended hearth. The depth of the fireplace was 1.6 feet and the front width was 3.0 feet, while the back wall was 2.0 feet. A hearth, measuring 3.7 feet in width extended out 1.2 feet.

The structure was determined to measure 14 feet north-south by 20 feet east-west, based on the recovery of three piers. These piers vary in size and are poorly made.

The fireplace was centered on the east wall of the structure. Badly fragmented and broken mortar was found on the floor of the firebox at an elevation of 17.55 feet, indicating that the structure was originally raised about a foot above the surrounding ground surface.

Also identified during the excavations were brown (10YR5/3) stains at the northwest structure corner extending along the west wall and along the south wall and southeast corner that represent drip line erosional areas outlining the structure.

There are several photographs (Figure 69) showing this structure during the late nineteenth century. As found archaeologically, the chimney is on the east gable end. On the south façade are a door and a window. The structure is set above grade about a foot on brick piers.

Another photo shows several structures along the north edge of the plantation, also revealed by late nineteenth century maps. The shallow roof overhang accounts for the wide drip line and erosion seen archaeologically.

This structure burned, as clearly evidenced by ash and charcoal, as well as melted glass. However, we do not believe this occurred in 1919, but at some time during the Sprunt ownership. This is based on the presence of a large quantity of clay flowerpot debris mixed with the fire debris, indicating that the flowerpots were present in the building at the time of the fire. It is probable that the structure, abandoned after the loss of the Kendal House, was repurposed for storage of the flowerpots while the Sprunts were actively engaged in horticultural activities.

19th Century Store House

Excavations in this block consisted of six units (185-190R110, 190R115, 200R105, 200R115-125) totaling 350 square feet. Soils in this part of the site consisted of very dark gray (10YR3/1) sandy loam 0.2 to 0.3 foot in depth, overlying brown (7.5YR5/2) sand that was typically about 0.4 foot in depth. The subsoil was a light brown (7.5YR6/3) sand. These soils were shallow compared to other excavations on the site, suggesting this area may have been a work yard with erosion. There was also no evidence of plowing, indicating that even in the early twentieth century, this area was not incorporated in horticultural activities by the Sprunts.

Two different structures were identified during these investigations. The first structure was built on a rock and brick rubble foundation and measured 11.5 feet east-west by 10.5 feet north-south. The structure was subsequently rebuilt on brick piers immediately outside the original foundation, measuring 12.5 feet east-west by 12.0 feet north-south.

Excluding the brick piers, the excavations produced 288 pounds of brick rubble. Only 2 pounds of oyster shells were recovered in the work.

Artifacts are primarily architectural remains, supporting a storage function for this structure. We know that in January 1880 W.G. Curtis built a “store” at Kendal. While this structure seems ephemeral and more likely to house tools or implements, its proximity to the main house would have allowed it be carefully watched and it certainly would have been large enough to house barrels of staple provisions with shelves containing a few “luxury” goods. There is not good research to guide our expectations of what a plantation store ought to look like.

19th Century Root Cellar

This structure was initially identified as a large depression and was thought to be an ice house since it was located at the edge of the rice fields seemingly built into the bank. The initial work consisted of removing a large quantity of brick rubble and vegetation allowing units to be set in for investigation.

Only two 10-foot units (40-50R180) were excavated here and only the southern unit (40R180) was fully excavated. Excluding the rubble initially removed before formal excavations, 4,591 pounds of brick rubble were excavated. No shell was recovered from the excavations.

There was a zone of dark brown (10YR3/3) loamy sand about 0.4 foot overlying and partially filling in the depression. Below this was fill ranging from very pale brown (10YR7/4) to very dark grayish brown (10YR3/2) sand. Excavation revealed a brick wall 0.7 foot in thickness about 2 feet below grade. It continued another 1.5 feet to a laid brick floor at 11.75 feet AMSL.

This wall had originally extended above grade, forming a foundation upon which a frame structure was built. It measured 11.7 by 8 feet and photos show a gable roof. The entrance was likely at the south gable end, toward the marsh. There is no photographic or archaeological evidence for windows.

Excavation revealed that the floor lacked a drain or grade, indicating that an ice house function was unlikely. A more likely function for a dark, cool, partially below grade structure is a root

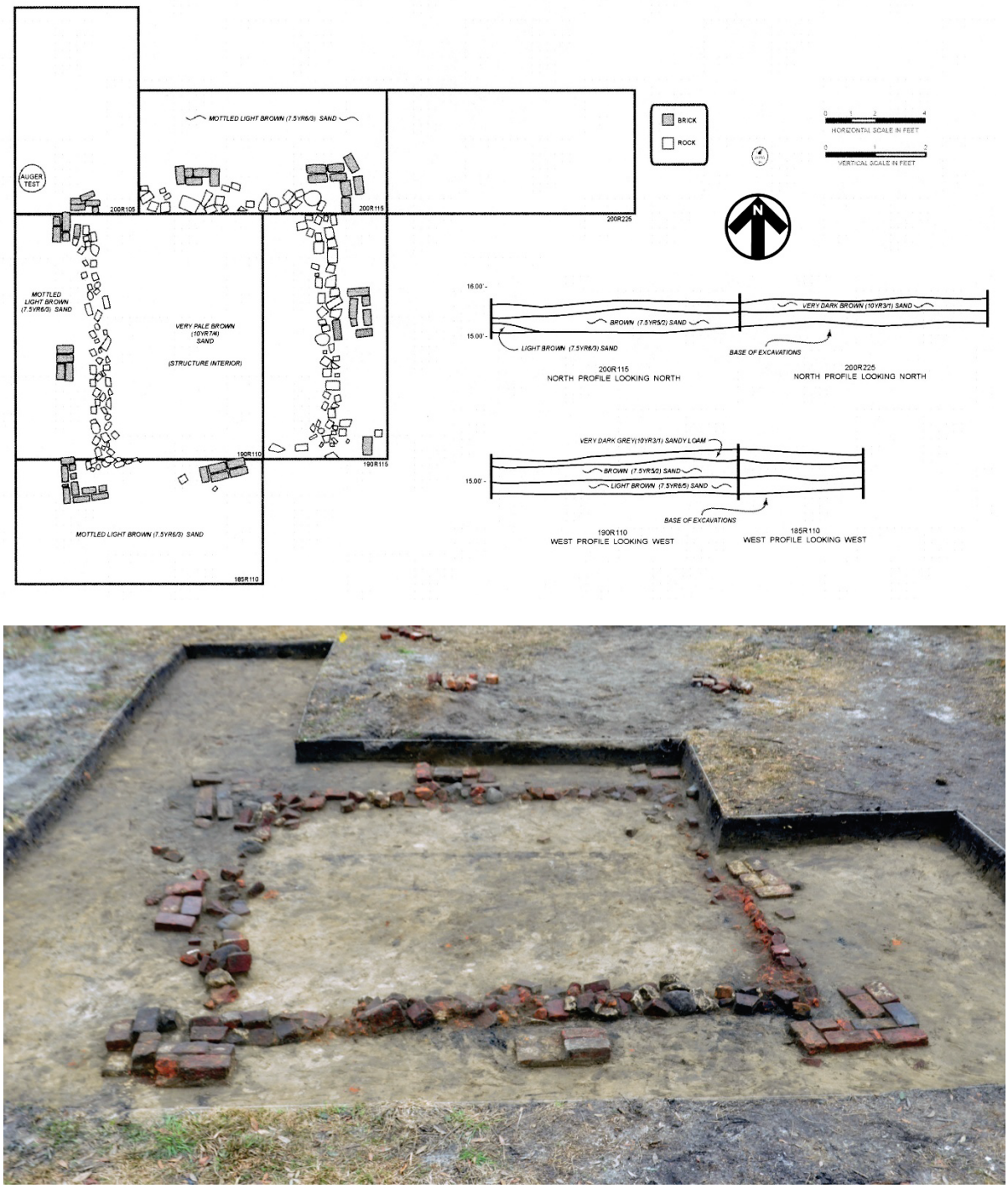

Figure 70. Kendal Store House excavation. At the top is a plan and profile of the units. Below is a photograph of the structures looking east.

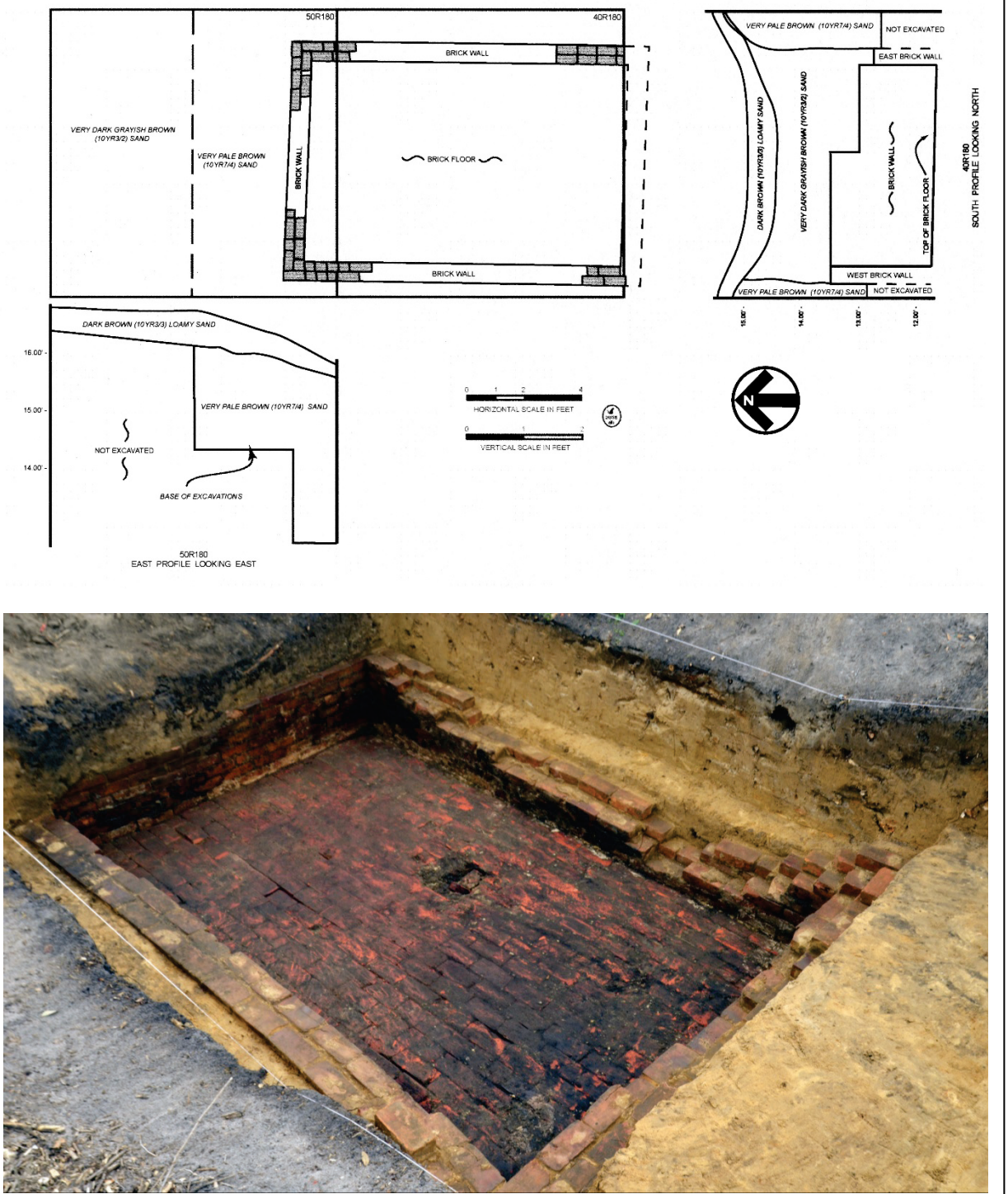

Figure 71. Root Cellar excavation in 40-50R180. At the top is a plan and profile of the units. Below is a photograph of the unit looking west.

Figure 72. Root Cellar excavations. Photo at the top shows removal of fill. Lower photo shows cleaning the structure for excavations. The terraced unit to the north is shown on the left side.

cellar.

Crops known to be grown on Southern plantations, such as sweet potatoes can be preserved for 4 to 6 months with temperatures of 55 to 60°F and relative humidities of 80 to 85%. Irish potatoes, in contrast, require temperatures of 32 to 40° F and humidity levels of 80 to 90% (Gage 2014:ii).

Free-standing root storage buildings were being constructed in both America and the British Isles by the 1750s (Gage 2014:7). Among the more common were the half cellar designs such as found at Kendal, where a portion of the cellar is below ground and a portion is exposed above ground. The earliest documented example is the Wessell Root Cellar in Hallwood, Virginia, dated to about 1768 and detailed by the Historic American Building Survey (VA-953; Gage 2014:59, 74-76).

In such structures the floor was the coldest and most humid area and therefore suitable for bulk storage of root crops. Generally doors were situated on the south face – away from the prevailing winter winds and to take advantage of the warm of the sun (Gage 2014:62). Gage notes that half-cellar designs were constructed with a "few steps or even a set of stair" that were "almost always on the outside of [the] cellar and led down into an inner door in the cellar wall" (Gage 2014:63). Unfortunately, sufficient work was not conducted to fully expose the entrance, but this description seems reasonable for Kendal.

Another feature that could not be discerned either archaeologically or photo-graphically is whether the above grade portion was insulated, which could have been achieved by creating double walls (Gage 2014:65). Certainly the foundation was wide enough to support such a system.

The brick floor was not mortared, a feature which Gage (2014:66) identifies as typical. Such a floor would allow some air movement and would also provide for drainage.

Excavations revealed that at some point during Kidder's tenure the structure was no longer being used for storage of root crops and began to be used for storage of household items, such as lamps and other supplies, such as Portland cement. After the Kendal House burned in 1919, the cellar, a convenient primarily open hole, was used for disposal of materials removed from the house ruins. Consequently, the artifacts show a range of late nineteenth century household items.

Mixed 19th Century Midden

Auger tests indicated what appeared to be a slight increase in artifact density in this general area. In addition, further work seemed warranted since much of the area would be destroyed by the proposed house construction. Although we initially intended to excavate only one or two units to obtain a sample of materials, the work revealed several complex features. As a result a 10 by 35 foot block consisting of 190R160-165, 195R165, and 190R175-180 was excavated, opening an area of 300 square feet. Excavations in this area produced 1,383 pounds of brick rubble.

Over much of the area we found from 0.4 to 1.0 foot of very dark gray (10YR3/1) sand. This graded into a brown (10YR4/3) sand that was up to 0.8 foot in depth. The subsoil was a very pale brown (10YR7/4) sand.

Several plowscars were identified in this area, indicating that while some yard areas were avoided many other areas were brought under cultivation, likely after the Kendal House burned in 1919.

The complex stains identified in the unit were resolved as two trash pits, Features 2 and 3, that blurred together and were removed as one. They were situated in 190R175-185, being recognized at the base of Level 1.

Feature 2 was the larger of the two, measuring 4 feet east-west by about 3.4 feet north-south. Excavation revealed abundant building rubble, including dense plaster and brick. In this sense it is similar to Feature 8 in the Colonial Kitchen Midden. Feature 2 produced 405 pounds of brick and plaster rubble and was 1.7

feet in depth with a rounded bottom. Feature fill was lensed, indicating multiple dump episodes. The absence of water washed fill, however, indicates that the feature was not open for a long period.

Feature 2 intruded into Feature 3 to the north. Feature 3 was smaller, about 3.2 feet east-west and perhaps originally about 3 feet north-south. It produced no brick rubble and the fill consisted primarily of homogenous mottled dark grayish brown (10YR3/2) sand. This feature had a flat bottom with a depth of about 1.1 foot. Its function is not understood, and the comingling of remains hinders further interpretation.

Miscellaneous Yard Units

In addition to the block units already discussed, five individual units (three 5-foot units, one 5x10 foot unit, and one 10-foot unit) were excavated, primarily in the northeast quadrant of the site. Most of these units were randomly located to provide better coverage of a site area that was to be lost to the construction of a new Kendal House. Only one of these units produced features, but they all assist in better documenting use areas of the Kendal site.

Unit 220R140 was the most western of the yard excavations and was a 5-foot unit northeast of the Nineteenth Century Store House. It produced only 3 pounds of small brick rubble. Soils consisted of a thin (0.1 foot) of very dark grayish brown (10YR3/1) loamy sand overlying 0.4 foot of dark grayish brown (10YR4/2) sand. The subsoil was a mottled very pale brown (10YR4/7) and dark grayish brown (10YR4/3) sand. Artifact density was low and no features were recovered.

210R165, another 5-foot unit, is situated southeast of 220R140 and closer to the Nineteenth Century Slave House. The soil profile was much deeper, with 0.2 foot of very dark gray (7.5YR3/1) loamy sand over 0.6 foot of dark brown (7.5YR3/2) sand. The subsoil is a mixed mottled very pale brown (10YR8/4) sand and a brown (10YR4/3) sand. The only notable find was a 1-inch iron water pipe running northwest-southeast through the north half of the unit. Artifacts here are also limited and only 5 pounds of small brick rubble was recovered.

Unit 235R180 is situated northwest of the Nineteenth Century Slave House. No brick was recovered. The unit consists of a very dark grayish brown (10YR4/2) loamy sand about 0.4 foot in depth overlying a brown (7.5YR7/2) sand 0.5 foot in depth. The base of the unit was a mottled pale yellow (2.5Y7/4) sand.

Unit 275R230 was a 5x10 unit at the north edge of the site. Gray (10YR5/1) loamy sand overlaid light yellowish brown (10YR6/4) sand on top of a mottled yellow (10YR7/6) sand. Three pounds of brick and 1 pound of shell were recovered.

The final unit, 255R280, was excavated at the eastern edge of the site, close to the bank into the rice fields. The location was selected based on an auger test (260R280) that produced a number of prehistoric sherds. The unit revealed a very thin layer (0.1 foot) of dark gray (10YR4/1) loamy sand overlying brown (7.5YR5/4) sand to a depth of 9.7 feet AMSL (0.6 foot in depth). Excavations were continued into a very pale brown (10YR8/4) sand for an additional 0.5 foot (to a depth of 9.2 feet AMSL).

While a number of prehistoric artifacts were recovered, including two prehistoric projectile points, 16 pounds of brick were also recovered and both prehistoric and historic artifacts were mixed. No indications of cultural stratigraphy were identified during the investigations.

At the base of the unit two features (Features 5 and 7) were observed and removed.

Feature 5 was a shallow rectangular pit in the northeast quadrant of 255R280 recorded at the base of Level 2, although it originated within Level 1. The center point was at 270R277 and the feature was bisected north-south and removed as east and west halves. The fill consisted of brown

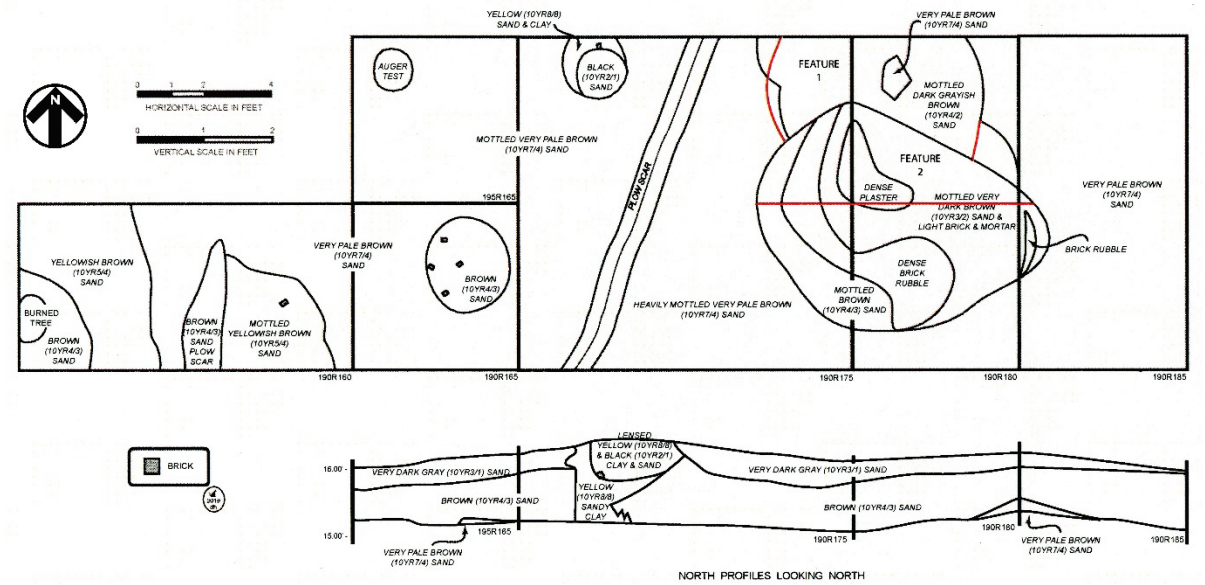

Figure 73. Excavations in the Mixed Nineteenth Century Midden Block. At the top is a plan and profile of the units. Red designates after excavation dimensions. Below is a photograph of the block looking east before feature excavation.

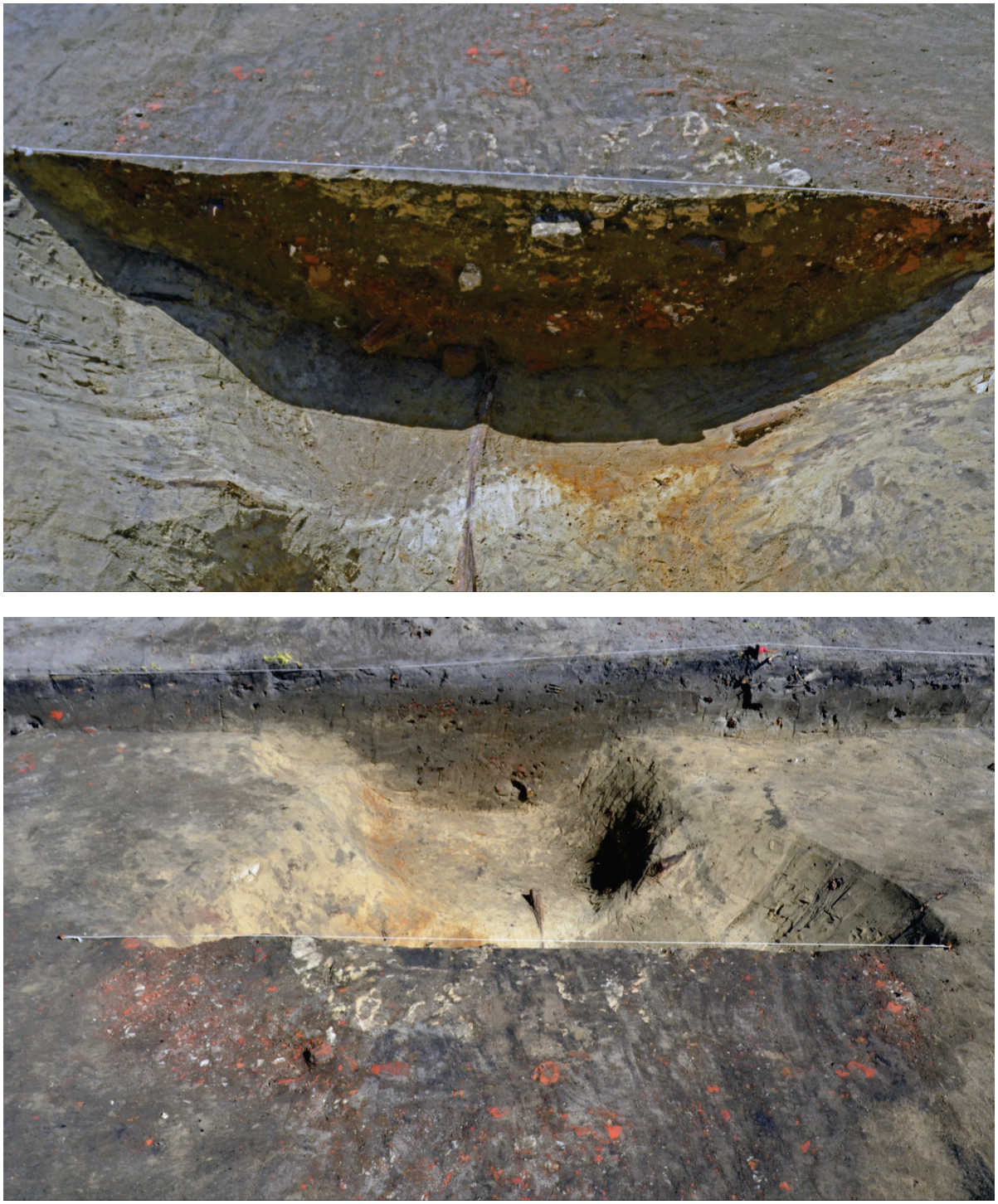

Figure 74. Features 2 and 3. Upper photo shows the north half of Feature 2 excavated, looking south. The lower photo shows Feature 2 in the foreground and the profile of Feature 2, looking north.

Figure 75. Miscellaneous yard units and features. Upper left photo shows 220R140 at the base of excavations looking east. Upper right photo shows 210R165 at the base of excavations looking east. Middle left photo shows 275R230 at the base of excavations looking north. Middle right photo shows 255R280 at the base of excavations looking east. Lower left photo shows Feature 5, E½ excavated, looking west. Lower right photo shows Feature 7 excavated, looking south.

(7.5YR4/2) sand. The feature measured 3.0 feet in length and 2.4 feet in width, with a thickness of 0.6 foot. Artifacts included both prehistoric and nineteenth century historic materials. While the feature might be classified as a trash pit, no clear function can be ascertained.

Feature 7 was found in the southwest corner of 255R280 at 255.5R271.5. It extends into the south and west profiles. The feature was recovered at the base of Level 2, but profiles reveal that it originated within Level 1. The maximum length of the exposed and excavated feature was 2.7 feet, while the maximum exposed width was 3.5 feet. The sides of the pit were nearly vertical and the base of the pit was flat. The fill was a very homogenous brown (7.5YR5/4) sand for its depth of 2.4 feet. Upon excavation it became clear that the feature almost certainly represented two pits that had merged. While a small quantity of prehistoric material was mixed in the fill, most of the artifacts were nineteenth century. As with Feature 5, there is no clear function and although some trash was encountered, it was not abundant. The fill and trash are consistent with yard debris.

Stripping and Exposed Features

Mechanical stripping using a track hoe with a toothless bucket removed the upper foot in the northeast corner of the site. About 17,200 square feet (0.4 acre) were opened as a result of this work. This area is shown in Figure 29 and in Figure 76. While obvious artifacts were collected when observed, the primary goal was to identify, map, and briefly explore features that might be found in this portion of the site.

During this work we identified 13 features. None of the features were found to be privies or wells. Consequently, only very minimal investigation of these features was conducted. To distinguish the features found by stripping from those identified during controlled excavations, these features were designed using letters rather than numbers. As suggested by the excavations, apparent artifact density as well as the number of features increased from the east moving to the west.

Feature A was recognized as a black soil stain with minor amounts of shell. It measured 3 by 2 feet in diameter.

Feature B was originally observed as a smear of brick rubble in the south yard of the Nineteenth Century Slave House (units 200R220-230). During the stripping operations it was partially excavated, first mechanically and finally by hand to expose a feature that measured about 6 feet east-west by 4 feet north-south. Concerned that it might represent a well, excavation was taken to terminal yellow sand 3 feet below the base of excavations (or about 4 feet below grade). It was filled throughout with brick rubble. The brick rubble all appeared to be similar to that found in the colonial structures and was very soft. We hypothesize that the brick found unsatisfactory for construction purposes was buried in the portion of the yard – well away from both the house and the kitchen.

Feature C was at first thought to be a post hole, but upon excavation was found to measure 2 feet north-south by 1 foot east-west and 0.6 foot in depth. Fill consisted of dense shell, making this the only shell-filled pit identified at Kendal.

Feature D was a brown stain about a foot in diameter and 0.5 foot in depth. It may have been a post hole.

Feature E was a light brown soil stain with mortar fragments measuring 2 feet in diameter.

Feature F was a large black stain that had been impacted by a telephone pole erected as part of the proposed new Kendal House mock-up (seen as a circular yellow stain in Figure 77). It measured 7.4 feet southwest-northeast and 8.3 feet southeast- northwest. It was sampled with the excavation of three 2 by 2 foot sections, all of which terminated at yellow sand about 0.6 foot below the stripped surface (or about 1.6 foot below grade). Artifacts were very dense.

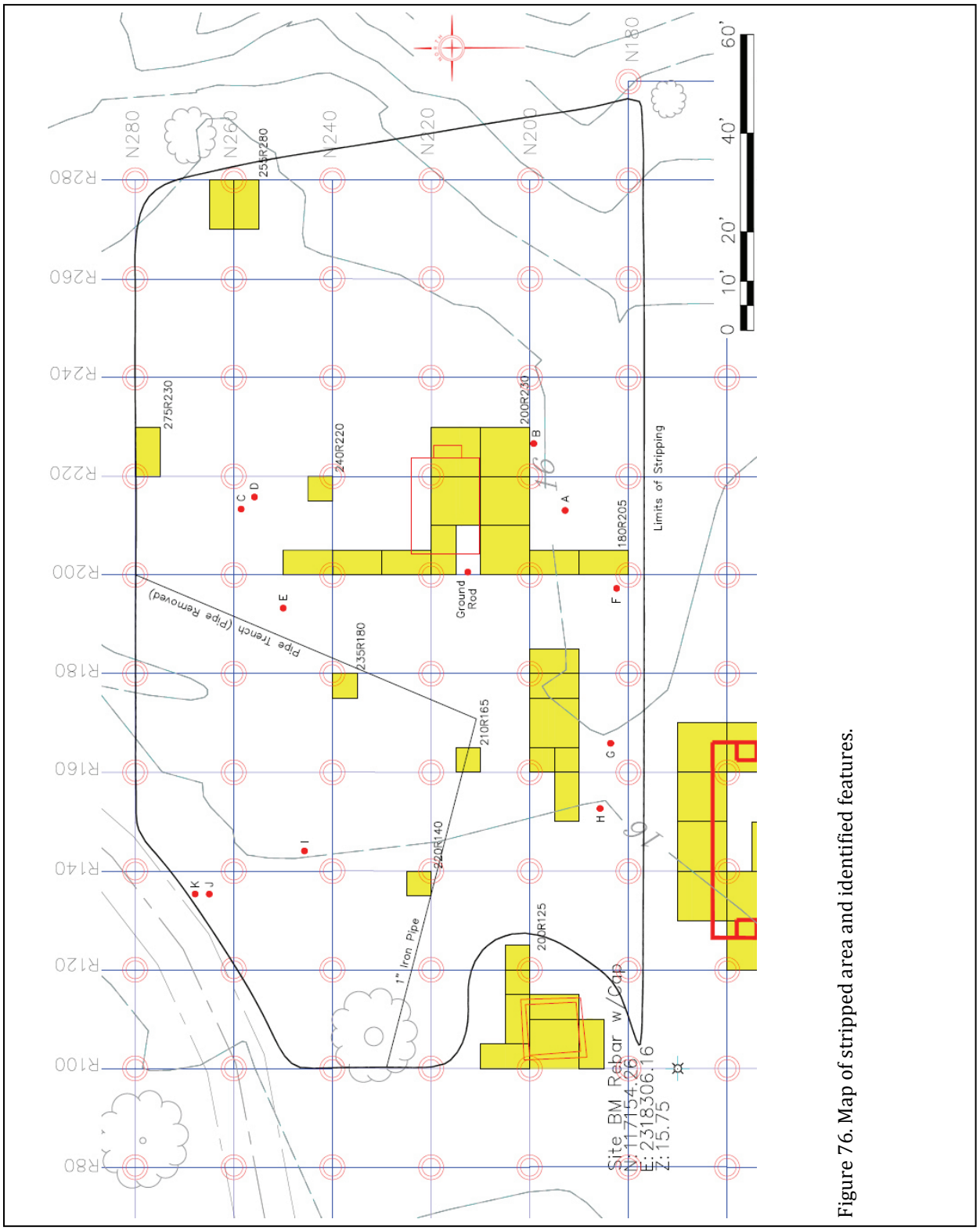

Figure 76. Map of stripped area and identified features.

Feature 77. Features identified during stripping. Upper left photo shows Feature A looking east. Upper right photo shows Feature B after partial mechanical excavation looking to the northeast. Middle left photo shows Feature C looking to the west. Middle right photo shows Feature D, a possible post hole looking to the east. Lower left photo shows Feature E looking east. Lower right photo shows Feature F looking to the west. The circular yellow stain is a hole created by the modern Kendal House mock-up.

Feature 78. Features identified during stripping. Upper left photo shows Feature G looking east. Upper right photo shows Feature H looking north. Exposed were brick, shell, and mortar fragments, bone, and artifacts. Middle left photo shows Feature I looking north. Middle right photo shows Feature J, a probable pier, looking north. Lower left photo shows Feature K looking west. Lower right photo shows the iron lightening rod found during stripping.

Feature G was a black stain measuring 1.7 feet square. It contained some yellow sand and mortar. It was found to be only 0.3 foot in depth and may represent a pre-existing disturbance.

Figure 79. Shovel skimming feature during stripping operations.

Feature H was a large rectangular stain with abundant visible artifacts. It measured 6 by 3 feet and the southern half of the feature was excavated. It was found to be 1 foot in depth. While a good sample was collected, it is difficult to determine the function of the feature.

Feature I was found to be 5.7 feet in diameter. The brown stain exhibited both brick and mortar fragments. One half of the feature was excavated, revealing lensed fill of brown sand, brown clay, brown sand, and white sand to a depth of 1.5 below the stripped grade.

Feature J is a probable brick pier, perhaps representing one of the nineteenth century structures that we were unable to identify through auger testing. The stain was 2 by 1 foot containing abundant brick, mortar, and shell. Upon excavation it was found to be about 0.4 foot in depth below the stripped grade.

Feature K is thought to be another pier and it measured the same as Feature J. The only significant difference is that Feature K contained abundant mortar rubble.

A pipe trench and 1-inch pipe was also exposed during the stripping. The north end began at the north profile of 280R200 and continued to the southwest for 43.5 feet where it turned 90° and continued for 40 feet. This pipe was traced an additional 100 feet before it was lost. Upon further investigation we found that the north-south trench no longer contained a pipe, it having been robbed out at some point. We believe that this pipe came from the water tower to the north of the Kendal site that is seen in many of the late nineteenth century photographs. It may have supplied the various structures that by this period were occupied by African American workers.

The final feature encountered during stripping was a ferrous rod over 5 feet in length that had been driven into the ground. At the portion above ground there was a small amount of copper wire wrapped around the rod. We interpret this to be a lightening rod. Only a few feet from the Nineteenth Century Slave House, we presume it was protecting this structure. This is only the second lightening rod we have encountered archaeologically and the other was being used on an eighteenth century main house (Trinkley and Hacker 2010:32). Its location at a slave house seems anomalous.

Bricks and Mortar

Bricks and mortar are integral, even essential, components of most historic settlements, yet archaeologists rarely devote much attention to the existence of these architectural components. This section will explore previous work and then focus on the findings at Kendal Plantation.

Bricks

Eighteenth Century Advertisements

We do not have any early newspaper advertisements for coastal North Carolina. In Charleston, however, there are a variety of accounts from the 1730s, including several notices of bricks for sale on ships just arrived from Boston (*South Carolina Gazette*, December 23, 1732, pg. 3; January 20, 1733, pg. 3; May 29, 1736, pg. 3). These bricks were apparently available in fairly modest quantities of 3,000 to 20,000 bricks.

There are also advertisements for the sale of plantations that contained functioning brickyards. One brickyard was reported "near Georgetown" (*South Carolina Gazette*, April 6, 1734, pg. 3). Another along the Wando River in South Carolina reported a brickyard with "two large Houses, near 100 feet in Length near 20 in Breadth, and 9 in Height, with 12 arches, and a Division in the Middle, a large quantity of Wood near at Hand" as well as several slave "Brick Moulders"[1] (*South Carolina Gazette*, December 3, 1748, pg. 3). Other advertisements simply observed that the plantation landing and nearby clay would be suitable for making bricks (*South Carolina Gazette*, September 7, 1734, pg. 3; May 4, 1738, pg. 3).

In North Carolina, accounts are not available until the late eighteenth century. One advertisement reported the availability of "bricks at the brick yard" (*The North Carolinian*, New Bern, North Carolina, September 10, 1796, pg. 1). Benjamin Smith also reported "One or Two Hundred Thousand Bricks" for sale at his Belvedere Plantation (*North Carolina Gazette*, Wilmington, North Carolina, February 22, 1798, pg. 3). Several advertisements sought individuals familiar with making brick (*The Encyclopedian Instructor*, Edenton, North Carolina, November 6, 1792, pg. 4; *The North Carolina Journal*, Halifax, North Carolina, October 22, 1798, pg. 4).

Regardless, early eighteenth century plantations such as Kendal, Orton, and Lilliput clearly indicate that bricks were widely available, although perhaps costly, early in the Cape Fear region.

Ballast, Saleable Ballast, or Cargo?

As previously mentioned, there are accounts of brick being brought from Boston to Charleston in the hulls of ships and then sold. But were these bricks mere ballast, ballast that fortuitously found buyers, or intentional cargo? This is an issue that is carefully reviewed by Smith (2001). While from an English perspective, we feel the logic and arguments may also be applicable to Charleston, Brunswick, or Wilmington:

> bricks or tiles correctly stowed in the hull of a ship otherwise laden

[1] An advertisement for the sale of African slaves reported several "accustomed to Brick-making, one of whom can mould from 5 to 6,000 bricks each day" (*Columbian Herald*, Charleston, South Carolina, July 7, 1788, pg. 1).

> with lightweight commodities would, it may be said, have a *ballasting effect*, if present in sufficient quantities. And yet, if those materials were intended for sale at the port of destination, they were not *mere* ballast; indeed it would be better to put the point by saying that a ship so laden had no *need* of ballast. The dispute is, in other words, more than semantic. It is a question of whether commodities such as bricks and tiles came over as ballast or as proper cargoes: the difference would certainly have been a real one for merchants of the time, and it is a real one for us now (Smith 2001:5).

Smith suggests that bricks and tiles "were too expensive to be regularly employed as mere ballast" (Smith 2001:6). Bricks had a cost, whereas sands, gravels, and stone might be had for only the cost of carriage.[2] In addition, while bricks are arguably less breakable than roofing tiles, they must still be carefully stowed. In contrast, sand and gravel has greater weight relative to their bulk and are easier to load.

Nevertheless, mercantile accounts provide ambivalent support. For example, in 1740 Pringle told his correspondent that because of a recent legislative act requiring the rebuilding of Charleston with bricks, "if London Bricks can be Imported according as Rated at £6 per mille, will sell preferable to any other, & by which you'll be able to Judge if it will answer to Import them In the Room of Ballast, as also Tiles & Slate" (Edgar 1972:I:282-283). He warns, however, that there is "always a very great Breakage on them" and many are pilfered off the docks (Edgar 1972:I:244). A year earlier Pringle observed that, "bricks are a very dull Commodity at present, there being a great Quantity Lately Imported & no Demand. It is a pity they were not made of a Larger Size their being so small hinders their Sale" (Edgar 1972:I:84). Pringle again complained of brick sizes in 1740, "It were to be wish'd you could persuade your Brickmakers to make their Bricks Larger and of the Same Size of Old England Bricks or this Province Bricks" since the ones being sent were "much too Small in Size" (Edgar 1972:I:301).

In 1743 Pringle was even more blunt, advising that, "& for Ballast, Stone, will be preferable to Bricks, which are unsaleable & never exceed £3.10/ per mille & may Lye a Considerable Time on Our Wharfs, Lyable to be Lost or Stolen before they Can be Dispos'd of" (Edgar 1972: II:616).

The 1740 act regulating the rebuilding of Charleston after its fire established the maximum price for three varieties of brick: English brick, £6/1,000; New England brick, £3.10/1,000; and Carolina brick, £5/1,000 ("Postscript," *South Carolina Gazette*, December 25, 1740, pg. 4). Whether these prices reflect quality or size is unclear.

Consequently, it appears from these accounts that ballast that might be readily sold was chosen when possible. While the "right kind" of bricks, especially during periods of shortage such as major rebuilding episodes, might sell well, there was considerable breakage and loss. Moreover, many of the bricks being sent – from both England and the north – were too small to suit Charleston preferences.

Brick Sizes

Expanding on these few comments, there is a substantial literature regarding brick sizes. Lloyd (1925) provides numerous examples of English brick sizes. Table 17 provides comparison a few types reported from the archaeological or historical literature. Lloyd, however, cautions,

> Attempts to date buildings by brick dimensions have been useful only in a vague and general way. . . . indeed, close scrutiny leads to the conclusion

[2] At least one English port, Rochester, had specific "Ballast Wharfs" marked on maps of 1698 and 1742 (Preston 1977).

Table 17.
A Few Brick Sizes
(all measures are length by width by thickness in inches)

Date	Brick Type	Dimensions (inches)	Source
1625	Proclamation brick, London	9x4⅜x2¼	Lloyd 1925:12
17th c	Dutch "dinker"	6⅛x2⅝x1¼	Reeder 1983:1
17th c	Dutch "dinker"	6⅞x3¼x2	Reeder 1983:1
17th c	Dutch bricks	6x3x1	Lloyd 1925:15
1725	English statutory	9x4½x2½	Lloyd 1925:12
1776	English statutory	8½x4x2½	Lloyd 1925:12
18th c	Chesapeake	8½x4x2⅝	Lounsbury 2013:242
18th c	"English" sized	8x3¾x1¾	Norton and Moyer 2010:5
18th c	Dutch moppen	9¾x4¾x2¾	Norton and Moyer 2010:5
18th c	French	7⅜x3⅝x1¼	Waselkov 1999:17
19th c	Dutch paving	6x4x1¾	Dobson 1868:48
19th c	English "clinks'	6x3x1	Dobson 1868:48
19th c	Dutch house bricks	9½x4½x2	Dobson 1868:48

> that care was not exercised in making moulds, and that probably half an inch or even more was a common variation in any of the dimensions. At best, dating buildings by brick dimensions can only be vaguely approximate, and afford but slender aid to the more reliable architectural features and to precise historic records in determining dates (Lloyd 1925:11-12).

It is likely that the "Old England Bricks" referenced by Pringle are the 1725 statutory sized bricks. Perhaps the smaller ones were the so-called "English sized."

Previous Work and Findings

South (2010) briefly mentions brick at Brunswick in the context of three separate brick bake ovens; the presence of brick bats, including their use for flooring; brick chimneys; floors; footings and foundations; use in hearth construction; bricks in house construction; the production of "local" bricks; patio flooring; the salvage of bricks for reuse; the use of bricks for building smokehouses and drains; their use in step construction; the presence of 1-foot square brick flooring tiles; brick walls; and the presence of "yellow Dutch bricks." He notes that one of Brunswick's earliest occupants, Richard Price, was a brick maker and South suggests that Price "was probably making bricks on his town lot" (South 2010:80), although he offers no evidence of this.

In a somewhat more detailed discussion, South notes that there are "two obvious brick sizes found" in the Brunswick Town ruins.[3] One type represents a larger variety, measuring about 8½ to 9-inches by 4 to 4½-inches by 2½-inches. This is somewhere between the 1725 and 1777 English statutory bricks.

The smaller bricks found by South measure about 6¾ to 7¾-inches by 3¼ to 3¾-inches by 1½ to 2 inches (South 1964:68). While he notes there is variation, the two sizes do not overlap. In addition, he believed that the clay used in the two bricks was identical (South 1964:72).

Comparing the sizes to other historic sites, South found that the larger Brunswick bricks are similar to bricks produced elsewhere in the colonies during the late seventeenth and early eighteenth centuries. It seems he is mistaken in his assessment that they were smaller than the

[3] South also advocates converting all brick measures to eighths and adding them to arrive at a single number descriptor. The advantage he suggests is easier comparison of different size bricks. While the method would hide minor variations, he felt that "dramatic differences" would "be more likely to indicate a temporal or special validity" (South 1964:69). This approach has not been adopted by archaeologists.

eighteenth century statute brick.

In contrast, the small bricks are larger than imported Dutch bricks. Similar bricks, however, have been found not only at Brunswick, but also at Swansboro (Onslow County) and Bath (Beaufort County) (South 1964:72).

During his Brunswick work South (1963a) also briefly examined a brick kiln on Town Creek, about 6.5 miles north of Brunswick and 4.5 miles north of Kendal. Based on the presence of "three hand wrought nails, the only artifacts found associated with the kiln floor" South attributes the kiln to the eighteenth century. Also present were masses of limestone, suggesting that the kiln may also have served to burn lime to produce quicklime (South 1963a:2). The underwater component of this site was investigated in 1992. The bottom was found to be completely covered in bricks (Overton and Lawrence 1996:24).

Other accounts of brickyards in the immediate area (for example at Snows Point and at Walden Creek) date from the nineteenth century (Jackson 1996:128, 143).

Bricks at the Kendal Site

Brick from seven different locations on the Kendal site were measured and are itemized below in Table 18.

The larger brick sizes found by South at

Table 18.
Bricks from the Kendal Site
(all measures are length by width by thickness in inches)

Location	Size
Colonial Kitchen Walls	
	8⅜x4⅛x2⅜
	8½x4¼x2½
	8½x4x2⅞
	7⅞x3¾x1⅞
	8⅞x4x2½
	8⅝x4⅛x2⅝
	8¼x4x2½
	8¾x4¾x2½
	9¼x4¼x2⅝
Colonial Kitchen Paving	
	7x3½x1⅝
	7x3⅜x1¾
	7½x3½x1¾
	7¼x3⅜x1¾
Colonial Main Walls	
	8¼x4¼x2⅜
	8½x4¼x2⅝
	8⅜x4x2½
	8⅝x4¼x2½
	9⅛x4¼x2⅝

Location	Size
19th c Kendal S Chimney	
	8⅛x4x2½
	8⅜x4x2½
	8½x4½x2½
	8¼x4x2½
	8¼x4x2⅜
	7⅞x3⅜x2¼
	8½x4x2⅝
19th c Kendal N Chimney	
	7⅞x3½x2¼
	7⅝x3½x2¼
	7⅞x3⅝x2¼
19th c Slave House	
	8x4x2½
	7⅝x3½x2⅛
	8x3⅞x2⅜
	7⅞x3⅝x2¼
	8¼x3⅞x2½
	7⅝x3½x2¼
	7½x3⅝x2¼
	7½x3⅞x2⅛
	7⅜x3½x2⅛
19th c Root Cellar	
	8x3¾x2
	8¼x3¾x2⅛
	8⅛x4x2½
	8¼x3¾x2⅛
	8x3⅝x2
	8x3⅞x2

Brunswick are identical to those recovered from Kendal's eighteenth century colonial structures. This isn't terribly surprising as we'd expect only a few brick kilns would have been operating early in the history of these settlements. The variation found at Kendal (and we presume at Brunswick) is almost certainly the result of natural mold variation, combined with differential shrinkage rates based on the clay used and the heat of the kiln.

Similarly, the paving bricks found in the basement fireplace hearth are identical to the smaller bricks found at Brunswick Town.

Examples of these colonial bricks are shown in Figure 80.

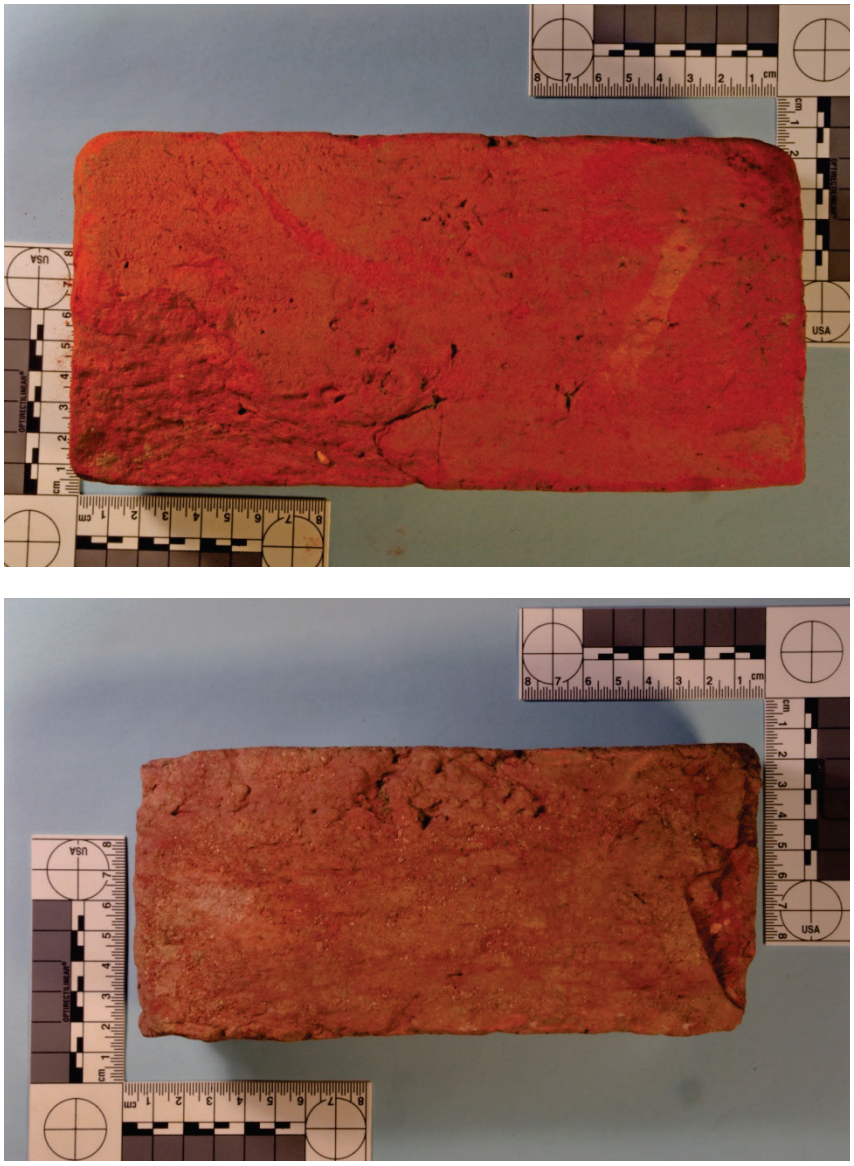

Figure 80. Colonial bricks from Kendal. Upper image is the larger brick, lower image is the smaller brick.

The bricks from nineteenth century structures at Kendal are not clearly distinct in size, although the length frequently appears to be shorter. Of course, at least some of the overlap may be the result of colonial bricks being salvaged and re-used on the Kendal House and associated outbuildings.

There is a clear difference between the bricks from the north (original) Kendal chimney and those from the south (rebuilt) chimney. The former appear similar to other bricks on the site, while the latter are clearly more uniform in size (and density, which was judged subjectively). This is likely the result of the rebuilding using new brick from off-site.

Characterization of the Bricks

Two bricks from the colonial kitchen structure at Kendal were submitted to the National Brick Research Center at Clemson University, which graciously agreed to perform the testing necessary to characterize the physical, chemical, and mineralogical composition of the bricks (Brosnan and Sanders 2015). The primary goal of

this work was to determine how the bricks were made and, in particular, if the structural and paving bricks were both produced locally.

Historical Background on Brick Making in North America

Most bricks made before 1800 were by manual or animal powered mixing (pugging) and are therefore somewhat inconsistent in internal uniformity. For example, bricks made before 1750 typically can exhibit two colors of clays in a cut section. Mixing of clays was necessary in some cases to obtain required plasticity for forming. Brickmaking remained a seasonal plantation industry until about 1800.

Most bricks made before 1800 were hand molded, but there are notable exceptions. The first portable brick press arrived in Savannah, GA, before 1800, and an early "portable" brick press is on exhibit at the Charleston Museum. Hand molded bricks can be differentiated by machine molded bricks as the latter have a much higher degree of dimensional precision.

In the South, hand molding in brick factories was a dominant forming method from about 1800 to about 1880. Hand molding was usually accompanied by mixing of sand (body sand) in with the clays (which always contained a small amount of "intrinsic" sand). These sands are revealed as the mineral quartz on X-ray diffraction (and as the mineral cristobalite in bricks fired to higher temperatures such as ones made along the Wando River in Charleston County, South Carolina). The X-ray fluorescence chemical analysis result for SiO_2 is a sum of the SiO_2 in the clay mineral, the SiO_2 in the intrinsic sand, and the SiO_2 in the body sand used in making the bricks. Some silts contained sufficient (or excess) quartz so that sand was not added to form the "body."

In England prior to about 1780, steam power was used in pugging and machine molding of bricks, and these exhibit a high level of physical perfection in dimensions. In about 1820, use of steam in brick making spread to the Northern states.

Early bricks made in field kilns (also called clamps) and skove kilns are all highly variable in physical properties and color. These were "updraft kilns" (with heat rising upward) so that bricks near the base of the kiln and toward the center were "underburned" with the result of high water absorption and lightness in color. Special downdraft kilns, called "Scotch Kilns," were in use on the Wando River brick works prior to the Civil War, and these kilns could obtain the high temperatures necessary to make a good brick from very sandy soils. Therefore, to determine the origin of bricks, comparisons must be made using information intrinsic to the raw materials rather than information created by the burning condition.

Extruded bricks appeared in the United States after about 1890. These can usually be identified in old buildings by horizontal depressions ("scratches") along the stretcher faces (old end extrusion method) or along the height of the brick (newer extrusion) of the bricks or by a "scratch texture" (the scratch texture masked cracks as typically found on a smooth face). After about 1930, vacuum de-airing in extrusion provided a greater uniformity of shape. Also, the bricks were perforated (contained core holes) after about 1930. The early core holes were small at about ½" in diameter.

By about 1930, use of beehive (round) kilns or other downdraft kilns became common providing better uniformity in color and physical properties. By about 1950, tunnel kilns became common with much improved uniformity in bricks.

Bulk Physical Characteristics

Both bricks examined by the National Brick Research Center have the appearance of typical hand-made clay bricks that were fired in a kiln to temperatures exceeding 900°C to form a semi-vitreous masonry unit. The smaller unit (7¼x3½x1¾-inches) exhibits a red color while the larger unit (8⅛x4x2½-inches) is a "salmon" color. The bricks exhibit vastly different bulk densities with the smaller unit exhibiting an

expected bulk density of a clay brick of 1.96 g/cm^3. The larger brick exhibited a bulk density of 1.47 g/cm^3, a value suggesting that it was of a different composition than the smaller brick.

The smaller unit had a density expected of a paving unit and, as revealed below, other characteristics of a paver. It is called a "paver" in the study. The larger unit was of a size expected for use in a load bearing wall for a structure, and it is hereafter called a "brick."

The paver exhibited a compressive strength of 8436 lb./in^2 seemingly confirming that it was used for flooring or paving. The brick exhibited a compressive strength of 2240 lb./in^2, in the realm of a value frequently recorded for colonial hand molded bricks.

The mercury porosimetry results characterizing porosity and pore size are comparable to values calculated from weights and dimensions. The porosities for the paver and the brick are 17.5% and 36.9% respectively. This is yet another remarkable result indicating that the bricks are of a different composition.

The Maage Index estimates the durability of fired clay bricks or tiles based on the total porosity and the fraction (content) of pores greater than three microns in diameter – as determined by mercury porosimetry (Maage 1990). Based on the Maage index, the brick is rated as "durable" in frost resistance, a prediction reinforced by the Coefficient of Absorption (Using ASTM C216).

The importance of the durability prediction is that it shows that both bricks are well-fired despite their apparent color difference. This suggests a fundamental composition difference, as also suggested earlier by the density data. The firing temperatures are estimated from the point of inflection (onset of shrinkage) in the dilatometry graph (Franke and Schumann 1998), where the paver and brick firing temperatures were approximately 1081°C and 1041°C respectively. These temperatures are expected for clay bricks meeting modern standards. Due to the variation in temperatures within colonial updraft kilns, it is not possible to conclude that the paver and wall bricks were fired intentionally on different heating/sintering schedules.

The coefficients of thermal expansion (CTE) were determined as 4.24 X 10^{-6}/C and 3.77 X 10^{-6}/C for the paver and the brick respectively. These are values expected for bricks made from alluvial clays or shale without a significant content of cristobalite (a form of crystalline silica originating from quartz when bricks are fired above about 1150°C). For information, bricks made in the early 1800s in coastal South Carolina frequently exhibit much higher CTEs due to a significant content of cristobalite.

Analytical Data

The bulk chemical analyses of the bricks lead to three significant observations.

First, the paver brick has a substantially higher Al_2O_3 content than that of the wall brick. This suggests that the "clay" content of the paver brick is much higher than that of the wall brick. It is also significant that the paver brick has a higher content of both sodium oxide and potassium oxide – typical glass forming fluxes in production of vitrified clay ceramics. Such higher alkali clays are frequently used in contemporary brickmaking.

Second, the SiO_2 content of the structural brick is very high suggesting that the brick contains a substantial amount of quartz and a low content of clay.

Third, the MgO content of both bricks is high and typical of soils found near the coast (that may have been submerged in seawater in geological time frames) or in sediments containing dolomitic limestone fragments.

The X-ray diffraction (XRD) data reveals the mineral constitution of the bricks. Both bricks contain quartz, but the level of quartz is very high at 92.5% in the wall brick. For the wall brick, this leaves only 7.5% by weight of minerals that can constitute a vitreous bond phase in the brick.

Therefore, the wall brick is expected to be porous (as found above).

The difference in hematite (Fe_2O_3) content explains the color of the bricks with the lighter or salmon wall brick exhibiting 0.7% hematite and the red paver exhibiting 5.4% hematite. Therefore, the color of the bricks is related to mineral composition and not firing temperature, a conclusion supported by the firing temperature determination reported above.

In fact, with mineralogy information alone, it would be expected that the bricks were from completely different raw material sources. Microscopy, discussed below, is required to resolve the fundamental reason for the mineralogy differences.

The specimens were subjected to thermal analysis to determine specifics of mineral constitution. These techniques frequently find traces of minerals from their decompositions or other events on heating that are not otherwise revealed by XRD (due to lower detection limits in thermal analysis as compared to those with XRD).

This revealed a low temperature evolution of water just above 100°C suggesting the presence of some hydrated phases (as from mortar species intrusion into bricks) and formation of bicarbonate phases due to environmental exposure.

There is evolution of carbon dioxide or CO_2 above 300°C from organic matter that oxidized when the bricks were heated.

In addition, another CO_2 evolution occurred in the area of 575°C where iron carbonate decomposition is expected. Some water vapor evolution was observed suggesting that the clay minerals in the brick, altered originally when the bricks were fired, had returned to a small extent to the form of the mineral when it was obtained for brickmaking. This latter process is called rehydroxylation.

The thermal analysis did not find evidence of mineral alteration (diagenesis) by environmental exposures as has been seen in some Charleston, South Carolina area bricks. This suggests that sea water has not intimately interacted with these brick specimens.

Microscopic Characterization

The bricks were subjected to microscopy after preparing polished thin sections as are typically used in petrographic examinations of building materials. In this case, the thin sections were only examined using scanning electron microscopy (SEM) so that the elemental dispersive X-ray capability (EDAX) could be used to find answers to the chemical questions on composition. A few of the SEM microstructures are shown in Figure 81.

This work reveals that the wall brick is characterized by a substantial content of angular quartz (sand) particles surrounded by a small content of vitrified binder phase and large pores (black on the photomicrograph). A bright particle probably represents heavy sediment included with the raw material. The evidence suggests a single raw material in the brick composition.

The paver brick is considerably denser and contains smaller pores (black). The paver contains streaks of bright clay (vitrified), a blend of dark and bright clay (vitrified) and quartz particles. This is positive proof that the paver was intentionally produced from a blend of clays. Additionally a grog (inert filler) particle is seen. The “heavy sediment” particles are also seen across the microstructure.

In the SEM, any phase appearing as bright typically contains heavier elements such as iron (Fe) when viewed in the backscattered (BSE) electron mode of observation. Thus the darker vitrified material contains less iron or other heavy metals.

The EDAX analyses provided the answers to the composition questions as shown in Table 19 as analyses of discrete artifacts/areas on the microstructures.

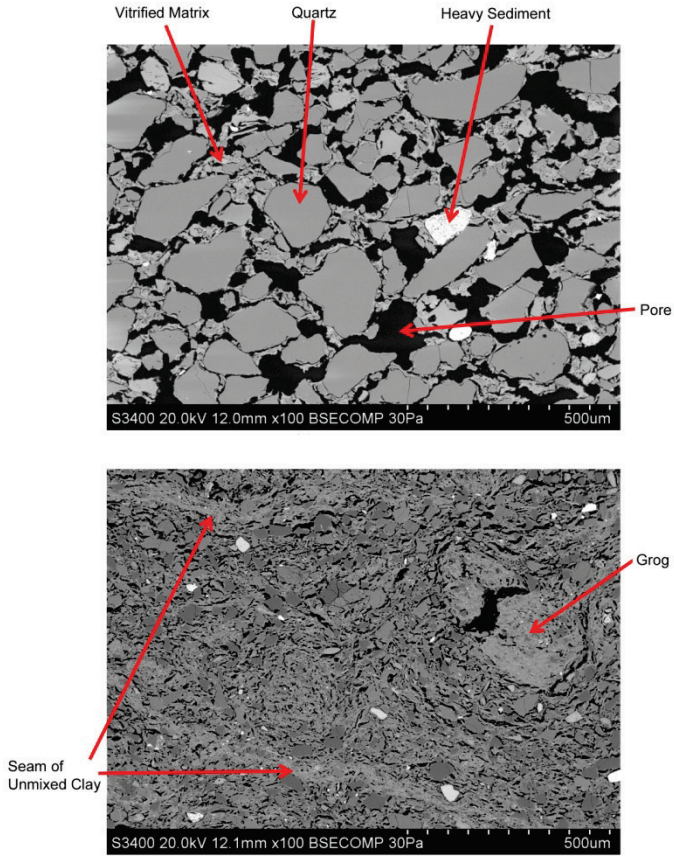

Figure 81. Brick thin sections. Upper photo shows the wall brick. The lower photo shows the paving brick (courtesy National Brick Research Center, Clemson University).

The bright (electron reflective) phase in the paver contains about 6.5% iron oxide (5.4% hematite reported by XRD). This phase is the fired residual of high iron clay intentionally incorporated into the brick to increase the extent of vitrification. This means that the colonial brickmaker knew that a blend of clays was necessary to achieve good strength providing functionality as a paving unit.

The similarity in chemistry of the paver "dark" matrix phase (Spectrum 73) and the brick matrix phase (Spectrum 81) suggests that a silt material was the major and only raw material in the brick and the second raw material in paver. This means that the colonial brickmaker knew that the silt was sufficient to be used alone as the raw material for the structural brick, thus avoiding the work of obtaining the second clay and the mixing to produce the structural or wall bricks.

Finally, the bright inclusion has the composition of the pseudobrookite ($TiO_2.Fe_2O_3$) found by the XRD in the wall brick. It is obviously present in both bricks based on the SEM photomicrographs. This type of material is expected in silt materials particularly found near coastal areas. Because it is present in both bricks, it lends credence to the fact that the same silt was a raw material in both the paving and wall bricks.

Summary

This investigation found that the salmon colored wall brick was well-fired and made from a silt raw material very high in quartz content. Due to its low iron oxide content and high silica content, it was fired to the salmon color. This color usually suggests "underfiring" or low heat treatment, but this was not the case for the Kendall wall brick.

The paving brick was well-fired and made from a blend of clays that included the silt and another high iron oxide clay that likely added plasticity for forming bricks and aided in the densification in firing. The result was a stronger and denser unit well suited for pavement/flooring.

The results are a testament to the practical ability or "technology" of colonial craftsmen who brought brickmaking skills to the new world from the old one. When they needed enhanced properties for paving units, they knew to select a second clay and expended the effort in winning/extracting the clay and in mixing. For the wall bricks, they only used one silt raw material saving time and effort. Blending of clays continues as a practice in contemporary brickmaking.

Table 19.
Summary of EDAX Area/Point Scans
(Elemental Analysis Converted to Oxide Analysis on a Calcined or Carbon Free Basis)

Spectrum	71 Paver	72 Paver	77 Paver	84 Brick	81 Brick	73 Paver	85 Brick
Artifact ID	Grog (Bright)	Bright Matrix Phase	Quartz Particle	Quartz Particle	Matrix Phase	Dark Matrix Phase	Bright Inclusion
Na_2O	2.49	2.45	0.16	0	0.36	0.75	0
K_20	4.14	4.01	0.57	0	1.94	1.34	0
CaO	1.25	1.43	0.32	0	0.72	0.56	0
MgO	3.28	2.51	0	0	0	0.69	0
Al_20_3	21.72	20.01	2.67	0.72	10.65	6.30	2.34
Fe_20_3	9.06	6.49	1.18	0.19	8.06	2.98	25.42
TiO_2	0.99	0.68	0.18	0.19	0.80	0.62	61.03
SiO_2	57.06	62.43	94.93	98.91	77.47	86.75	11.20

Although the study does not lead us to a specific clay/sand source for these bricks, that was not the goal of the study. The research suggests that local archaeology would benefit from additional brick studies and future research might profitably turn to the examination of various clay and sand sources in the immediate area.

Mortar

Evolution of Forms

As early as 500 B.C. the Romans and Greeks used mortar made of lime and sand and by 10 B.C. the 1:3 lime:sand ratio was established by Vitruvius, a military engineer. The knowledge that limestone could be burned, cooled, and then soaked in water to produce lime putty can be traced to at least Mesopotamia.

Neve (1735:204) explains how either limestone or chalk may be burnt to produce lime, as well as shells, such as "Cockles, Oysters, &ct." They were often sold either by the hundred weight or 25 bushels in London or, in the country by the load of 32 bushels. The cost ranged from 8 to 12 s. per hundred weight. He also explains that there was much variation in the mixtures, ranging from 1 load of lime to 2½ loads of lime to only ⅛ load of lime to 1½ loads of sand (Neve 1735:61).

In Charleston, both wholesale prices and cartage rates were based on the bushel (*Carolina Gazette*, January 9, 1800, pg. 3; *South Carolina Gazette*, April 12, 1783, pg. 2).

The burning of materials containing calcium carbonate drives off water and carbon dioxide, resulting in about 45% of the material's weight. The result is quick-lime or calcium oxide, also called lump lime or common lime. At this stage it may be placed in barrels for shipment, although it has a finite lifespan since it will gradually slake as it takes up moisture, even humidity from the air.

The loads of lime, we presume, are of unslaked quick-lime. During the slaking process the lime expands, Neves noting that that 4 pecks will become 5 pecks – making it critical to ascertain whether the proportions are before or after slaking the lime. At the job site the quick-lime would be dumped into pits or wooden boxes, mixed with water, and allowed to slake and mature. Alternatively the quick-lime could be ground and mixed with wet or damp sand, resulting in what was called a "hot-mix" since the slaking was occurring in the mixed mortar and generating heat.

Recent research of lime mortars often shows inclusions of unslaked or improperly burnt lime. These finds suggest the use of hot mixes, since in normal slaking these particles would be screened out or be deposited at the bottom of the mix. The hot-mix mortars are being found to be lime-rich and very durable. In particular they have excellent frost resistance. Although the reasons are not well understand, it is generally thought that the generation of steam results in an open-pored structure that improves the mortar's ability to cope with water expansion during freezes. In addition, quick-lime was generally less

expensive than slaked lime putty (Snow 2015:8). There is also evidence that the very high alkalinity of the mix etches the aggregate, creating a very tight bond.

As essential as mortar is to construction, Pringle's letterbooks from the early eighteenth century (Edgar 1972) fail to include any correspondence regarding lime, shells, limestone, plaster, or kilns. Even the Shaftesbury papers mention lime only in the context of the Port Royal discovery and the seemingly boundless piles of shells, the "necessary materiall [sic] for lime for many ages" (Cheves 2000:77).

Some of the earliest newspaper accounts mention the availability of stone lime (or limestone) invariably in hogsheads, suggesting that at least some lime was imported into South Carolina for burning (*South Carolina Weekly Gazette*, June 7, 1783, pg. 2). There are also reports such as the 1783 advertisement looking for individuals to assist in the "burning of lime" (*South Carolina Gazette*, September 27, 1783, pg. 1). There were also advertisements such as the one that reported "a Brick Lime Kiln" on the plantation (*South Carolina Gazette*, January 25, 1735, pg. 4) and another reporting "good Conveniencies for making Lime" (*South Carolina Gazette*, February 8, 1735, pg. 4).

There are very few advertisements prior to the nineteenth century selling lime in any form, suggesting that it was perhaps a commodity that the mason would provide. This is suggested by a 1785 advertisement by Thomas Cole, Bricklayer, who announced that he had "a parcel of very good hands and mortar" (*South Carolina Weekly Gazette*, August 2, 1785, pg. 3).

In 1784 John and Thomas Manson on Church Street in Charleston were selling "Lime Sieves," necessary to sift quick-lime to remove the larger fragments.

As early as 1783 Charleston merchants were advertising cement or "fcement" without specifying its type (*South Carolina Weekly Gazette*, October 18, 1783, pg. 4), indicating that the product was available a decade before James Parker's 1796 invention of a hydraulic cement, often called Roman cement, in England (Speweik 1995:5).

The frequency of those notices increased after 1800 and the first Charleston advertisement we have found for "Roman Cement" occurs in 1820 (*City Gazette*, Charleston, S.C., May 26, 1820, pg. 3), nine years after its invention.

Parker's Roman Cement was produced from an argillaceous limestone (impure limestone containing clay). A similar material, White's natural cement, was discovered in New York and patented in 1824.

About the same time a natural cement was identified in Rosendale, New York. Ultimately, more than 71 sites in 17 states were producing a total of nearly 300 million pounds per year of natural cement in the late nineteenth century, taking the collective term, Rosendale Cement. The first mention of Rosendale Cement in Charleston advertisements seems to be in 1835 (*Southern Patriot*, April 16, 1835, pg. 3).

In 1824 Joseph Aspdin mixed calcined hard limestone with clay, ground the mixture to a slurry, and refined it, creating what he called Portland cement. The name came from the gray color, similar to Portland stone. Portland cement achieved very quick set times, but strengths were lower than Roman cement, so it initially resulted in little commercial interest.

It is thought the first shipment of Portland cement to the United States arrived in 1869 (Spewick 1996:365) and local production began about 1871. It wasn't, however, until the late nineteenth century that testing revealed Portland cement would achieve twice the compressive strength as natural cement in the first year. Gradually the building industry was convinced that stronger was better (Spewick 1995:6).

An 1874 advertisement listed for sale 1,000 barrels of lime, 500 barrels of Rosendale cement, and 100 barrels of Portland cement,

perhaps providing some vague indication of popularity in the last quarter of the nineteenth century (*Charleston News and Courier*, June 30, 1874, pg. 2). In fact, up to the turn of the century, Portland cement was generally viewed as an "additive" to help accelerate mortar set times. It wasn't until the 1930s that masons were using equal portions of lime and Portland cement and it was around this time that bagged masonry cement began to be available. About 1935 hydrated lime was introduced, eliminating the need for masons to slake quick-lime into putty at the job site (Spewick 1997:20).

Previous Research

Mortar at Brunswick has never been subjected to analysis of any sort, yet the literature typically calls the material "tabby mortar." For example, Beaman et al. (1998:14) observe, "all of the foundations of domestic structures excavated were . . . cemented with tabby, a locally-produced mortar consisting of sand, lime, crushed oyster shells, and water."

Tabby and mortar with shell inclusions are very different materials. Tabby is a material that is mixed and poured into forms to create walls. The intact shells serve as aggregate, while the sand and burnt shell or lime, form the binder.

In contrast, shell may be included in mortar through incomplete processing of shell during the process of burning lime. It may also be found as a result of using a hot-mix in which shell quicklime is added to the sand for slaking.

Figure 82 shows the difference between the two and why it is important to distinguish between them.

Figure 82. Upper photo shows shell inclusions in mortar. Lower photo shows a tabby wall built in lifts or pours (upper photo courtesy of Sidney Living Museums, New South Wales; lower photo courtesy of Wikipedia).

Mortar Composition at Kendal

Four samples of mortar from Kendal were submitted to U.S. Heritage for detailed analysis (U.S. Heritage Group 2015).

Sample 1, taken from the colonial structure east of the kitchen, weighed 64.7 g and was light gray in color. Sample 2 was taken from the nineteenth century slave house in association

Figure 83. Mortar samples. Upper left is Sample 1, from the colonial structure. Upper right is Sample 2, from the slave house. Lower left is Sample 3, from the slave house but perhaps more recent. Lower right is Sample 4, from the Kendal House.

with seemingly older bricks toward the base of the chimney foundation. This mortar sample weighed 65.2 g and was also light gray in color. Sample 3 came from the same structure, but was taken from higher up and was in association with what appeared to be newer or replacement bricks. It weighed 47.6 g and was also light gray in color. The final specimen, Sample 4, was taken from the Kendal House, weighed 47.9g and was white in color. These samples are shown in Figure 83.

Methods of Analysis

The samples were analyzed according to chemical procedures and petrographic examination methods of ASTM C1324, "Standard Test Method for Examination and Analysis of Hardened Masonry Mortars." The mortar was examined using a stereomicroscope up to a magnification of 100X. Portions of the binder portion of the mortar were prepared on glass slides in several refractive index oils in the range of 1.20 to 1.71 and examined for identification using a polarizing (petrographic) microscope up to a magnification of 700X. The optical and morphological properties of the phases present were used to identify the various constituents present, including primary and secondary calcium carbonate, hydrated lime, gypsum, brucite, free lime, cement, and any other substances.

The chemical analysis was conducted using: wet chemical procedures in ASTM C1324, X-ray fluorescence spectroscopy (XRF), X-ray diffraction (XRD) and thermal analysis.

Results of Petrographic Analysis Samples 1-3

The paste in these three samples appears to consist of hydrated lime and natural cement. Residual (unhydrated) tricalcium silicate Portland cement was not detected. A low amount of grains

of coarse dicalcium silicate crystals with reacted hydrated rims and fine-size carbonated crystals of calcium hydroxide are present in the paste. The hydrated lime in the samples appears to be a dolomitic type. The paste in these three samples has a light gray/ tan color; has soft hardness, and is carbonated. The paste-aggregate bond and the mortar firmness appear average in all three samples. The degree of hydration is advanced and pockets of hydrated lime were detected in all three. Secondary calcium carbonate is present, due to carbonation of the paste. The type of cement present in all three appears to be natural cement. In all three, a low amount of slaked lime putty is present, and pockets of natural cement, up to 5.5 mm in size, are present. Brick fragments are not present in any of the three samples.

The aggregate in Sample #1 is a natural siliceous and calcareous sand with a 0.5 mm maximum grain size and modal (most frequently occurring) grain size of approximately 0.19 mm. The particle grading appears very fine, finer than the natural sand grading specified in ASTM C144 (Aggregate for Masonry Mortar). The sand consists of quartz and limestone. The aggregate is in a physically and chemically stable condition. The sand content appears high.

The aggregate in Sample #2 is a natural siliceous sand with a 0.8 mm maximum grain size and modal grain size of approximately 0.23 mm. The particle grading appears finer than the natural sand grading in ASTM C144 (Aggregate for Masonry Mortar). The sand consists predominantly of quartz, feldspar, and trace amounts of limestone and coal. The aggregate is in a physically and chemically stable condition. The sand content appears high.

The aggregate in Sample #3 is a natural siliceous sand with a 1.0 mm maximum grain size and modal grain size of approximately 0.23 mm. The particle grading appears finer than the natural sand grading specified in ASTM C144 (Aggregate for Masonry Mortar). The sand consists predominantly of quartz, feldspar, and trace amounts of limestone. The aggregate is in a physically and chemically stable condition. The sand content appears high.

These three samples are non-air-entrained, with entrapped air content of approximately 8.5% ± 1.0%. The majority of the air-voids are irregular in shape, and appear entrapped.

These three mortars are historic, and appear to be original mortar, predating 1900.

Results of Chemical Analysis Samples 1-3

These three samples were chemically analyzed for natural cement, using the method for Portland cement content according to the Soluble Silica (SiO_2) procedure in ASTM 1324, "Standard Test Method for Examination and Analysis of Hardened Masonry Mortar." The silica contained in the natural cement was estimated at 20.0% Soluble SiO_2 and 30% Total SiO_2.

The binder in the samples appears to consist of a dolomitic type of hydrated lime and natural cement. The cement was estimated to contain approximately 33.0% calcium oxide (CaO), 20.0% soluble silicon dioxide (SiO_2), and 30% total silicon dioxide (SiO_2). The majority of the paste is carbonated. Brucite (magnesium hydroxide) was detected at a moderate amount, indicating that the hydrated lime is a dolomitic type. Lime putty was detected in all three samples.

The hydrated lime in the samples was estimated to contain 43.0% calcium oxide (CaO), and 29.0% magnesium oxide (MgO), which is equal to 42.0% Brucite ($Mg(OH)_2$) . The Brucite was quantified based on DSC (Differential Scanning Calorimetry) – Thermal Analysis. Brucite content was used to determine the hydrated lime content .

Since limestone was detected in the aggregate in Sample #1, the aggregate content was calculated by difference: 100.00% minus the sum of natural cement, plus hydrated lime, free water, and hydrate water. Since the aggregate in the Samples #2 and 3 contains only a trace amount of

limestone, the aggregate content was calculated as the insoluble residue. The densities (bulk loose volume basis, lbs./ft.^{3}) of the mortar ingredients were assumed to be those listed in ASTM C270: Natural cement at 75.0 lbs./ft.^{3}; hydrated lime at 40.0 lbs./ft .^{3}. Eighty lbs. of dry sand was assumed to be equal to one cubic foot of damp loose sand. Lime putty is estimated at 80 lbs./ft.^{3}, consisting of 50% free water and 50% hydrated lime (calcium hydroxide). These three mortar samples appear to be a hydrated lime type with natural cement, and may possibly be replicated using the proportions listed in Table 20. A summary of the chemical analyses is provided in Table 21.

Table 20.
Volumetric Proportions of Samples 1-3 (ASTM C270)

Constituent	Sample 1	Sample 2	Sample 3
Natural Cement	1.00	1.00	1.00
Dolomitic Hydrated Lime	2.28	1.40	2.07
Natural Sand	9.18	7.10	8.06

Table 21.
Masonry Mortar Composition (ASTM C1324)

Constituents	Constituents, % by Mass			
	Sample 1	Sample 2	Sample 3	Sample 4
Silica (Soluble SiO_2)	1.62	2.06	1.80	2.90
Calcium Oxide (CaO)	19.86	9.11	8.33	14.50
Magnesium Oxide (MgO)	4.75	4.51	4.83	1.05
Brucite ($Mg(OH)_2$)	4.13	3.24	4.18	0.46
Insoluble Residue	57.00	77.97	77.36	72.08
Loss on Ignition (% by Mass)				
At 0-110°C free water	0.00	0.00	0.00	0.00
At 110-550°C hydrate water	2.73	3.04	2.99	3.67
At 550-950° C CO_2	15.43	3.15	3.62	4.53
Calculated Constituents (% by Mass)				
Natural or Portland Cement	8.10	10.30	9.00	13.81
Hydrated Lime (Dolomitic)	9.83	7.71	9.95	7.93
Fine Aggregate (sand)	79.34	77.97	77.36	72.08

Results of Petrographic Analysis Sample 4

The paste in this sample appears to consist of hydrated lime and Portland cement. Residual (unhydrated) tricalcium silicate from Portland cement was detected. A trace amount of grains of coarse tricalcium and dicalcium silicate crystals with reacted hydrated rims and fine -size carbonated crystals of calcium hydroxide are present in the paste. The hydrated lime in the sample appears to be a high-calcium type. The paste in this sample has a white color; has soft hardness, and is carbonated. The paste-aggregate bond and the mortar firmness appear average. The degree of hydration is advanced, and pockets of hydrated lime were detected. Secondary calcium carbonate is present, due to carbonation of the paste. The type of binder cement present in this sample appears to be Portland cement and hydrated lime. A low amount of slaked lime putty is present. Brick fragments are not present.

The aggregate in Sample #4 is a natural siliceous sand with a 0.6 mm maximum grain size and modal grain size of approximately 0.22 mm. The particle grading appears finer than the natural sand grading in ASTM C144 (Aggregate for Masonry Mortar). The sand consists predominantly of quartz, silica sand, and a trace amount of limestone. The aggregate is in a physically and chemically stable condition. The sand content appears high.

This sample is not air-entrained, with an entrapped air content of approximately 8.5% ± 1.0%. The majority of the air-voids are irregular in shape, and appear entrapped.

Results of Chemical Analysis Sample 4

This sample was chemically analyzed for Portland cement, using the method for Portland cement content according to the Soluble Silica (SiO_2) procedure in ASTM 1324, “Standard Test

Method for Examination and Analysis of Hardened Masonry Mortar." The silica contained in the Portland cement was estimated at 21.0% Soluble SiO_2.

The binder in the sample appears to consist of a high-calcium type of hydrated lime and Portland cement. The cement was estimated to contain approximately 63.5% calcium oxide (CaO), and 21.0% silicon dioxide (SiO_2). The majority of the paste is carbonated. Brucite (magnesium hydroxide) was detected at a low amount, indicating that the hydrated lime is a high-calcium type. Lime putty was detected at a low amount.

Table 22.
Volumetric Proportions of Sample 4
(ASTM C270)

Constituent	Sample 4
Portland Cement	1.00
Hi-Calcium Hydrated Lime	1.35
Natural Sand	6.13

The hydrated lime in the sample was estimated to contain 71.0% calcium oxide (CaO), and 4.0% magnesium oxide (MgO), which is equal to 5.8% Brucite ($Mg(OH)_2$) . The Brucite was quantified based on DSC (Differential Scanning Calorimetry) – Thermal Analysis. Brucite content was used to determine the hydrated lime content.

Since the aggregate in this sample does not contain limestone, the aggregate content was calculated as the insoluble residue. The densities (bulk loose volume basis, lbs./ft.^{3}) of the mortar ingredients were assumed to be those listed in ASTM C270: Cement at 94.0 lbs./ft.^{3}; hydrated lime at 40.0 lbs./ft.^{3}. Eighty lbs. of dry sand was assumed to be equal to one cubic foot of damp loose sand. Lime putty is estimated at 80 lbs./ft.^{3}, consisting of 50% free water and 50% hydrated lime (calcium hydroxide). This mortar sample appears to be a hydrated lime type with Portland cement, and may possibly be replicated using the proportions listed in Table 22.

Summary

These studies provide considerable information on the mortars used at Kendal. The earliest mortar is the only one of the four that contains limestone. Although this may be shell, the fragments look more like sea floor bed limestone formed from shells - typical limestone.

Thus, we have no evidence from Kendal that the Moore family was burning shells to create mortar.[4] Instead, they appear to have been acquiring limestone rock and burning that. There is precedence for this since South (1963a) found burnt limestone at the kiln he investigated on Town Creek.

This early sample, however, also contains what has been identified as a natural cement. Such products were not available until much later. Consequently, it is likely that the hydraulic components detected in the mortar were contaminants from muds or clays included in the firing of the lime.

Cured lime putty and hydrated lime will appear chemically the same once enough time has passed, so that is why the lime is referred to as hydrated in the report. Nevertheless, the sample contained lime inclusions which points to lime putty being used in the mix.

It is worth noting that the mix is relatively lean, suggesting that while sand was common, lime was scarce – a conclusion that is consistent with the early date of construction.

The presumably nineteenth century mixes are similar, except that no limestone is evident. The mortar used in the slave house therefore appears to include a purchased natural cement that was perhaps mixed with the hydrated lime to form the mortar. We know that various "cements" were available in Charleston by the 1780s. It seems reasonable that they would also

[4] Abundant shell is, however, found in the rough coat plaster, indicating that shell was being used for its production.

have been found in Wilmington or Brunswick about the same time.

The sample from the Kendal House is important since it identifies a construction episode after the availability of Portland cement, ca. 1873. Unfortunately, this sample is not well documented. We believe it comes from one of the additions and not the original house.

Ballast Stone

During the excavations at Brunswick Town South identified a variety of locations with abundant rock, termed "ballast stone." South found at least one ballast stone floor (South 2010:65), multiple foundation and lot walls made of ballast stone (South 2010:12, 27, 44, 64, 80, 82, 120), and even the town's water basin at the spring was lined in ballast stone (South 2010:150-151). South also notes linear patterns of ballast stone in the marsh that he thought represented the discard of ballast overboard while the ships were at the dock (South 2010:53-54). Nevertheless, South did not provide any detailed discussion of this seeming ubiquitous rock.

Historic Record

Ballast was commonly discussed in Robert Pringle's letterbooks of the early eighteenth century. For example, in 1738 Pringle recommended "English Bricks & New Castle Coals" for ship ballast (Edgar 1972:32). In a 1742 Pringle explained that salt was such a "Dear Commodity" that salt and bricks used as ballast "would turn out to very good Account" (Edgar 1972:339). In fact, in several letters Pringle mentions that "Bricks, Salt, or Tiles for Covering houses" were a good ballast investment (Edgar 1972:283, 400). However, the market was apparently very volatile since in 1743 Pringle complained that stone was preferable to brick for ballast since the bricks at that time were "unsalable & never exceed £3.10/pe mille & may Lye a Considerable Time on Our Wharfs, Liable to be Lost or Stolen before they Can be Dispos'd of" (Edgar 1972:616).

Pringle also provided other clues concerning both the taking on and disposal of ballast. In 1744 he lamented that a large ship "unhappily Oversett in the Harbour for want of Ballast . . . a Great Missfortune" (Edgar 1972:1744). In a 1740 letter he explained that he waited a week "while the ship was throwing out her Ballast" (Edgar 1972:195).

Henry Laurens was also intimately involved in the process of making cargoes profitable. In 1755 he complained that a ship should have been ballasted with coal, "as it would have paid something towards Expenses" (Hamer et al. 1970:52). In 1756 and 1757 Laurens repeated the advice of Pringle, recommending the use of salt to ballast a ship coming to Carolina (Hamer et al. 1970:289, 497).

There are also several accounts of gravel being intentionally imported as ballast. In 1740 Pringle requested "Twenty or Thirty Ton of Gravel for Garden Walks" (Edgar 1972:222). In 1785 there was an advertisement for "Fifty or Sixty Tons of Fine Gravel Ballast" that had been imported from London "for Garden Walks" (*South Carolina Gazette & General Advertiser*, February 16, 1785, pg. 2).

While we have no similar documents from North Carolina, in 1756 Governor Arthur Dobbs complained that the lower Carolina coast had "no stone to be had but what comes in ballast in ships" (Saunders 1887:596). That ballast, however, became so troublesome to navigation that by 1771 every ship's master had to swear that none of his ballast was thrown into "any part of the Channel of Cape Fear River," but was only dumped on high land or "thrown entirely above low water mark" (Saunders 1890:203).

In 1784 an ordinance was passed in Charleston that ships "shall not, upon any pretence, permit any ballast or rubbish to be thrown into the docks or channels of the harbor" (*South Carolina Gazette & General Advertiser*, October 28, 1784, pg. 1).

There are numerous advertisements by factors such as William Gibbes who, in 1783, announced that "he will be favoured with vessels that may have ballast to get rid of, as they will lay there [at his Charleston dock] in the greatest safety, and receive dispatch" (*South Carolina Gazette & General Advertiser*, September 23, 1783, pg. 1).

There is also evidence that ballast was itself a commodity in the Wilmington and Brunswick area. An 1803 advertisement by William Smith at Belvedere Plantation, near Kendal, reported that one of his slaves, Larry, "upon suffering a very valuable Flat loaded with ballast, to sink by his extreme carelessness, ran away" (*Wilmington Gazette*, June 9, 1803, pg. 3).

Archaeological and Geological Research

One of the earliest studies of stone ballast was by Lamb who defined ballast as "any additional eight added to a vessel for the purpose of achieving a safe minimum displacement" (Lamb 1988:5). He also noted that river rounded ballast had a higher density than sand and was less likely to cut or cafe the hull or adjacent cargo. Ballast was loaded, redistributed, offloaded on a regular basis. Presumably it might also be reused if accessible and needed (Lamb 1988:6).

Lamb also observed that the potential of shipwreck ballast studies depends on the ability to trace the stone to specific localities, although they are often not location specific (Lamb 1988:7). In his study he used petrography, paleontology, geochemistry, electron microscopy, and geochronology to explore the materials from a sixteenth century wreck. The findings pointed to undifferentiated quartzite, limestone of Miocene age, a talc-schist suite, a high alumina basalt of Eocene age, an alkaline olivine basalt of Pleistocene age, a broad group of sandstones, and a limestone of Late Viséan age, several of which were traced to the Lisbon, Portugal area, as well as Bristol, England, and locations in the New World.

In 1992 Wilde-Ramsing and his colleagues reported on an early eighteenth century wreck in the immediate vicinity of Rose Hill Plantation in the Cape Fear River. Ballast from this wreck was identified as plagioclase (feldspar) and hornblende, pegmatite with large crystals of orthoclase, quartz, and muscovite, unknown cobbles of volcanic origin, and a silty sandstone, "possibly from geographic areas north of Virginia" (Wilde-Ramsing et al. 1992:59).

By 2001 several studies on the ballast associated with the *Queen Anne's Revenge*, the flagship by the pirate Blackbeard, were conducted. Work by Miller et al. (2001) focusing on Mössabauer spectroscopy found that while individual lithologic groups could be distinguished, it was uncertain how effective the technique might be in the identification of specific bedrock sources. In contrast, work that focused on chemical and mineralogical differences of igneous ballast was able to suggest a probable Caribbean origin (Callahan et al. 2001). In fact, the authors relate a battery of useful tests very similar to those used by Lamb over a decade earlier (Callahan et al. 2001:56).

In 2014 Gifford examined two eighteenth century wrecks in Pensacola Bay, Florida. He discusses the impact ballast has on the overall stability of ships as it affects freeboard, draft, and trim (Gifford 2014:2). He also attempts to better categorize what has been called permanent as opposed to temporary ballast. He suggests that the term "permanent" ballast does not imply material that is never unloaded, but rather "a ship's permanent need for a certain amount of weight in its hold in order to remain stable" and that the "materials which physically fulfill that need are not permanent" (Gifford 2014:22).

Definitions aside, Gifford found that most of the ballast consisted of basalt, with smaller quantities of granite, chert, sandstone, limestone, and quartzite, and coral (Gifford 2014:65).

Of greatest interest, however, is the 2014 study by Burdette and Smith (2014) since it involves the examination of a large number of ballast stones from Campbell Island, midway in

the Cape Fear River between Brunswick Town and Wilmington. The location suggests that this ballast may have been off-loaded ships enroute to Wilmington, by-passing Brunswick. Nevertheless, the results of the work provide important clues concerning the source of materials found in the Cape Fear area.

Their work identified four groups: a fine-grained diabase, typical of the northern British Isles; fossiliferous chalk, flint, and chert, much of which seems consistent not with British sources but rather from Caribbean islands [1]; quartz-rich plutonic igneous rocks that are granites or granodiorites from either the northern British Isles or New England; and sedimentary and low-grade metamorphic rocks, also similar to specimens found in England and Scotland (Burdette and Smith 2014:101-102).

Burdette and Smith (2014:103) also examined the stones used to form the foundations of three Wilmington structures, including the Burgwin-Wright House, the Cotton Exchange and Chandlers Wharf, and the Wachovia Bank Building. They found that all three, the dominant ballast stones were mafic igneous rocks and granites.

While they don't provide a similar detailed discussion of the ballast stones so abundant at Brunswick Town, they do note that flint ballast, while very common on Campbell Island, are virtually non-existent in either Wilmington or Brunswick architecture. They suggest this is due to the "pocked and irregular shape of the chert and flint ballast and the resultant difficulty in using these shapes to form dry-lain or mortared foundations" (Burdette and Smith 2014:104). They also suggest the absence of such materials may have been an effort by British authorities to deprive the colonists of gunflint material. If this is the case, then the deposits at Campbell Island, rich in flints, must post-date British control.

[1] Supporting this Caribbean origin is also the presence of brain coral found in foundations and walls at both Brunswick Town and Wilmington (Burdette and Smith 2014:106).

Kendal Ballast Stone

While ballast is present at Kendal (see Table 23 and Figure 84), it is not as abundant as that found at Brunswick Town and is not incorporated into architectural features (except for one rubble foundation at the nineteenth century storehouse).

Similarly, ballast is present at Orton Plantation, midway between Kendal and Brunswick. There some ballast was incorporated into the basement walls of Orton.

The differential use of ballast stone at Brunswick Town, Orton, and Kendal is worth considering.

When Brunswick was sufficiently established to begin attracting trade, and thus deposits of ballast stone, is not well understood. In addition, South provides little information on when various structures were built, although he notes that the first documentary reference to a house at Brunswick indicates a construction date between 1726 and 1728 (South 2010:119, 139). That structure, the Leach-Jobson House, used ballast for its foundation. Thus, by at least 1728 there was sufficient ballast stone being dumped at Brunswick to allow its recycling into house construction. In fact, a very large number of Brunswick Town buildings incorporate ballast stone, including the foundation for the large public house/tailor shop; portions of the basement and most of the kitchen foundations for Maurice Moore's house; the foundation for the courthouse; the McCorkall-Fergus house foundations; the elevated basement of the Hepburn-Reynolds house; the foundation of Nathaniel Moore's house; and others (South 2010).

There seems to be an inverse relationship between the use of ballast stone in construction and the distance from Brunswick such that as the distance increases, the use of ballast decreases. This may mean that the drayage costs for ballast was greater than or equal to the cost of firing bricks

Figure 84. Examples of ballast stone from Kendal. Upper left is DSC-002. Upper right is DSC-003. Middle left is DSC-025. Middle right is DSC-009. Lower left is DSC-017. Lower right is DSC-019.Compare to Table 23.

Table 23.
Kendal Ballast (excluding small flint fragments)

Specimen	Description
DSC-001	Feldspar + quartz + mafic minerals (biotite and may be amphibole). Medium to fine grained. Some thin, cross-cutting quartz veins (secondary in origin). Grains look subrounded and could be an arkosic sandstone or an immature quartz + feldspar sandstone. Classic "ballast stone."
DSC-003	Quartz + feldspar + biotite. Volcanic to hypabyssal igneous rock. Exterior is weathered (brownish black), with visible biotite. Interior is more intermediate in appearance with subangular to blocky quartz and finer grained feldspar and black, slightly elongate biotite crystals. Classic "ballast stone."
DSC-005	Clastic carbonate rock cobble (subrounded) – coarse to medium grained granular calcite with angular polymineralic rock (igneous) fragments. Interior is splotchy, grayish-blue. Exterior is dull gray brown. No visible (macroscopic) fossils and exterior weathering rind is about 5 mm thick. This could be a volcanic mélange with carbonate cementation. It is neither an arkose nor a conglomerate.
DSC-007	Carbonate rock fragment (angular) – fine grained (sugary texture). Possibly dolomitized, but has some fossil fragments (either as "ghosts" or recrystallized or replaced).
DSC-009	Carbonate rock fragment (angular). Overall grayish white colour. Contains mollusc shell fragments (replaced), gastropods (replaced) and possibly microfossils. Possibly reefal material.
DSC-011	Limestone rock fragment (blocky and slightly subrounded at edges). No visible (macroscopic) fossils. Dirty whitish brown on surface, interior is light gray to a bluish gray colour.
DSC-013	Volcanic rock fragment. Vesicles present. Looks like glass/pumice fragments (black) in an ash matrix. Probably would call this a volcanic tuff cobble as has moderate welding and some fine laminations that may represent flow. Mineral fragments are quartz and feldspar, but majority is ash and rock glass. Blocky with some edge rounding. Possibly Lesser Antilles volcanic islands as source (e.g., Montserrat for example).
DSC-015	Igneous rock fragment. Phaneritic (medium grain size) quartz + feldspar ± small amount of biotite. Possibly a dacite or tonalite. More quartz than sample DSC – 033.
DSC-017	Coralline rock fragment (reef rock fragment). Caribbean origin probably. Not English or French. Looks like “brain coral” fragment.
DSC-019	Light to dull gray, subrounded blocky cobble. 5 mm weathering rind. Medium to fine grain size crystals. No quartz, looks like feldspar + mafic mineral (maybe pyroxene). Looks like a diabase (basalt intrusive equivalent), but no visible rock glass.
DSC-020	Fossiliferous limestone cobble. Brownish/yellowish to chalky gray white (exterior). Grayish white interior. Shell fragments, gastropods, and possible microfossils.
DSC-021	Grayish black to charcoal, subrounded cobble. ¼” to ½” weathering rind. Quartz + garnet + feldspar metamorphic rock. Does not have gneissic or schistose texture, so could be a skarn – but presence of abundant garnet suggest metamorphic origin.
DSC-022	Coralline rock fragment (reef rock fragment) – Caribbean origin probably. Not English or French.
DSC-023	Carbonate rock cobble (subrounded) – medium grained granular calcite. Exterior is chalky white, interior is more light gray and sugary in texture. No visible (macroscopic) fossils on surface, but cut surfaces reveals "ghost" fossil fragments (mainly shell fragments, either replaced with quartz or recrystallized).
DSC-024	Pale cream to pinkish cream overall colour. Appears to have fine beds (layers) and a silty (very fine to fine grain size) feel. Reactive to HCl and suggests carbonate cement. Possibly a calcite cemented siltstone.
DSC-025	Dark coloured rock fragment. biotite + amphibole + feldspar (did not see much or any quartz). This appears somewhat foliated so tentatively a metamorphic rock (amphibolite gneiss or a metagabbro).
DSC-026	Carbonate rock cobble (blocky and slightly subrounded at edges). Appears to have some crude stratification with carbonate clast ripups in a gray to grayish black zones. The carbonate clasts are medium grained granular calcite. Exterior is chalky white with more grayish regions. The gray to grayish black zones are not calcite as they do not react with HCl. No visible (macroscopic) fossils.
DSC-027	Coralline rock fragment (reef rock fragment) – blocky - but has laminated appearance.
DSC-028	Quartz + feldspar rock fragment (blocky and slightly subrounded at edges). Probably igneous, but cannot really tell in hand sample.
DSC-029	Probably an igneous rock fragment. Dull grey colour. Quartz + feldspar + dark mafic mineral. Medium to fine grained. Some minor Fe-staining on surface.
DSC-030	Carbonate rock fragment. Brownish grey overall colour with thin (~ 2mm) weathering rind. Fine grained. Possibly a carbonate (calcite) cemented siltstone or a fine-grained carbonate limestone.
DSC-031	Slightly pinkish to buff red (possibly igneous) rock fragment (blocky and slightly subangular). Medium to coarse. Quartz + feldspar + muscovite crystals with some pyrite/chalcopyrite + blue (bornite?) minerals (minor in abundance). Crystals interlock, but in some places more granular than mosaic in texture.
DSC-032	Grayish-white carbonate rock cobble (slightly subrounded at edges). Visible (macroscopic) fossils that are curvilinear (shell fragments) as well as what appears to be crinoid columnals (round cylinders) and possibly some microfossils (forams?). Sugary texture (medium grained) granular calcite. Exterior is chalky white and cream colour. Crinoids define age of this carbonate.
DSC-033	Dull gray color, blocky and angular. Phaneritic (medium grain size) igneous rock fragment. Feldspar + biotite ± amphibole ± little quartz. Composition suggests it is a diorite.
DSC-034	Carbonate rock fragment (blocky and slightly subrounded at edges) – Silty (fine grained) texture and there appear to be fine laminations (possible bedding?). Exterior is creamy white. No visible (macroscopic) fossils.
DSC-035	Limestone rock fragment. Medium grained with fossil fragments (replaced). Similar to DSC-007, 009, and 011, but more dense.
DSC-036	Pinkish to buff red feldspar igneous rock fragment. Blocky and angular cobble. Orthoclase (K-feldspar) + plagioclase + quartz + muscovite ± biotite. Medium to fine grain size. Granite.

It is also possible that Moore, or his builders, preferred brick over stone.

This leaves unresolved why ballast stone is present at Kendal and their function at Kendal remains something of a mystery.

Soils

Soil samples from 10 proveniences were submitted to A&L Eastern Laboratories for analysis of macronutrients phosphorus (P), potassium (K), magnesium (Mg), and calcium (Ca), along with soil pH, and percent of organic matter. Tests were conducted using Mehlich 3 extraction solution. Elemental analysis was reported in parts per million (ppm). Eight were also examined for soil texture analysis.

Phosphorus is a commonly examined element in archaeological studies since it is often associated with human activities and can be found in burials, feces and manure, and trash containing animal bones, flesh, and decomposed plants. In addition, it has minimal mobility in soils (Cornwall 1958:196-197; Eidt 1977:1327). There are, however, a variety of types of phosphorus and standard tests (including the one used here) may not be sufficient to detect all.

Both potassium and magnesium are also introduced as a result of occupation and especially trash disposal. Discarded wood ash forms a muriate of potash, a form of potassium (Carr 1980). Consequently, high potassium readings may therefore indicate a hearth or area where wood ash was deposited (Middleton and Price 1996:678). Both elements, however, are relatively mobile in soils. Magnesium may also be indicative of the presence of dolomitic lime – such as been documented in much of the lime burnt to produce mortar.

Calcium is an indicator of a trash or activity area since it results from bone or shell remains. It is also relatively stable and able to survive in soils for long periods. High calcium value may be indicative of possible areas of food preparation, consumption, or disposal (Keeler 1977:4).

Chemical Analysis

Table 24 provides the results of the chemical tests on the 10 soil samples.

The Blanton sands, on which Kendal is situated, have pH levels of 4.5 to 6.0, considered to be extremely to moderately acidic. All but three of the samples are consistent, with pH levels ranging from 6.2 to 6.8, slightly acidic to almost neutral. Their deviation from the normally low pH levels is likely the result of shell and mortar inclusions. Three samples, all from structural units, produced slightly to moderately alkaline results. The high pH levels in these units are likely the result of the very dense mortar rubble.

While the soils are naturally acidic, it may also be that organic wastes increased the organic acid content of the site area.

The pH levels and calcium levels correlate well. Areas with very high calcium levels, such as the three structures, are correspondingly low pH levels. In contrast, the yard units with pH levels of 6.2 also have very low calcium levels.

While magnesium may be associated with trash disposal, the high magnesium levels associated with structures at Kendal are likely the result of the presence of dolomitic limestone. This has been reported in the mortar analysis.

Colonial Kitchen Midden 1 contained very dense bone and dark, almost “greasy” soil. The elevated phosphorus level is certainly the result of the quantity of organics disposed of in this location. The next highest phosphorus level is found in the kitchen front yard, suggesting that considerable organic trash was spread around the kitchen area, including in the avenue leading to

Table 24.
Chemical Characterization of Soils from Kendal Plantation

Area and Unit	pH	Organic Matter %	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm
Colonial Kitchen Midden 1						
175R10	6.4	1.4	220	27	66	1353
Colonial Kitchen Midden 2						
160R55	6.6	3.2	96	66	99	1529
Colonial Kitchen Front Yard						
80R60	6.2	2.7	111	65	100	973
Colonial Kitchen						
125R50	7.9	2.5	53	60	101	4595
125R80	7.8	3.6	86	60	11	3768
Colonial House						
150R150	7.7	2.9	103	62	162	4332
19th c Slave House						
200R220	6.6	2.5	56	45	136	1362
19th c Storehouse						
190R110	6.8	2.2	79	49	94	1157
19th c Root Cellar						
40R180	6.3	3.1	32	48	115	1279
Miscellaneous Yard Units						
255R280	6.2	1.8	88	34	67	579

The conversion of ppm, used here, to mg/kg found in some publications, is 1:1.

the main house.

The low phosphorus levels in the Colonial Kitchen Midden 2 clearly indicates that the other midden, further away from the kitchen, received a higher percentage of raw garbage and other organic wastes than did the midden closer to the kitchen.

The four areas with relatively high, and areally consistent, values of potassium are the Colonial Kitchen, Colonial House, and Colonial Kitchen Midden 2. This suggests that these were areas that received abundant ash or organic deposits. The slave house, which is known to have burned, did not produce high potassium levels. This, however, is consistent with the findings of Custer and his colleagues who report that in the area of one known frame building that burned, no elevated potassium levels were encountered (Custer et al. 1996:93)

Although the correlations are not as precise as might have been hoped for, we believe that they are impressive given such a small sample. While there is not always definitive evidence for cultural activities in the empirical soil chemistry data, these data may provide another evidentiary line when associated with either archaeological or documentary information.

By way of comparison, some similar soil chemistry work has been conducted for The Charleston Museum at the Beef Market Site and the Heyward-Washington House (Foss 2005). Soil pH at the Beef Market ranged from 7.6 to 8.3, while at Heyward-Washington the range was from 7.6 to 8.7. Thus, both sites exhibit soils that are more alkaline than those at Kendal – even the Kendal soils most affected by mortar rubble.

These pH levels are also reflected in the exceedingly high calcium levels: from 41,454 to 3,199 at the Beef Market and 56,511 to 2,372 ppm at Heyward-Washington.

Phosphorus levels range from 171 to 3,068 ppm at the Beef Market and 440 to 2,467 ppm at Heyward-Washington. Magnesium and potassium exhibit equally high levels, with most

readings in triple digits.

We believe the explanation may be the difference between the rural setting of Kendal and the urban setting of the Beef Market and the Heyward-Washington House. With small lots and confined opportunities for disposal, refuse deposits are deeper and soil chemicals are magnified. In rural plantation settings space is not at a premium and trash can be more widely distributed.

Soil Texture Analysis

The Blanton soils, generically, are described as fine sands. We were curious to determine if there were any significant departures from this in several samples taken from specific proveniences at Kendal (Table 25).

Table 25.
Particle Size Analysis of Soil Samples from Kendal

Area and Unit	% Sand	% Silt	% Clay	Classification
Colonial Kitchen Midden 1				
175R10	83.6	9.2	7.2	loamy sand
Colonial Kitchen Midden 2				
160R55	79.6	13.2	7.2	loamy sand
Colonial Kitchen Front Yard				
80R60	83.6	9.2	7.2	loamy sand
Colonial Kitchen				
125R50	83.6	9.2	7.2	loamy sand
Colonial House				
150R150	81.6	13.2	5.2	loamy sand
19th c Slave House				
200R220	85.6	7.2	7.2	loamy sand
19th c Root Cellar				
40R180	83.6	11.2	5.2	loamy sand
Miscellaneous Yard Unit				
255R280	85.6	5.2	9.2	loamy sand

Following USDA, sand ranges from 2.0 to 0.05mm in diameter; silt is from 0.05 to 0.002 mm in diameter; clay includes particles less than 0.002mm in diameter.

All of the samples are characterized as loamy sands, although all are at the low end of this scale. Clay is particularly low in the root cellar and colonial house, while the proportion of silt in these two samples is higher than elsewhere. In general, however, we find few differences between the eight samples. It seems unlikely that occupation at Kendal had any major impact on soil texture.

Prehistoric Artifacts

Methods

Processing began in the field during the field investigations, but was completed at Chicora's labs in Columbia. During the washing in the field, the artifacts were separated from historic materials, but no additional sorting was conducted. It was only once the laboratory processing began in Columbia that we were able to determine the quantity of prehistoric materials. Once all of the lithics were examined we began to realize that while the historic collection contained a variety of English and French cherts (or flints), the prehistoric assemblage consisted of quartz, quartzite, rhyolite, and what was clearly recognized as regional cherts. Similarly, we found it necessary to separate the prehistoric sherds from historic Colono sherds.

Often the role, perhaps even the goal, of "good analysis" will be simply "to set up signposts for future research" (Orton et al. 1993:34). Given the very small size of the prehistoric assemblage at Kendal, all we hope to accomplish is to give the reader some clues concerning prehistoric occupation and perhaps some "signposts" for future work in the immediate area.

Prehistoric Pottery

This analysis is largely based on the work by Herbert (2009) with coastal North Carolina pottery. Herbert proposes a dendritic key for the sorting of coastal pottery, identifying nine specific pastes or fabrics, largely characterized by their temper or aplastic additions. These include shell/shell/grog, fiber, soapstone, marl, angular rock fragments, sand, granule/pebble, clay/grog, and shell. Each of these groups is then broken into a variety of surface treatments, with some of these further divided into their application relative to the rim or other details (Herbert 2009:Figure 3.1; reproduced here as Figure 85). The sorting criteria proposed by Herbert were generally successful, with the exception of identifying whether cord marking was oblique or parallel to the rim (to distinguish the Cape Fear and New River types). This was often difficult given the small sherds present. Otherwise, we were impressed with the overall clearness of the sorting criteria and consistency of the results.

However, small sherds (those passing through a 1-inch screen) were not included in the analysis since they are often too small to provide reliable paste or decoration information.

Prehistoric Lithics

Identified in the collection were quartz, quartzite, rhyolite, and chert. The first task in analysis was sorting out the various types of lithic raw material. While a number of specimens were weathered, a large number of these had recent exposed breaks which allowed some degree of certainty about the type of raw material. In some instances where no clean surface was exposed, the patina and texture was compared to specimens which had exposed portions, allowing for a relatively reliable identification. The identified materials included:

- Quartz: is usually translucent white but occasionally reddish, grayish, yellowish-brown or clear and is found throughout the Carolina Piedmont. While the quartz could be quarried from a vein, it is also found as cobbles in Piedmont river gravels.

- Quartzite: is light brown to off white in appearance. It is composed of quartz sand grains and silica and is found in the

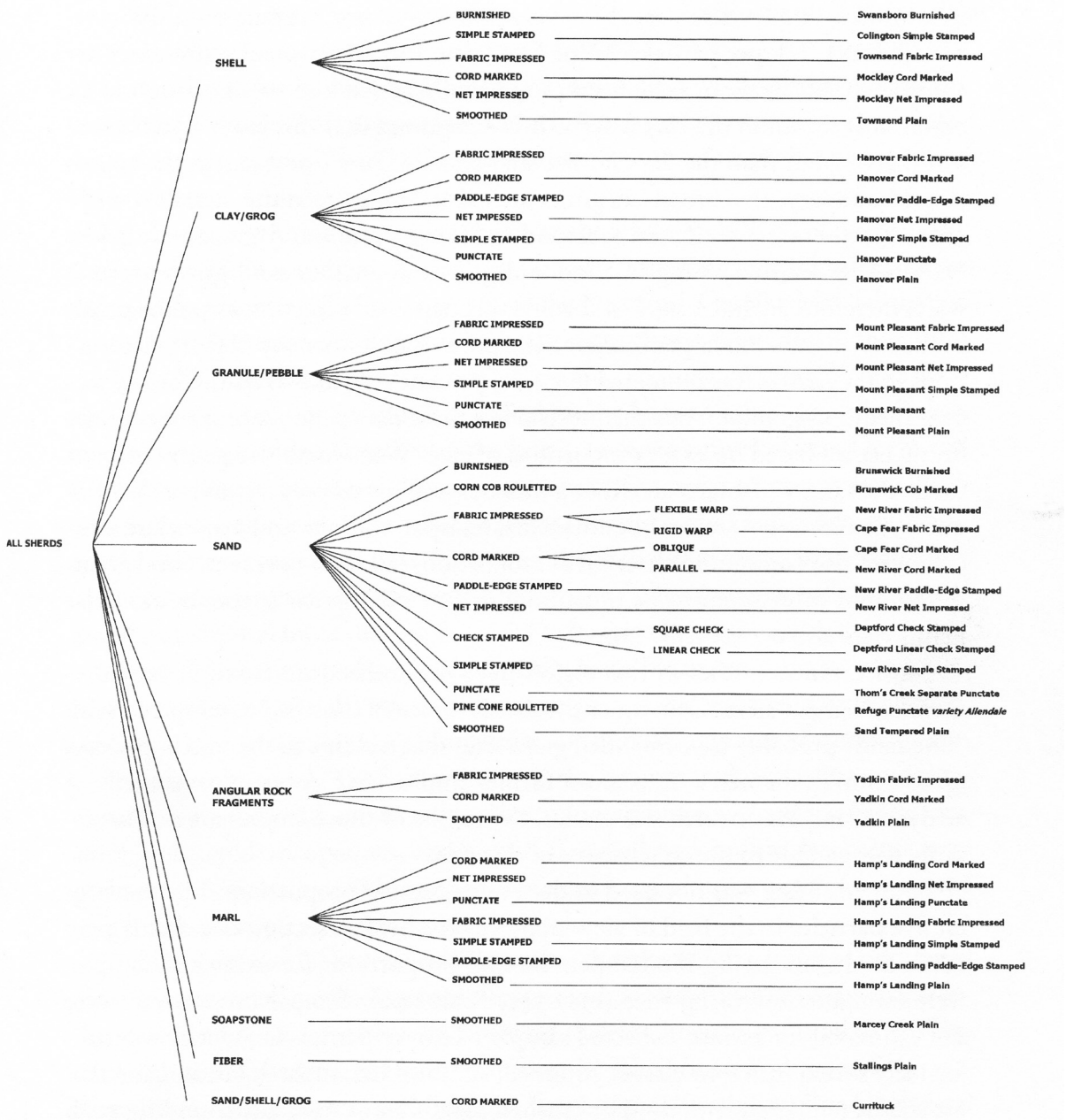

Figure 85. Dendritic key for classifying coastal North Carolina pottery types (adapted from Herbert 2009:Figure 3.1)

Coastal Plain, outcropping in the Santee and Black River Basins (Anderson et al. 1982).

- Plain Rhyolite: has no flow banding or phenocrysts. It is dark gray to green. Like other rhyolites it is found in the Carolina Slate Belt.

- Undifferentiated chert: this includes materials that would often be identified as coastal plain varieties that are light grey or grey-white, cream, yellow, brown, or tan, or materials that may be extra-local.

While the Coastal Plain is generally viewed as a lithics-poor resource area, Abbott and his colleagues argue instead that the area "is a dynamic, complex terrain, with great potential to yield a variable lithic landscape for human use" Abbott et al. 2011:2-10). They divide the North Carolina Coastal Plain into two regions, the upper and middle Coastal Plain and the lower Coastal Plain, separated by the Surry Scarp. The upper and middle region includes quartz and metavolcanics, while a more diverse assemblage of raw materials is found in the lower Coastal Plain (Abbott et al. 2011:2-39). It appears that in the lower Coastal Plain thick surficial gravel deposits are not common, but gravel may be exposed in unconformities and in other erosional areas along major streams. Otherwise, Native Americans would have been forced to rely on river-borne cobble sources.

After separating materials into raw material types, they were then separated by debitage categories. These categories were defined to allow monitoring of lithic reduction strategies and are defined below:

- Primary flakes are generally the first flakes struck from a pebble, nodule, or tabular piece of material with a dorsal or outer surface completely covered with cortex (White 1963:5).

- Secondary flakes are the second flakes struck from a pebble, nodule, or tabular piece of stone with a dorsal surface that is only partially covered with cortex.

- Tertiary flakes are those that have no cortex on them and that were removed during the final shaping of a stone tool. They may also be associated with retouching and bifacial reduction activities.

- Shatter includes flakes with no recognizable striking platform or other obvious flake attributes. They can be generated throughout a reduction sequence, but are most common in the latter stages. Shatter is a common by-product of bipolar reduction; it can, however, also be created by trampling on living surfaces.

- Potlid is a flake or the scar from detachment of a flake caused by thermally induced differential expansion. The flake has a circular plan view outline and leaves a shallow, smooth depression. The flake exhibits a shape resembling that of a lid of a pot. Potlids are usually the result of accidental, incidental, or post-depositional damage to lithic materials in a fire.

Also present was one microblade core. This is a small, thin, unifacially or bifacially flaked piece with one straight truncated edge used as a platform for microblade removal.

All of the complete projectile points, or hafted bifaces, were categorized as types defined in the regional literature, primarily Coe (1964) and Oliver (1981, 1985).

Prehistoric Pottery

The Kendal excavations produced 629 prehistoric sherds. Of these, 538 or 85.5% were small sherds under 1-inch in diameter. This left only 91 sherds suitable for more detailed analysis. These sherds are itemized in Table 26.

Table 26.
Prehistoric Artifacts

Pottery

	Colonial Kitchen Midden 1						Colonial Kitchen Midden 2		Colonial Kitchen Front Yard	Colonial Kitchen												
	175L5	175R0	180R0	175R10	175R20	175R20	160R55	Trowel	80R60	125R40		135R40	115R50	125R50	115R60	125R60	130R70	140R70	115R80	125R80		Trowel
	L 2	L 1		L 2	L 1	L 2	L 1		L 1	L 1	L 2	L 2	L1	L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 2	
Early Woodland																						
Stallings Plain																						
Thom's Creek Punctate																						
New River Cord Marked																						
New River Simple Stamped	1	1																			1	
New Riber Fabric Impressed				1						1				1			2					
Middle Woodland																						
Deptford Check Stamped																						
Cape Fear Cord Marked								1	1		1											2
Cape Fear Fabric Impressed	1			5		4																
Mockley Net Impressed																						
Mockley Cord Marked																						
Hanover Cord Marked							1															
Hanover Fabric Impressed	1					1																
Mount Pleasant Simple Stamped																2						
Mount Pleasant Cord Marked																						
Late Woodland																						
Collington Simple Stamped																						
Townsend Plain												2								1		
UID sherds	1																					
Small sherds	4			105	6	130	7		21				3	1	1			2	3	3		
Total Sherds	8	1		111	6	135	8	1	22	1	1	2	3	2	1	2	2	2	3	4	1	2

	Colonial House										19th c House				19th c Slave House												
	145R120	145R130	150R130	140R140	150R140	160R140	145R150	150R150	160R150	160R160	100R200	120R170	130R170	130R200	180R205	190R205	200R210	200R220	200R230	210R220		220R205	230R205		240R205	240R220	Trowel
	L 1	L 1		L 1	L 1		L 1	L 1	L 1	L 1	L 1			L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 2	L 2	L 1	L 2	L 1	L 1	
Early Woodland																											
Stallings Plain											1																
Thom's Creek Punctate																											
New River Cord Marked				1																							
New River Simple Stamped				1																							
New Riber Fabric Impressed									1										1	1							
Middle Woodland																											
Deptford Check Stamped																				1	2						
Cape Fear Cord Marked				1												1								2			
Cape Fear Fabric Impressed															1									1		1	
Mockley Net Impressed															3												
Mockley Cord Marked																								1			
Hanover Cord Marked							2																				
Hanover Fabric Impressed										1					1						1						1
Mount Pleasant Simple Stamped																											
Mount Pleasant Cord Marked								1																			
Late Woodland																											
Collington Simple Stamped																											
Townsend Plain										1																	
UID sherds	2				1																						
Small sherds		1		1	1				3					1	26	5	3	2	4		5	1	1	2	1	14	4
Total Sherds	2	1		4	2		2	1	4	2	1			1	31	6	3	2	5	2	8	1	1	6	1	15	5

	19th c Storehouse	19th c Root Cellar		Mixed 18th and 19th c Middens					Miscellaneous Yard Units				Fea 2	Fea 6 E½	Fea 7	Fea 9	Fea A	Fea C	Fea D	Totals
	200R115	40R180	50R180	190R160	190R165	195R165	190R175	190R180	235R180	275R230	255R280									
	L 1	L 2	L 1	L 1			L 1	L 1	L 1	L 1	L 1	L 2								
Early Woodland																				
Stallings Plain																				1
Thom's Creek Punctate		1																		1
New River Cord Marked											1									2
New River Simple Stamped																				4
New Riber Fabric Impressed											1									9
Middle Woodland																				
Deptford Check Stamped				1																4
Cape Fear Cord Marked												1								10
Cape Fear Fabric Impressed											7	5								25
Mockley Net Impressed																				3
Mockley Cord Marked											1									2
Hanover Cord Marked																				3
Hanover Fabric Impressed									1		7									14
Mount Pleasant Simple Stamped																				2
Mount Pleasant Cord Marked																				1
Late Woodland																				
Collington Simple Stamped											1	1								2
Townsend Plain																				4
UID sherds																				4
Small sherds	2		1				3	1	10	2	92	29	4	2	19	1	8	1	2	538
Total Sherds	2	1	1	1			3	1	11	2	110	36	4	2	19	1	8	1	2	629

Debitage

	Colonial Kitchen Midden 1						Colonial Kitchen Midden 2		Colonial Kitchen Front Yard	Colonial House		19th c Slave House				19th c Storehouse	Mixed 18th and 19th c Middens	Miscellaneous Yard Units		Fea 7	Fea 9	Fea C	Totals
	175L5	175R0	175R10	175R20	175R20	180R0	160R50	160R55		150R140	160R140	200R220	210R220	240R220	Trowel	185R110	190R180	255R280	255R280				
	L 2	L 1	L 2	L 1	L 2	L 2	L 1	L 1		L 1	L 1	L 1	L 2	L 1		L 1	L 1	L 1	L 2				
Chert																							
primary	2						1								1	1							5
secondary	4	1			5		3	4	1										1				19
tertiary		3		1	4	2	1	1			1	1			2								16
shatter					2																		2
potlid						1																	1
Quartzite																							
primary			1												1			2					4
secondary												1	1	1	2					1			6
tertiary															2								2
Rhyolite																							
primary																		1					1
secondary			1						2								2		1		1		7
Quartz																							
primary				1																			1
secondary	2																				1		3
Cobble fragment			1		1		3			1													6
UID Material																							
microblade core			1																				1

Bifaces and Projectile Points

	Auger Tests	Colonial Kitchen Midden 1	Colonial Kitchen Midden 2	Colonial Kitchen		Colonial House		19th c House	19th c Slave House	19th c Storehouse	Miscellaneous Yard Units		Fea A	Totals
	360R180	175R0	160R55	125R80	140R80	150R150	160R150	130R200	Trowel	200R105	255R280	255R280		
		L 1	L 1	L 1	L 1	L 1	L 1	L 1		L 1	L 1	L 2		
Chert														
Redstone Paleoindian							1							1
Quartzite														
Caraway Triangular											1			1
Rhyolite														
Palmer Corner Notched				1										1
Morrow Mountain I												1		1
Morrow Mountain II		1												1
Small Savannah River Stemmed										1				1
Gypsy Stemmed	1													1
Yadkin Large Triangular			1			1								2
Caraway Triangular								1						1
CSPP tip													1	1
Quartz														
biface fragment									1					1
CSPP tip						1								1
Yadkin Triangular					1									1

Ten identifiable types were recognized, as well as four sherds that are atypical and were not categorized. Middle Woodland pottery accounts for the bulk of the collection (73.5%), followed by Early Woodland wares (19.5%). Late Woodland pottery accounts for only 6.9% of the collection.

A very large number of small sherds were found in the area of Colonial Kitchen Midden 1 and the Miscellaneous Yard Units. Otherwise, the sherds are spread out over the entire site with no particularly strong concentrations. Some of this may be the result of plowing that took place, but it may also suggest a variety of small, short-term occupations with little or no re-occupation of any one particular location.

Early Woodland Pottery

The Early Woodland pottery is spread out across the site with almost all locations having only a single sherd.

Types represented include one Stallings Plain and one Thom's Creek Punctate. Herbert (2009:148-149, 155-157) reports that most Stallings is found in the Inner Coastal Plain, while most Thom's Creek is found on the coast. The presence of a single sherd of each only serves to emphasize that these early wares are uncommon at Kendal. We found no indication of the Early Woodland Marcey Creek (which is not typically reported in southeastern North Carolina) or Hamp's Landing sherds, which appears to be far more prevalent (Herbert 2009:152-155).

The most common Early Woodland pottery is the sand-tempered New River series, which combines both New River and Deep Creek pottery. It also seems to include the Lenoir series (Crawford 1966) and is almost certainly related to Coe's (1964) Vincent series. In addition, Herbert notes that it may be impossible to distinguish New River from early Cape Fear pottery, a problem that we also discovered (Herbert 2009:124). These wares date from about 1750 B.C. to 400 B.C. (Herbert 2009:124).

Present at Kendal are cord-marked and fabric-impressed New River sherds. Absent is net-impressed pottery of this series, which Herbert (2009:159-160) finds concentrated in the north. New River Simple Stamped sherds are present in small amounts across the coast, and they are a minority at Kendal.

Middle Woodland Pottery

Middle Woodland pottery tends to be found in greatest numbers in the vicinity of the nineteenth century slave house and in the surrounding yard units. Thus, Middle Woodland occupation appears focused on the northeast corner of the site, although small amounts are distributed across the site.

Present are five series: Deptford, Cape Fear, Mockley, Hanover, and Mount Pleasant.

The Deptford pottery, which originates in the Early Woodland, is classified in North Carolina as extending into the Middle Woodland (Herbert 2009:125). Only four sherds of carved-padded check stamping were recovered at Kendal. Herbert also suggests that the, "northern extent of the Middle Woodland carved-paddle stamping tradition is found in the southernmost counties of North Carolina" (Herbert 2009:129). He reasonably suggests that the wares mark the early Cape Fear and Hanover series, dating about 600 B.C. to A.D. 200.

Cape Fear is the most common Middle Woodland pottery present at Kendal, accounting for 35 sherds (10 cord marked and 15 fabric impressed). Herbert (2009:129) describes this sand tempered tradition as "long-enduring" and found on every part of the coast and that the fabric impressed motif is later than cord marking. Dates may range from about 400 B.C. to A.D. 400. Herbert discussed the various interpretations of the relationship of Cape Fear and Deptford (Herbert 2009:130), but the small sample at Kendal cannot contribute to this issue.

Five specimens of the shell-tempered Mockley ware are present at Kendal. This Middle Woodland pottery is thought to date from about A.D. 200 to A.D. 880 (Herbert 2009:140).

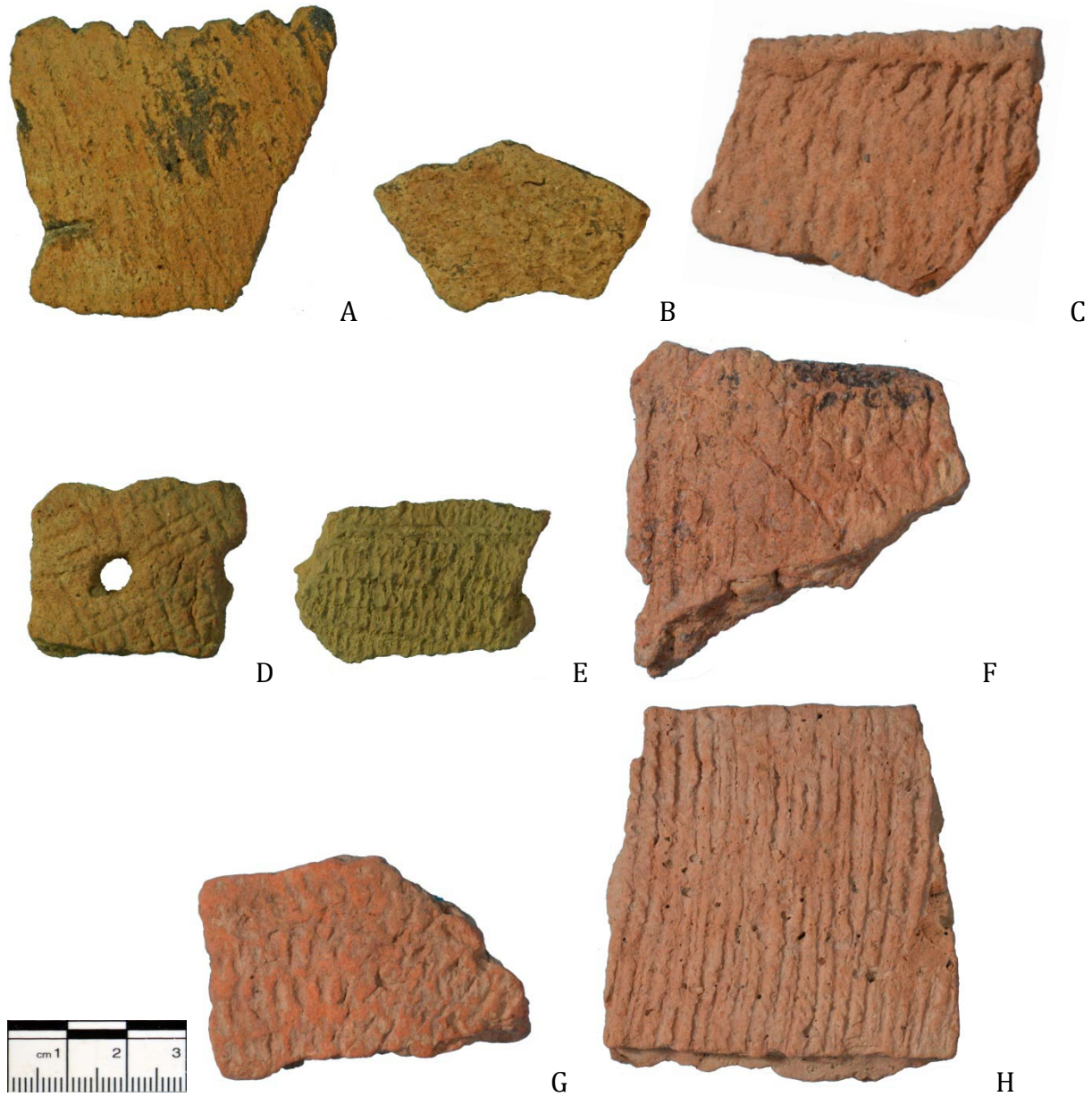

Figure 86. Prehistoric pottery from Kendal. A. New River Cord Marked; B. New River Simple Stamped; C. Cape Fear Cord Marked; D. Cape Fear Cord Marked with two mending holes; E. Cape Fear Fabric Impressed; F. Hanover Cord Marked; G. Hanover Fabric Impressed; H. Mockley Cord Marked.

Seventeen specimens of the sherd or grog tempered Hanover ware are present and account for the second most prevalent pottery at Kendal. Herbert suggests a Hanover I phase in which the grog tempering coexists with abundant sand (Herbert 2009:140). This seems characteristic of the bulk of the Kendal specimens. This earlier period is thought to date from about A.D. 400 to 800, with a Late Woodland Hanover dating from A.D. 800 to 1500 and includes abundant grog and far more fabric impressed surface treatments than cord marked. This suggests that the Hanover pottery at Kendal may date from this later Hanover II phase.

The grit tempered Mount Pleasant series is another minority ware at Kendal, with only three specimens identified. Curiously, the three specimens identified, two simple stamped and one cord marked are surface treatments that Herbert (2009:170) notes are largely absent from the southern coast.

Late Woodland Pottery

The Late Woodland pottery at Kendal is the least common pottery identified, with only six speciments: two Collington Simple Stamped and four Townsend Plain sherds. Herbert (2009:183) observes a very low occurrence of Late Woodland shell-tempered wares in the Cape Fear drainage – a situation that we see at Kendal. This pottery is throught to date from about A.D. 800 to at least A.D. 1600 (Herbert 2009:143).

It is perhaps worth stating the obvious, that with only four plain sherds distinguishing between smoothed (Townsend) and burnished (Swansboro) is difficult. Should these sherds be reclassified to Swansboro they might conceivably date to the contact period.

Given the legendary exploits of Roger Moore displacing Native Americans, we especially sought evidence of Brunswick ware, a proto-Historic and Historic period (A.D. 1400-1700) pottery characterized by fine sand with surface treatments of burnishing, corncob impressions, and brushed. None were found, although a small assemblage of what we have typed as Colono ware is present. The typological distinction between the two is not clear, but none of our assemblage exhibited either corncob marking or brushing. Therefore we have chosen to include them as Colono.

Consequently, we see no large assemblage of probable contact period pottery that would indicate the Native American occupation of Kendal supposedly displaced by Roger Moore.

Other Clay Materials

Also recovered from Kendal were 30 fragments of fired clay. These are items that would typically be classified as daub, suggestive of a wattle and daub structure. All of the fragments came from three units (175L5-175R10) in the Colonial Kitten Midden 1.

Prehistoric Debitage

The bulk of the lithics from Kendal came from the two colonial midden excavations (44.6% or 33 of 74 specimens of debitage).

Of the 74 specimens, 43 or 58.1% were classified as chert. Quartzite and quartz are very similar in proportions (16.2% versus 13.5% respectively). Least common were rhyolitic materials, comprising 10.8% of the assemblage.

These findings are interesting when compared to the results of the work by Abbott et al. (2011). Their study found that the diversity of lithic raw materials increases toward the coast, perhaps as a result of declining concentrated source areas. Nevertheless, in the Kendal region they found sites dominated by metavolcanics (such as rhyolite), followed by chert, quartzite, and quartz. Slightly further inland the proportions are quartz, quartzite, chert, and metavolcanics (Abbott et al. 2011:2-29). Thus, the prevalence of chert at Kendal is anomalous.

Primary and secondary flakes are produced during core reduction. Primary reduction is the removal of the weathered cortex of a nodule, and secondary reduction is the removal of interior flakes for use or further

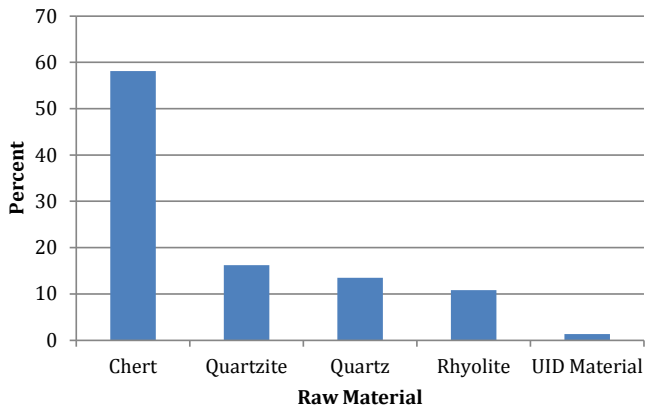

Figure 87. Proportion of lithic raw materials.

modification. Modification of the byproducts of core reduction into formal tools constitutes the tertiary reduction stage.

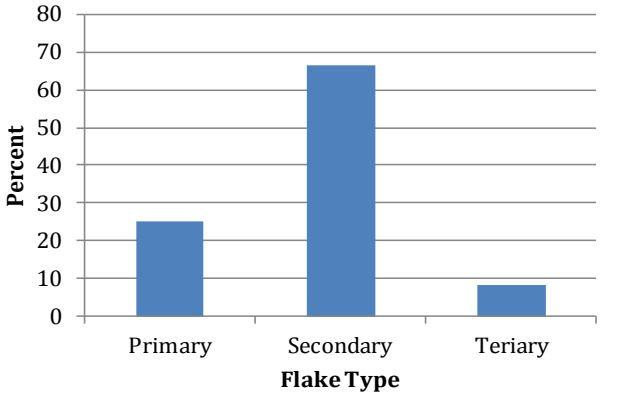

Figure 88. Proportion of flake types.

Relatively few (n=6) primary flakes were recovered and the bulk of the collection consists of secondary flakes (n=16). Very few tertiary flakes (n=2) were identified. This seems to be a very low incidence and it seems implausible that the low recovery rate is the result of field methodology since a screen size less than ¼-inch was effectively used.

Generally campsites are characterized by low proportions of primary flakes and angular shatter, and a preponderance of secondary and tertiary flakes. At Kendal we found little evidence of tertiary flakes, so it is difficult to evaluate the meaning of this very small assemblage. However, the preponderance of secondary flakes may suggest on-site manufacture of tools or preparation of expedient cutting edges.

There is also little evidence of bipolar technology, which might be expected in response to stress on lithic resource availability.

Perhaps supporting this view of on-site manufacturing is the presence of six quartz cobble fragments. Without evidence of heat damage, these may represent hammerstones.

However, we are examining a mixed assemblage and this may mask considerable temporal variation.

Prehistoric Tools

We have identified an assemblage of 14 tools. Curiously, while rhyolite is the least common raw material and no rhyolite tertiary flakes were recovered, over 64% of the finished tools were made of rhyolite (n=9). Three tools were of quartz. Chert and quartzite each contribute only one tool, leaving unexplained the prevalence of these materials as flakes.

McReynolds (2005) has examined the raw materials represented by a very large assemblage of coastal plain projectile points. During the Archaic, metavolcanics account for the majority of the collections (61% in the Early Archaic and 55.4% by the Late Archaic). The next most common material was quartz. During the Woodland the contribution of metavolcanics drops dramatically (20% in the Early Woodland, recovering to only 35% in the Middle Woodland). In contrast, quartz is the most common material, representing 80% during the Early Woodland,

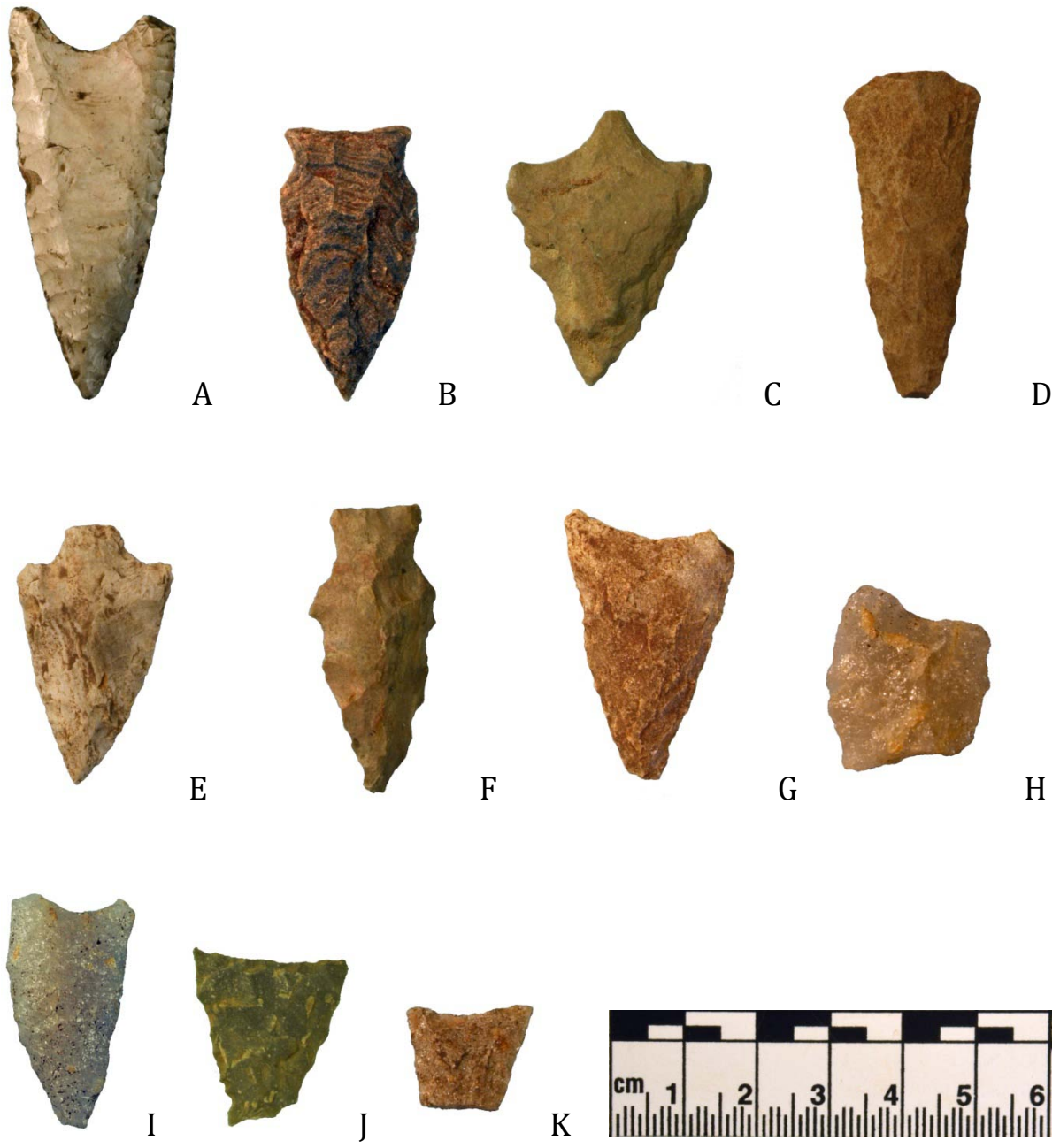

Figure 89. Stone tools from the Kendal site. A. Redstone fluted point; B. Palmer Corner Notched; C. Morrow Mountain I Stemmed point; D. Morrow Mountain II Stemmed; E. Small Savannah River Stemmed; F. Gypsy Stemmed; G-I. Yadkin Large Triangular; J-K, Caraway Triangular.

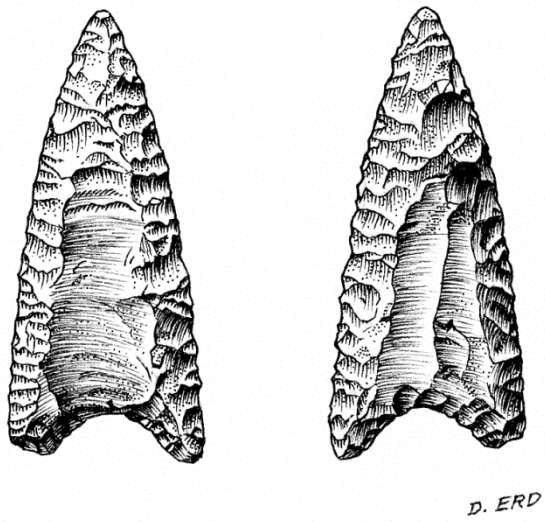

Figure 90. Drawing of the Redstone point recovered from Kendal.

declining slightly into the Middle and Late Woodland, but remaining the most common material (McReynolds 2005:24).

This generally corresponds to the situation at Kendal, where 100% of the Archaic points are metavolcanic and 80% of the Woodland points are quartz, with the remaining 20% quartzite.

The one chert tool is a Redstone fluted Paleoindian projectile point (Goodyear 2006). Goodyear notes the point type is post-Clovis and likely dating to the middle Paleoindian Period based on the "instrument-assisted method where a punch or pressure flaker was placed in the basal concavity to precisely remove the characteristic long flutes" (Goodyear 2006:100; see also Goodyear 2010).

As of 2007 Daniel and Moore note that not only does the Coastal Plain have fewer Paleoindian points than anticipated given its size, but also the lower southern Coastal Plain lacks any reported Paleoindian points (Daniel and Moore 2007: 3-2 – 3-3). For example, the Coastal Plain contains 9.8 points per 10,000 km^2, compared to 28.9 point per 10,000 km^2 in the Piedmont. Moreover, most Paleoindian points, according to Daniel and Moore are made from metavolcanics, although cherts are second in abundance at the coastal Pasquotank site, in the vicinity of the Great Dismal Swamp, northwest of Elizabeth City in Pasquotank County. Redstone-like points represent the second most frequent category of Paleoindian points in North Carolina (n=59, 21%).

Archaic period tools are most common at Kendal, being represented by five specimens: one Palmer Corner Notched (Coe 1964:67,69), two Morrow Mountain points (Coe 1964:37-39), one Small Savannah River Stemmed (Oliver 1981:151-154), and one Gypsy Stemmed (Oliver 1981:155-156). All are of rhyolite, likely originating further inland from sources in the Slate Belt.

Woodland tools are nearly as common, being represented by two Yadkin Large Triangular points (Coe 1964:45, 49) and two Caraway points

Table 27.
Projectile Point Measurements (in millimeters)

Provenance	Typology	Raw Material	Overall Length	Overall Width	Overall Thickness	Blade Length	Stem Length	Stem Width	Shoulder Length
160R150, L 1	Redstone Fluted	Chert	53.5	23.9	7.7	NA	NA	NA	NA
125R80, L 1	Palmer Corner-Notched	Rhyolite	37.5	19.1	6.2	30.1	9.7	17.5	18.8
255R280, L 2	Morrow Mountain I	Rhyolite	38.2	28.3	6.7	31.3	6.6	6.5	27.7
175R00, L 1	Morrow Mountain II	Rhyolite	44.8	18.7	6.3	43.8	Broken	Broken	18.8
200R105, L 1	Small Savannah River Stemmed	Rhyolite	35.4	21.4	6.1	32.8	5.5	8.6	21.2
AT, 360R180	Gypsy Stemmed	Rhyolite	39.3	17.7	9.9	30.6	11.9	12.7	16.8
140R80, L 1	Yadkin Triangular	Quartz	31.8	17.1	6.8	NA	NA	NA	NA
150R150, L 1	Yadkin Large Triangular	Rhyolite	35.4	23.9	10.0	NA	NA	NA	NA
165R55, L 1	Yadkin Triangular	Quartz	24.9	22.2	8.4	NA	NA	NA	NA
130R200, Trow	Caraway Triangular	Rhyolite	24.1	21.5	4.0	NA	NA	NA	NA
255R280, L 1	Caraway Triangular	Quartzite	14.7	17.4	4.8	NA	NA	NA	NA

(Coe 1964:48-49; see also Coe 1995:204-205).

Other chipped tools include a rhyolite CSPP tip, a quartz CPSS tip, and a quartz biface.

Also present at the site is a single ground stone atlatl weight fragment. The form is described by Coe (1964:81) as a "semi-lunar 'pick' type." Although a specimen was associated with a Middle Archaic Stanly phase pit, it seems likely that the form has a much longer history.

Summary

The prehistoric components at Kendal reflect heavy disturbance from the subsequent historic plantation settlement and twentieth century plowing. There remains, however, some evidence of loci, primarily close to the river in the northeast area of the site and close to the marsh edge in the south central area.

There is evidence of at least occasional occupation since the Paleoindian Period, perhaps early as 10,000 B.C., through the Archaic and Woodland Periods to perhaps A.D. 1600. The recovery of a Redstone Fluted point at Kendal may be the first Paleoindian point in Brunswick County and the use of a possibly thermally altered extra-local chert appears consistent with expectations from sites such as Pasquotank.

The prevalence of metavolcanic Archaic points is also consistent with previous research, as is the shift to quartz as the primary raw material during the Woodland.

What is not so easily explained is the debitage assemblage with a large assortment of chert flakes, not reflected by any finished tools except the Redstone. Nor is an assemblage with primarily secondary flakes what we would have expected at a lower Coastal Plain site where raw materials are not easily obtained.

The Woodland ceramics are sparse, showing the greatest occupation density occurring during the Middle Woodland Cape Fear phase. Both Early and Late Woodland occupation was very rare and we found no evidence of a proto-Historic or Historic Native American occupation at Kendal.

Artifacts

Methods

Processing and Conservation

Processing began in the field during the field investigations, but was completed at Chicora's labs in Columbia. During the washing in the field, artifacts were sorted by broad categories – pottery, lithics, bone, ceramics, glass, iron, and other materials. When possible these cateogires were further divided, for example separating nails from other metals and glass by color. Upon drying, the artifacts were temporarily bagged by these categories, pending cataloging.

All objects were evaluated for their long-term stability. Brass items were generally stable after dry cleaning and were packed in Marvalseal 360[1] bags with silica gel to provide long-term stability. A few objects were submitted to archaeological conservator Katherine Singleton for treatment and the treatment forms should be consulted for additional information.

Many ferrous objects exhibited heavy corrosion and, after analysis, were discarded. A limited number were submitted to archaeological conservator Katherine Singleton for treatment and the treatment forms should be consulted for additional information. A few items, not worthy of treatment, but perhaps worthy of retention, were packed with silica gel and an oxygen scavenger and sealed in Marvalseal 360 bags for long-term curation.

Samples of the materials have been retained by the client, Mr. Louis Moore Bacon. The bulk of the materials, however, are curated with the North Carolina Office of State Archaeology. The collection has been cataloged using this institution's accessioning practices. Specimens were packed in plastic bags and boxed. Field notes were prepared on pH neutral, alkaline-buffered paper and photographic materials were processed to archival standards. All original field notes, with archival copies, are also curated at this facility. Photographs of all items retained by Mr. Bacon have been included with the field notes so that future researchers will have immediate access. These materials are curated under Accession Number 2015.0083.

Analytical Methods

Analysis of the collections followed professionally accepted standards with a level of intensity suitable to the quantity and quality of the remains.

As previously discussed, the prehistoric remains were not a contributing resource and the data recovery plan did not incorporate research questions focused on these remains. Nevertheless, the prehistoric remains are included and given at least brief analytical attention.

The temporal, cultural, and typological classifications of the historic remains follow such authors as Cushion (1976), Godden (1964, 1985), Miller (1980, 1991a), Noël Hume (1978), Norman-Wilcox (1965), Peirce (1988), Price (1970), South (1977), and Walton (1976). Glass artifacts were identified using sources such as Jones (1986), Jones and Sullivan (1985), McKearin and McKearin (1972), McNally (1982), Smith (1981), Vose (1975), and Warren (1970). Additional references, where appropriate, will be discussed in the following sections.

[1] Marvalseal 360 is a heat sealable foil that provides protection from light, air, and moisture vapor. Its water vapor transmission rate is about 0.009 gm/100in^2/24hr.

The analysis system used South's (1977) functional groups as an effort to subdivide historic assemblages into groups that could reflect behavioral categories. Initially developed for eighteenth-century British colonial assemblages, this approach appears to be a reasonable choice for even early nineteenth century materials since it allows ready comparison to other collections. The functional categories of Kitchen, Architecture, Furniture, Personal, Clothing, Arms, Tobacco, and Activities provide not only the range necessary for describing and characterizing most collections, but also allow typically consistent comparison with other collections.

Minimum Vessel Counts

Another important analytical technique used in this study is the minimum vessel count, as both an alternative to the more traditional count of ceramics[2] and also as a prerequisite to the application of Miller's cost indices. The most common approach for the calculation of minimum number of vessels (MNV) is to lay out all of the ceramics from a particular analytic unit (such as a feature), grouping the sherds by ware, type, and variety (e.g., floral motif vs. pastoral). All possible mends are then made. Body sherds are, from this point on, considered residual and not further considered. Remaining rim sherds, which fail to provide mends, are examined for matches in design, rim form, colors, and other attributes that would indicate matches with previously defined vessels. Those that fail to match either mended vessels or other rims are counted as additional vessels. Since there were few closed features, such as wells or privies, suitable for this level of analysis, the analytic unit used was all of the units from a specific area, combined with the features and post holes from that area. These were combined for this analysis, using a minimum distinction method for the MNV, which tends to provide a relatively conservative count.

Yentsch (1990) provides an interesting breakdown of food-related vessels into five categories: food preparation and storage, kitchen and food consumption, food distribution, beverage distribution, and beverage consumption. Miller (1992) applauds this approach, noting that it seems to work well for seventeenth and eighteenth century food-related archaeological assemblages. He, however, has chosen to use four categories: tableware, tea ware, kitchenware, and toilet ware. He notes that these are the same classifications used by Staffordshire potters and they "hold up well" when used for temporal comparisons. These are essentially the vessel forms that are used in this study.

Although no cross mend analyses were conducted on the glass artifacts, these materials were examined in a similar fashion to the ceramics to define minimum number of vessel counts, with the number of vessel bases in a given assemblage being used to define the MNV. Attempts were made to mend and match vessel bases in order to ensure the accuracy of the count. If a glass artifact exhibited a different color and/or form not represented by the counted bases, then it was designated a separate vessel or container.

Dating Techniques

Mean dates rely on South's (1977) mean ceramic dating technique, using primarily the mean dates that he has developed. A very few of our colleagues occasionally use Carlson (1983) in addition to South. Carlson observes that a drawback to South's technique is that it gives the same weight to ceramics manufactured for long

[2] Although counts are used in this report, and virtually every study of historic wares, we know that they are biased as measures of the proportions of types. Simply put, the proportion by number of sherds of a particular type reflects two things – first, the proportion of that type in the population, and second, the average number of sherds into which vessels of that type have broken (known among some researchers as their brokenness) in comparison with the brokenness of other types. In general, however, brokenness will vary from one type to another and also from one size vessel of a particular type to another size vessel of the same type. Usually, types with a high brokenness will be over-represented in comparison to those with a low brokenness. More importantly, this bias not only affects the study of a single assemblage, but may also affect the study, or comparison, of different assemblages that may have a different level of brokenness.

periods (say from 1700 to 1800, yielding a mean date of 1750) as it does to those produced for only short periods (say from 1740 to 1760, with the same mean date of 1750). While this is true – and is certainly an understandable issue – it seems that overall it results in only a few years error (especially with larger collections). Moreover, it seems that relatively few investigators have chosen to implement the changes proposed by Carlson. South himself warned archaeologists not to use the system uncritically, especially at multicomponent sites. For example, Wesler provides the example of a site occupied from 1700 to 1750, abandoned from 1750 to 1800, and reoccupied from 1800 to 1850. Presumably the mean ceramic date would be about 1775, a time when the site was not occupied. This is likely not an issue at Kendal since we know of no period when the site was abandoned until the main house fire of 1919.

More recently Wesler (2014) argues that the single date provided by South's formula may be misleading in its precision. He suggests that the date should be reported with standard deviation to provide a more realistic indicator of site occupation. He notes a variety of concerns, such as nineteenth century ceramics not being as closely datable as those from the eighteenth century. Of particular concerns are errors introduced by whitewares (still in use today, with an arbitrary mean date of 1860) and yellow wares manufactured from 1840 to 1940 that can introduce a significant bias into mean dating.

Examining a variety of sites with mean ceramic dates, tobacco stem dates (discussed below), he acknowledges that the uncertainty introduced by using a standard deviation is "disquieting." He also cautions that standard deviations do not offer "any clear correlation to the period of occupation of the site" (Wesler 2014:179). Nevertheless, he suggests that,

> the conclusion must be that the dates that most archaeologists have assumed to provide reasonably accurate estimates of the median occupation dates of a site have a considerably larger range of uncertainty in statistical perspective than has been realized (Wesler 2014:179).

He suggests the use of the standard deviation when reporting mean ceramic dates "to express the statistical confidence intervals inherent in the calculation" (Wesler 2014:179). We have taken his lead and include standard deviation for our mean ceramic dates.

Of greater importance to us at a site such as Kendal, where at least a portion of our research focuses on when different structures or site areas were used, is the occupation span reflected by the ceramics. One method used to determine the occupation span of the excavations is South's (1977) bracketing technique. This method consists of creating a timeline where the manufacturing spans of the various ceramics are placed. Determining where at least half of the ceramic type bars touch places the left bracket. The right bracket is placed the same way, however, it is placed far enough to the right to touch at least the beginning of the latest type present (South 1977:214). We have chosen to alter South's bracketing technique slightly by placing the left bar at the earliest ending date when that ending date does not overlap with the rest of the ceramic type bars.

Since South's method only uses ceramic types to determine approximate period of occupation, Salwen and Bridges (1977) argue that ceramic types that have high counts are poorly represented in the ceramic assemblage. Because of this valid complaint, a second method – a ceramic probability contribution chart – was used to determine occupation spans. Albert Bartovics (1981) advocates the calculation of probability distributions for ceramic types within an assemblage. Using this technique, an approximation of the probability of a ceramic type contribution to the site's occupation is derived. This formula is expressed:

$$\frac{Pj}{yr.} = \frac{fj}{F \;\; x \;\; Dj}$$

where

Pj = partial probability contribution,
fj = number of sherds in type j,
F = number of sherds in sample, and
Dj = duration in range of years.

A great deal of ink has been devoted to the use of tobacco pipe stem bore diameters for site dating. It has often been difficult to achieve any degree of agreement, even with regard to sample size. Noël Hume (1963), for example, argues that a minimum sample of 900 to 1,000 stems is necessary, while Hanson (1971) suggests that 30 stems are adequate. Others observe that bore diameters are not consistent throughout their length (e.g., Beaman 2005:59).

There are also issues affecting the period suitable for analysis. Wesler clearly notes that none of the pipe-stem formula is applicable later than 1780, observing,

> the smallest pipe-stem bore, 4/64 in., yields a calculated date of 1778, so that the latest possible date produced by the pipe-stem formula is 1778. Therefore, a site occupied into the 19th century cannot possibly produce a 19th-century pipestem date: the date would be biased toward the early end of the occupation (Wesler 2014:177).

In fact, Higgins (1999) suggests the formula seems to provide accurate dates for only the period from about 1680 to 1760.

With these issues in mind, there are essentially three formula dating techniques available: Binford's (1962) linear formula, Hanson's formulas (Hanson 1968, recanted in 1971; see also Binford 1971), and the Heighton and Deagan (1971) formula.

Binford's formula assumes a constant rate of bore diameter decrease of 1/64-inch every 38.26 years. Hanson does not use a constant rate, but offered instead 10 relational straight line regression formulas, each covering a relatively small period of time. The third formula, by Heighton and Deagan offer a second-degree polynomial curve.

In 2005 Beaman used all three methods to date eight house sites at Brunswick Town after recounting and remeasuring all of the surviving pipe stems. He found that Heighton and Deagon's polynomial curvilinear regression formula performed the best. Just behind these results were those obtained from Binford's formula. As a result, his recommendation was that "all three formulas . . . should be employed to obtain the best range of dates possible.

Table 28.
North Carolina Tobacco Pipe Stem Formula Results
(adapted from Beaman 2005:65 and McMillan 2010:87)

Site	Sample	Date Range	Mean Date	Binford	(difference)	Hanson	(difference)	H&D	(difference)	Source
Leach-Johnson House	4930		1752	1755	+3	1753	+1	1757	+5	Beaman
James Espy House	3220		1754	1753	-1	1750	-4	1754	0	Beaman
Edward Scott House	1648		1755	1743	-12	1735	-20	1745	-10	Beaman
Nat Moore's Front	1456		1764	1743	-21	1735	-29	1745	-19	Beaman
Public House Wall	506		1766	1752	-14	1749	-17	1754	-12	Beaman
Public House	2914		1766	1753	-13	1750	-16	1755	-11	Beaman
Judge Maurice Moore House	4359		1780	1744	-36	1737	-43	1746	-34	Beaman
Newman-Taylor House	58		1785	1745	-40	1738	-47	1747	-38	Beaman
Eden House F2	66	1680-1740	1710	1759	+49	1746	+36	1761	+51	McMillan
Eden House F311	115	1680-1740	1710	1746	+36	1732	+22	1747	+37	McMillan
Leach-Jobson BT	234	1726-1728	1727	1749	+22	1738	+11	1751	+24	McMillan
Eden House F3	62	1720-1740	1730	1729	-1	1720	-10	1745	+15	McMillan
Leach-Jobson House	4751	1728-1776	1752	1754	+2	1752	0	1756	+4	McMillan
Coutanche Cellar	36	1730-1750	1740	1755	+15	1744	+4	1757	+17	McMillan
Espy House	3296	1731-1776	1754	1759	+5	1760	+6	1761	+7	McMillan
UCB F102 B	83	1750-1769	1760	1749	-11	1745	-15	1751	-9	McMillan
Russellborough House	50	1751-1776	1764	1754	-10	1753	-11	1756	-8	McMillan
Cornell F105	29	1769	1769	1734	-35	1721	-48	1737	-32	McMillan
UCB F102A	91	1769-1814	1798	1737	-49	1740	-55	1748	-47	McMillan
Cornell Midden	70	1782-1814	1798	1737	-61	1725	-73	1739	-59	McMillan

More recently, the three formulas have been tested by McMillan (2010) at 26 sites from Maryland, Virginia, North Carolina, and South Carolina. She found that the Heighton and Degan method proved to be the most accurate, producing formula mean dates closest to the dates assigned using other techniques. She also found at all of the techniques worked better in Maryland and Virginia than in North or South Carolina. Her results for North Carolina sites are found in Table 28.

None of these results is especially impressive, but we are providing readers the mean dates using the Binford and Heighton and Deagan formulas. The Binford formula is expressed as:

$$Y = 1931.85 - 38.2X$$

where:

Y = mean date of data sampled and
X = mean diameter of the sample.

In contrast, the Heighton and Deagan formula has two parts:

$$X = \frac{-logY + 1.04435}{0.05324}$$

and

$$date = 1600 + 22X$$

where:

Y = mean bore diameter.

Finally, there is also a place for relative dating, although application at Kendal is limited by the limited number of sealed deposits. *Terminus post quem* is used to indicate the date after which an artifact must have been deposited. Coins offer a good example. If 1756, 1777, and 1802 coins are found in an archaeological context, the *terminus post quem* would be the coin dated 1802, the latest date obtained from the evidence and meaning the deposit could not date before 1802.

In contrast, *terminus ante quem*, is the date before which the deposit must date. For example, if an 1802 coin were found in a layer, those layers below must have been deposited prior to 1802.

Artifact Patterns

Most historic archaeologists make extensive use of South's artifact groups and classes – sometimes as simply a convenient and logical means of ordering data. Often these functional categories are used for an "artifact pattern analysis" developed by South (1977), who believes that the patterns identified in the archaeological record will reflect cultural processes and will assist in delimiting distinct site types. South has succinctly stated that, "we can have no science without pattern recognition, and pattern cannot be refined without quantification" (South 1977:25). The identification (and occasionally creation) of patterns in historical archaeology is not an end in and of itself, but rather is one of a series of techniques useful for comparing different sites with the ultimate goal of distinguishing cultural processes at work in the archaeological record.

There can be no denying that the technique has problems, some of which are serious, but no more effective technique than South's has been proposed. Garrow (1982b:57-66) offers some extensive revisions of South's original patterns, which will be incorporated in this study.

Even at the level of a fairly simple heuristic devise, pattern analysis has revealed five, and possibly seven, "archaeological signatures" – the Revised Carolina Artifact Pattern (Garrow 1982b, South 1977) associated with colonial English refuse disposal; the Revised Frontier Pattern (Garrow 1982b; South 1977), associated with British-American refuse disposal on rural sites; the Carolina Slave Artifact Pattern (Garrow 1982b; Wheaton et al. 1983), representative of nineteenth century slavery; the Georgia Slave Artifact Pattern (Singleton 1980; Zierden and Calhoun 1983), found in association with eighteenth century slave settlements; and the

Table 29.
Comparison of Published Artifact Patterns

	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Charleston Townhouse Pattern[3]	Charleston 1720-1760 Pattern[4]	Charleston 1760-1830 Pattern[4]	Revised Frontier Pattern[5]	Carolina Slave Artifact Pattern[6]	Georgia Slave Artifact Pattern[7]
Kitchen	51.8-65.0	42.1-64.2	58.38	55.81	58.47	35.5-43.8	70.9-84.2	20.0-25.8
Architecture	25.2-31.4	26.5-55.8	36.00	26.00	33.64	41.6-43.0	11.8-24.8	67.9-73.2
Furniture	0.2-0.6	0.1-0.8	0.21	0.25	0.20	0.1-1.3	0.1	0.0-0.1
Arms	0.1-0.3	0.1-1.0	0.32	0.19	0.30	1.4-8.9	0.1-0.3	0.0-0.2
Tobacco	1.9-13.9	0.2-4.7	2.79	11.25	4.45	1.3-14.0	2.4-5.4	0.3-9.7
Clothing	0.6-5.4	0.1-0.3	0.91	0.64	1.13	0.3-1.6	0.3-0.8	0.3-1.7
Personal	0.2-0.5	0.1-1.1	0.24	0.29	0.45	0.1	0.1	0.1-0.2
Activities	0.9-1.7	0.2-1.6	1.10	5.47	1.31	0.5-5.4	0.2-0.9	0.2-0.4

[1] Garrow 1982b
[2] Beaman 2001
[3] Zierden et al. 1987
[4] Zierden et al. 1995
[5] Garrow 1982b
[6] Garrow 1982b
[7] Singleton 1980

Public Interaction Artifact Pattern (Garrow 1982b); as well as the less well developed or tested Tenant/Yeoman Farmer Artifact Pattern (Drucker et al.1984) and the Washington Civic Center Pattern (Garrow 1982b), which Cheek et al. (1983:90) suggest might be better termed a "Nineteenth Century White Urban Pattern." In addition, there are some additional patterns defined by Zierden and her colleagues in Charleston specific to that city.

Some of these patterns are provided here in Table 29. A careful inspection of the major patterns reveals surprisingly no overlap in the major categories of Kitchen and Architecture which suggests that these two categories are particularly sensitive indicators of either site function (including intra-site functional differences) or "cultural differences" (see Cheek et al. 1983:90; Garrow 1982a:4; South 1977:146-154).

Status Indicators

Examining social inequality is a central theme in much archaeological research. This inequality exists when society invests differences between people with cultural and social meanings, rewarding some and disincentivizing others (Ames 2007:487). A variety of factors can reflect wealth and status, including house size and contents, as well as health and nutrition. Ames notes that in addition to factors such as house size and construction cost, house contents can be viewed in terms of taxonomic richness (the number of artifact classes) and the presence of recognized status markers. There may also be differences in diet, with high-status individuals having access to "better quality, more varied, and more prestigious food" (Ames 2007:503; cf. Monks 1999:208).

Gibb has examined consumer behavior in seventeenth century English America, noting that the theory fills a critical need since it links objects to social behavior and choice (Gibb 1996:237). He believes that by examining household choices, "we can see how households create themselves and their communities" (Gibb 1996:238). He focuses extensively on the plantation setting, architecture, home lot organization, ceramic and glass vessels, and family cemeteries, arguing that each represents a class of inter-related objects that had meaningful associations to those who used them. In particular, they used their material culture to express their identities, both to themselves and to others (Gibb 1996:241).

Evidence of social status might include complex, segregated floor plans, special-use buildings, and home lots with differentiation in sheet midden deposits. But he also cautions that the physical expression of the plantation may not accurately reflect status: "many planters, particularly those seeking opportunities to expand their plantations and acquire new tracts for their sons, probably saw little point in improving the

plantations: they were destined to leave within a decade or so of the arrival, in search of greater opportunities" (Gibb 1996:246).

Nevertheless, archaeologists commonly broaden discussions to include evidence of status. Or more precisely, what the artifacts suggest about the differing status of the various occupants.

We can examine the range of vessel forms: hollow ware, flatware, utilitarian, and serving vessels. Sometimes this is simplified to an examination of the cups to plates ratio. Archaeologists have evidence to believe that higher status individuals, because of their wealth, would tend to have diets that allowed or preferred the use of flatware and serving ware. Families of greater wealth would also be able to purchase matched ceramic services including cups and saucers. Likewise, those of higher social position would likely have a higher proportion of cups based on the need to participate in the tea drinking ritual.

Lower status individuals would be more inclined to eat one-pot meals that necessitate bowl or hollow ware forms, would be less likely to purchase matched sets, and might not participate as fully in the tea ritual.

We also realize that some decorative motifs tend to be more expensive than others. For example, annular wares tend to be very inexpensive. Transfer prints tend to be more expensive. Plain wares are problematical since they begin their history as expensive but rather quickly become less expensive.

There are some ceramics that tend to be associated with either higher or lower status (although high status wares can be cast off from the master's table). For example black basalt is a very high status ware. Chinese porcelains were similarly high status because they were highly sought and expensive to acquire. On the other hand, lead glazed slipwares were the wares of the yeoman farmer and laborer.

Of course, this approach is not universally accepted. For example, in examining cup to plate ratios, Monks argues there that there is "no clear separation of the economic from the social variables that this ratio measures" and also notes that tea could be drunk from bowls instead of cups (Monks 1999:209).

Another approach that has been recommended compares ceramic utility wares to tablewares. Unrefined ceramics, such as stoneware or redware are used for both cooking and storage and are therefore present in almost all assemblages at some level. In contrast, refined wares, such as creamware, pearlware, and whiteware, are used to serve food and more liable to exhibit status or other values important to the owner. VanderVen suggests that, "a high ratio of production to serving vessels could mean that the inhabitants of the site had few opportunities to host their neighbors, or little inclination" (VanderVeen 2007:124). Zierden and her colleagues have found that tablewares increase from about 58% of the ceramic assemblage in the first half of the eighteenth century to nearly 82% up to 1830. Utilitarian wares decline from about 41% to about 18% over the same time (Zierden et al. 1995:113).

Of course, it is generally expected that tablewares will increase over time as ceramics became more affordable and replaced treen[3] and pewter wares (Martin 1989).

Other temporal aspects that Zierden has noted include the increasing proportion of window glass in the architecture group and the decline in the proportion of olive green glass in the kitchen group between 1720 and 1830 (Zierden et al. 1995:113).

Ceramic Indices

There is another way of examining status and that is to look at the cost of the ceramics, an approach developed by George Miller over 30 years ago (Miller 1980, 1991a, 1991b). Miller argued that the ceramic assemblage reflects the

[3] Small domestic wooden objects, such as bowls.

socio-economic status of the household.

The "CC (cream colored) Index," as it is known, is a way to estimate the cost of a ceramic assemblage by calculating the cost of the individual refined earthenwares that comprise it, based on index values. Miller determined these values from exhaustive studies of price lists for refined earthenwares from the late eighteenth through early nineteenth centuries.

Undecorated CC ware, the price of which remained relatively stable throughout the eighteenth and early nineteenth centuries, was used as the baseline. Three other categories of decoration were calculated as ratios to this baseline. He devised an approach in which the comparison of the number and value of each type of decoration category could be used to construct a proportion of expensive to inexpensive wares, called the ceramic value index. VanderVeen (2007) notes that this is essentially a weighted mean, with the prices for each type scaled in reference to the base line of undecorated ceramics.

Miller's formula was based on sealed contexts, using minimum vessel counts. McBride and McBride "adapted" the technique to the use of sherd counts with vessel forms unknown, by averaging prices for plates, cups, and bowls, citing similar work by others (McBride and McBride 1987:149). VanderVeen, however, raises the legitimate concern about sherds that may be "misclassified as undecorated when, in fact, they included a pattern that was not exhibited in the particular portion of the vessel that was recovered" (VanderVeen 2007:119).

The average CC Index values at a site can not only be used to compare one site to another, but can also be used as a marker of economic class or social status. Adams and Boling (1989) used the CC Index values to compare 44 plantation sites across Georgia. They suggested that for at least some selected vessel forms, enslaved African Americans had more expensive vessels than the plantation owners or white farmers and merchants.

Like most analytical approaches, not all archaeologists are fully supportive of the technique. One of the most common arguments is the indices are ambiguous in what they indicate about economic and social variables (e.g., Klein 1991:80-83). Even critics, however, agree that,

> they do focus directly on economic behaviour and thus provide information on household expenditure patterns. Comparison of economic variability between households is therefore enhanced through the use of these indices (Monks 1999:208).

Sample Size

Nearly 30 years ago Miller berated archaeologists for not providing meaningful data on the sample size their excavations represent (Miller and Moodey 1986). They suggested the use of a formula adopted from biologists for estimating fish populations. A decade later Miller once again made his argument for this approach (Miller 1991b). Neither appears to have made much of an impression on the archaeological community.

We, too, are not convinced that fish are a suitable analog for ceramics. Nevertheless, we are sympathetic regarding the need to provide some information on what an excavated assemblage represents.

The Kendal site is large and the boundaries, even after this work, are open for interpretation. Our original site estimate was about 120,000 square feet, although eventually auger testing incorporated nearly 153,000 square feet (pp. 2 and 6 of this study). A core area of about 40,000 square feet may be reasonable and represent the area within which the plantation structures were confined.

If the total site size of 120,000 square feet is used, then these investigations sampled only 4.2% of the site. If, however, only the core area is used as the basis for computation, then the sample

size rises to 12.5%. In either case, a relatively small area of the site has been explored and this may seem discouraging.

On the other hand, as Miller observes, “archaeologists have a tendency to excavate the more intensively used areas such as around structures and where there are concentrations of artifacts” (Miller 1991b:5). Thus, it is likely that more than 4% of the site artifacts were recovered.

Artifacts

We are not describing or discussing every artifact class at Kendal, but our discussion of artifact types and definitions here will simplify the reporting of the block excavations and prevent the necessity of lengthy repetitions. The discussions will be broken into artifact groups and then further divided into individual artifact types. Those familiar with archaeological terminology may chose to skip these discussions and proceed directly to the block excavation results.

Kitchen Group

Chinese Porcelains

Porcelains are discussed at length in Chicora’s report on the eighteenth century Broom Hall Plantation in Goose Creek, South Carolina (Trinkley et al. 1995). Readers interested in the origin and history of porcelain development may find the Broom Hall discussions of interest.

In terms of typology and identification South outlines, but does not further describe, four principal types of Chinese porcelain (as well as earlier Ming dynasty porcelain, English porcelain, and "Littler's Blue"): Canton (c. 1800-1830, $\bar{x}$ 1815), overglaze enamelled China trade porcelain (c. 1790-1825, $\bar{x}$ 1808), overglaze enamelled Chinese export porcelain (c. 1660-1800, $\bar{x}$ 1730), and underglaze blue Chinese porcelain (c. 1660-1800, $\bar{x}$ 1730).[4] Ann Brown (1982:8-9) develops a slightly different scheme:

> Overglaze Chinese Trade ("Oriental Lowestoft") made expressly for European market. Some have elaborate European engraving type motifs & with chain or spear-head borders in red or gold. Overglaze deteriorates in soil and often all that remains is a matt trace visible at an oblique angle. [c. 1660-1800, $\bar{x}$ 1739]
>
> Underglaze Blue with overglaze red & gilding. Often in very busy patterns inspired by Japanese "Imari" porcelain. [c. 1700-1780, $\bar{x}$ 1740]
>
> "Famille Rose" decoration of large pink peonies high-lighted in white with drab green leaves. On American sites usually found on tureens & large dishes. [c. 1750-1800, $\bar{x}$ 1775]
>
> Armorial Wares: made in China in the shapes of European silver services & bearing a particular family's coat of arms. [c. 1750-1800, $\bar{x}$ 1775]
>
> Deteriorated Chinese Trade: decoration limited to thin swags, wiggly lines or dots & dashes in black, orange, pink & blue around rims. Some have small floral

[4] The use of "China trade" verses "China export" is likely intended to express both a time and quality distinction, with the China export wares being earlier, thinner, and better executed, while the China trade wares were later, thicker, and less well painted. The same view is presented by Noël Hume (1978) who argues for a decline in the quality of Chinese porcelain over time. While such a decline did occur, this is not to say that thick, poorly executed pieces were also not available very early. There was, as Amanda Lange puts it, "plenty of room in the market for a wide range of wares" (Amanda Lange, personal communication 1995). To equate quality with time, especially on a per fragment basis, is a mistake.

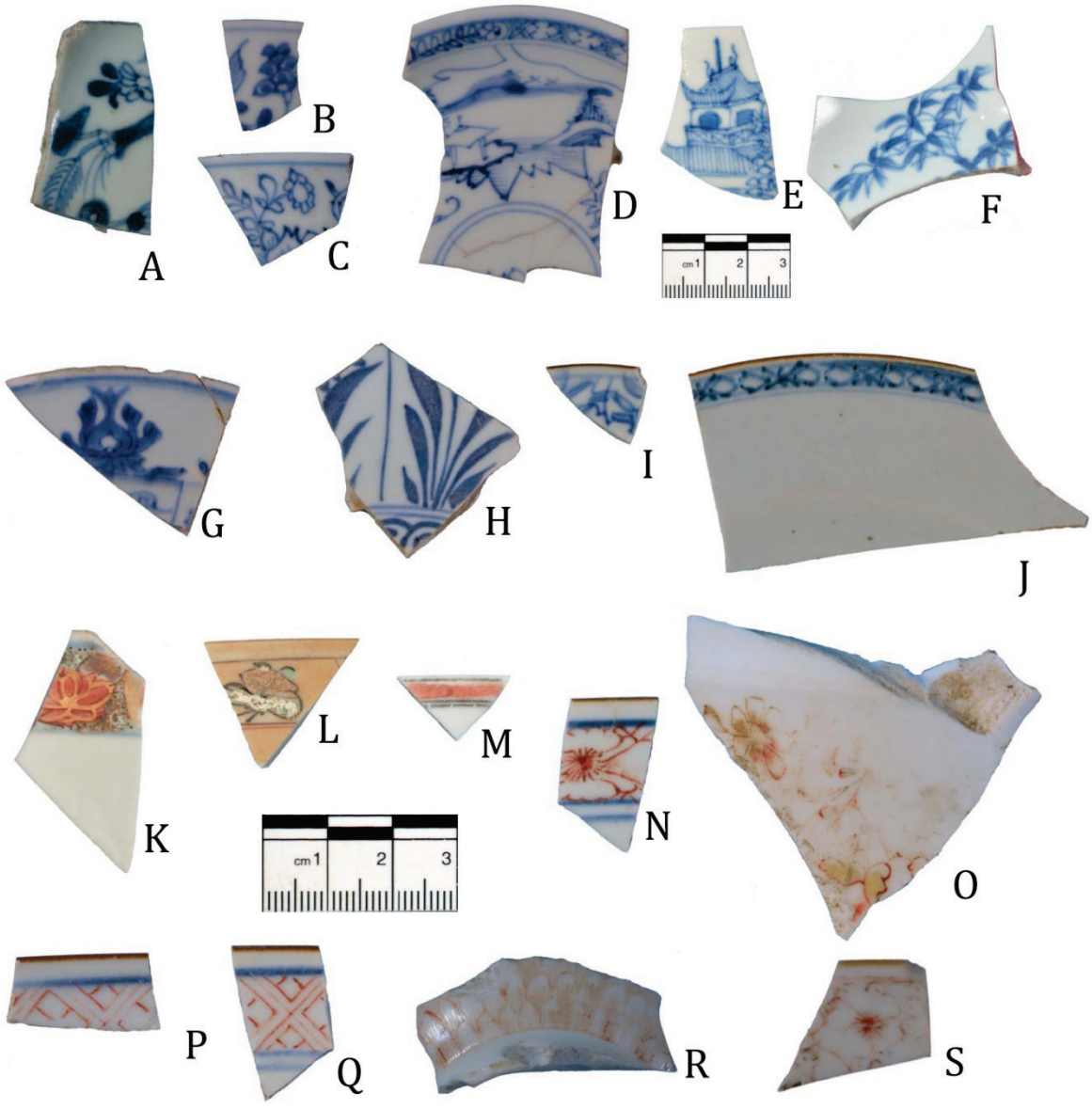

Figure 91. Chinese porcelains. A-H. blue underglaze Chinese porcelain ("blue and white"); I-J. blue underglaze Chinese porcelain with brown rim band; K. enameled overglazed; L. probable Batavian ware; M. enameled overglazed; N. enameled overglazed on blue and white; O. possible *famillle rose* enameled overglazed; P-Q. enameled overglazed on blue and white with brown rim; R. enameled overglazed; S. possible *famille rose* enameled overglazed with brown rim.

> decoration in the center. [c. 1790-1825, x̄ 1808][5]

> Blue Willow: three figures, two birds, house, bridge, and boat. Early pieces are well done. [c. 1792-early nineteenth century][6]

> "Canton" Blue Willow: heavier body than Blue Willow with grayish-green glaze. Border has dark blue hatching under lighter blue band. [c. 1800-1830, x̄ 1815]

Virtually all of the accounts, be they archaeological, collector, or curator, agree that Chinese pottery during the eighteenth century incorporated two broad styles: one was an underglaze blue and the other was an overglaze polychrome. Likewise, for our discussions we can specify that all of the wares were produced during the Qing Dynasty. While earlier Ming items may occasionally be found at archaeological sites, they do not appear to be present in the Kendal collections.

Below are the forms initially identified at Broom Hall, but also appropriate for the Kendal collections.

Blue and White

The bulk of the export wares for European trade were the common blue and white porcelains, often known by collectors as Nanking, Nankeen, or Nankin, after the port on the lower Yangstse River from which it was shipped (see Godden 1979:129).[7]However, Medley (1976:261) notes that much of this ware was also shipped out of Canton, after an overland passage. Godden (1979:111) observes that this style was made from at least the fourteenth century and far outnumbers all other types present. It was produced by decorating the bisque porcelain with cobalt prior to firing.

While the beginning date for this ware can be quite early, what is seen at most American archaeological sites probably does not predate the English re-opening of the China trade, about 1715. Godden suggests that this style is relatively rare from the 1740s through the 1770s, when overglazed forms were more popular. However, by the 1770s they begin to dominate the collections, remaining popular to at least 1795 (Godden 1979:148). Godden also observes that while production continued well into the nineteenth century, relatively few blue and white dinner services were sent to England after 1800, since British potters had largely captured the market and were beginning to do the same in the United States (Godden 1979:144).

A decoration added by the Chinese, and very popular prior to about 1750, was a thin brown band or line edge at the rim. This can be seen on bowls, cups, and plates (Godden 1979:138). At least some of these blue and white forms were embellished by English factories – a form of "value added" merchandising – typically by adding gilding to the plain vessels (Godden 1979:149). Battie notes that the addition of gilt borders post-dates 1780 and observes that this was:

> a fashionable way of making a somewhat mundane Chinese blue-and-white tableware a little more upmarket, and to lend individuality to a dealer's stock when all were displaying much

---

[5] As previously mentioned, associating specific "deteriorated" motifs or techniques with a late time period may result in over-simplification. It is likely that even the early Chinese export market contained poorly executed and technically inferior wares. While large assemblages may be accurately classified, it seems unlikely that individual sherds can be so identified.

[6] Although "Blue Willow" is typically used to describe a British earthenware, Brown has taken the term and applied it to a Chinese motif.

[7] It should be remembered that this port was not opened until the nineteenth century (see Howard 1989), again illustrating the problem of using rather vague collector's terms in scholarly studies. In addition, Nankeen is also a term applied to Chinese woven cottons.

> the same repetitive patterns (Battie 1990:66).

Godden (1979:114) mentions that early in the eighteenth century plates of this ware were valued by the British East India Company at a shilling each, but sold for upwards of two shillings each.

Motifs incorporated the spotted deer, cranes, peacocks, phoenixes, butterflies, dragon-flies, ponds, rocks, and clouds (Schiffer et al. 1980:7). Other decorations include landscapes with buildings in a variety of compositions. One typical decoration includes branches of blossoming cherry reserved on a field of cracking ice, intended to signify the end of winter and coming of spring (Valenstein 1989:220). Another typical motif of the blue and white wares is called Fitzhugh. Named after one of the East India Company representatives, this is a relatively common border pattern which incorporates butterflies, diaper, and plant forms. The spearhead or dagger border is equally common and Susan Gray Detweiler comments that it "may have developed from the *ju-i* or ceremonial scepter form used in Chinese frieze decorations or from the European *fleur-de-lis* or both" (Detweiler 1982:53).

There seems to be some confusion regarding the origin of the willow pattern.[8] Noël Hume (1978:260-261 suggests that a Chinese antecedent provided the inspiration for the English versions found so commonly on whiteware ceramics during the nineteenth century. Vainker however, disagrees, asserting that the willow pattern originated in England and that, "neither the motif nor even the legend is known in China, although it has represented the essence of Chinese art and literature to many Europeans" (Vainker 1991:158). It seems likely that the style was introduced from England for the Chinese porcelain makers to copy.

Chinese Imari

This style began at the beginning of the eighteenth century and represents a Chinese copy of the Imari wares made at the Arita kilns in Japan. The Japanese versions were decorated in a dark underglaze blue, "enlivened with overglaze iron-red enamel and gold" (Valenstein 1989:236) and were exported to Europe in large quantities during the last quarter of the seventeenth century.[9] The Chinese copy was intended to

---

[8] Most loosely interpreted this may include just about any landscape scene, typically in underglaze blue on white (Godden 1979:148). The pattern appears to have dominated tea sets after about 1770. More strictly speaking, the term "willow" is applied to a pattern which shows a pagoda with pavilion or tea house on the right, backed by an apple tree. In the center a willow tree leans over a three arched bridge across which three figures are crossing to the left. In the top left is usually a covered boat, crewed by one man, which is floating in front of small island. Two doves fly overhead. The English legend concerning the pattern is described by A.W. Coysh and R.K. Henrywood:

> the story concerns a Chinese mandarin, Li-Chi, who lived in a pagoda beneath an apple tree. He had a beautiful daughter, Koong-Shee, who was to marry an elderly merchant named Ta Jin. However, she fell in love with her father's secretary, Chang, who was dismissed when it was discovered that they had been having clandestine meetings. Koong-Shee and Chang then eloped and, helped by the mandarin's gardener, they are seen crossing the bridge which spans the river. The boat is used to approach Chang's house but the furious mandarin discovers their retreat. They are pursued and about to be beaten to death when the Gods take pity on them and turn them into a pair of doves (Coysh and Henrywood 1982:402).

[9] The Japanese wares will have stilt marks and square foot rims, unlike the beveled foot rims of Chinese vessels. The body of a Japanese vessel is slightly darker in color and the decoration is more elaborate, not restrained like the Chinese examples. Regardless, it is very unlikely that Japanese wares will be found in the context of eighteenth century Southern plantations. The wares were almost never exported to the American

capture this market and the two wares are often difficult to distinguish. Occasionally the Chinese examples will have overglaze colors added to the basic blue, red, and gold color scheme.

It seems unlikely that most archaeologists could distinguish Japanese from Chinese Imari, although Deagan admits only that it "is not always easy." She notes that:

> the body, which on Chinese porcelain is generally thinner and "crisper" than the Japanese forms, may show slight variations in thickness and finish. The background glaze on the Chinese wares have a faint bluish or violet tint to them, whereas the Japanese examples have a flat white or grayish white hue. The Japanese porcelains, furthermore, often exhibit a slightly grainy surface texture. The shades of blue used to decorate Chinese and Japanese porcelains also differ somewhat: the Japanese examples tend to have a dark, flat, and sometimes cloudy blue in contrast to the deep sapphire blue found on Chinese porcelains of the eighteenth century (Deagan 1987:103).

Batavian Ware

Characterized by a glaze which ranges from an "old-gold" tint to a dark bronze hue, these wares may also include what have been described as "the popular shades of chocolate, 'dead leaf,' and café au lait" (Valenstein 1989:242). The ware took its name from the Dutch post at Batavia on the island of Java, from where much of this particular pottery was shipped to Western ports (Palmer 1976:18).

market, with only very limited examples being found in Dutch settled areas like the Hudson River Valley (see Howard 1984).

Famille Rose

About 1720 an opaque rose-colored enamel was introduced into the pallet of overglaze colors. While in the past linked to European methods of producing a similar color, recent studies (see Vainker 1991:205-206) suggest that the European and Chinese techniques were vastly different. The Chinese ground up a ruby glass produced using gold, using this as a pigment dispersed in a clear medium. This technique was cheaper than the European approach since it used far less gold (Vainker 1991:205). Medley has remarked that:

> Rose enamels were used at first rather sparingly, and a study of eighteenth century porcelain reveals that on early pieces the colour was often muddy and sometimes a weak lilac, although the other colors might be quite good (Medley 1976:246).

As time passed, the enamel became more stable, the wares better fired, and this new style allowed meticulous treatment of detail, delicate shading of tones, and a wide range of color combinations. On plates the decoration typically appeared only on the inside. Bird and flower subjects, along with figural themes are most common, often surrounded with a diaper pattern (Medley 1976:247, 263).

But this pink, allowing tones from the palest blush of pink to deep ruby red, was only one aspect of the *famille rose* wares. Added to it, and some claim to be even more important, was a lead-arsenic, opaque white pigment. Using this base, the artist could add other pigments and achieve a wide color palate. By 1730 the *famille rose* style became the dominant decorative motif in overglaze enamelled wares (Valenstein 1989:247).

Blue and White with Overglaze Enamel

Collectors (and some archaeologists) have long called the blue and white porcelain with

added overglazed enamelled decoration "Canton," apparently because much (though not all) of the ware had overglaze decoration added at the port city of Canton (Detweiler 1982:53 and Noël Hume 1978:262).[10] It seems equally likely, however, that much of this decoration was done at the point of initial manufacture, probably Jingdezhen.

The Tea Ritual

James Deetz observes that at least by 1780 the porcelain found in colonial inventories is largely limited to:

> tea sets, and probably demonstrates the adoption of the full-blown English tea ceremony for the first time. This custom can be considered a good indicator of the re-Anglicization process that was at work at the time (Deetz 1977:60-61).

He points out that porcelain is therefore a socio-technic artifact and less likely to be broken, and enter the archaeological record, than more technomic artifacts. Henry Hobhouse describes this ritual, as well as the ceramics associated with it:

> The eighteenth century Europeans, like the Japanese but unlike the Chinese or the Russians, regarded tea making as a ceremony. There was the boiling water, not boiled for too long. There was the specially warmed pot. There was the infusion time. There was the pouring, a little bit of a ceremony all on its own (Hobhouse 1987:111).

Richard Waterhouse (1989) explores the structure of values in Carolina society, noting that "the behavior patterns of the wealthy eighteenth-century Carolinians were based on luxurious living and imitation of upper-class English taste and manners" (Waterhouse 1989:103). The reasons for this "exaggerated imitation of the . . . English gentry" (including the adaption of the tea ceremony) were complex, but seem to involve the high mortality of the new colony, the long-established links between Carolina's elite and the English gentry, the close trading (and economic) ties between the two groups, and the desire for the Carolina elite to establish itself as a ruling class which was rigidly hierarchical with severely limited mobility. Waterhouse also contends that the "black majority" of Carolina "deepened the psychological need for South Carolinians to adhere to the normative values of English culture" (Waterhouse 1989:108). The tea ritual, and the associated very expensive imported porcelains were one aspect of this overall process.

In spite of these views from male historians, Thomas (2007) suggests that the tea ritual played a greater role among women than it did among men; it was used by females as “their way of demonstrating their position within society” (Thomas 2007:1). Men use wine drinking “ceremonies” to establish their social status.

English Porcelain

Although porcelain production in Europe began in the first decade of the eighteenth century, it remained very expensive compared to Chinese wares and it wasn't until the nineteenth century that European wares really became a commercially viable product, as opposed to an item of extraordinary luxury (Medley 1976:261). English porcelain (typically known among collectors as "soft paste" porcelain) was first made about 1745 at Edward Heylin's glassworks at Bow, Middlesex.[11]

[10] This is not a universal convention. Amanda Lange (personal communication 1995), for example, uses the term "Canton" to describe a blue and white pattern with Asian landscapes and a rain/cloud border.

[11] It is important to realize that English porcelain shows considerable variation in body composition. While the majority of eighteenth century English porcelain is soft paste, hard paste is also present, with bone China introduced after about 1794.

Distinguishing Chinese and English porcelains has always been difficult, in spite of a broad range of collector hints. As in most endeavors, there is no simple single approach. Distinguishing between Chinese and early English imitations depends on observing a broad range of features or characteristics.

One of the more concise and reliable approaches is provided by Battie (1990:66). In Chinese porcelain the paste is fully vitrified, while eighteenth century English specimens (regardless of what they are called) typically have a soft paste. On Chinese examples the glaze is thin, hard, and close-fitting, while on English examples the glaze tears or pools. English porcelains may exhibit glaze bubbles and the glaze may stain or discolor. Crazing and cracking is common. As a whole, the Chinese examples are more thinly potted and the edges, being thin, are prone to chipping or "glaze nibbles." The underglaze blue, all of which is hand painted, will be sharp and static. Any overglaze painting will sit on the surface. In English porcelains the decoration may be printed and the overglaze enamels tend to "sink" into the glaze. On the English specimens gilding is thick, often tooled into a design, while on Chinese porcelains it is thin, almost watery in appearance. Chinese examples have very carefully turned foot rims, often with the body scooped away to form the ring, while plates of English porcelain may rock back and forth on the foot ring which is typically applied as a separate step. The central section of the foot ring often exhibits lathe-like thinning marks on Chinese specimens and the glaze has been carefully cleaned away from the foot prior to firing. The unglazed foot ring may be tinted green or a light brown. A final characteristic of the Chinese porcelains is an absence of spur marks or signs of stilts or other kiln furniture. The English were not nearly so careful in their production techniques.[12]

Nineteenth Century Stonewares

The alkaline glazed stonewares are discussed by Burrison (1975) and Greer (1977, 1981). This glaze, distinctively Southern, was developed about 1810 in Edgefield District, South Carolina and spread into North Carolina, Georgia, Florida, Alabama, and Texas. The glaze consists of an alkaline flux (such as wood ashes or slaked lime) combined with silica (such as clay, sand, or glass) and water. The colors range from cream to browns on oxidized vessels and from a pale yellow-green to deep olive on vessels fired in a reducing atmosphere. The glaze, which is hard and durable, exhibits a variety of textures depending on firing conditions, temperatures, and preparation techniques.

Nineteenth century salt glazed stonewares are typically industrial, wheel-thrown pottery. The process and types of salt glazed pottery are described by Greer (1981: 180 -192). The texture of salt-glazing may vary from a very fine salt texture with a thin glaze to a well-developed "orange-peel" texture to an extremely heavy salt texture with runs and agglutinations. Colors, reflecting impurities in the clay, include gray, beige, and brown.

Clay or slip glazed stoneware, includes only those pieces having no evidence of salt-glazing, e.g., Albany and Bristol slips. Greer notes that these slips were becoming significant by the beginning of the nineteenth century and the Albany slip was discovered in 1825 (Greer 1981:194).

Nottingham Stoneware

Nottingham is a type of red and brown stoneware which has a metallic-looking, semi-matte surface comprised of an iron oxide and salt glaze yielding a faintly metallic luster (Feild 1987:53, 90). Although some quite strange designs were produced, far more common in America are the posset-pots, mugs, jugs, and bowls (Blacker 1980:244).

[12] Of less use were techniques intended to distinguish intact pieces. For example, Chinese teapots have the glaze trimmed away from the filling aperture and the inside flange of the covers is also free of glaze (to allow the covers to be fired on the pots without the glaze sticking them together). Likewise, Chinese handles were made hollow with small vent holes to allow air to escape during firing.

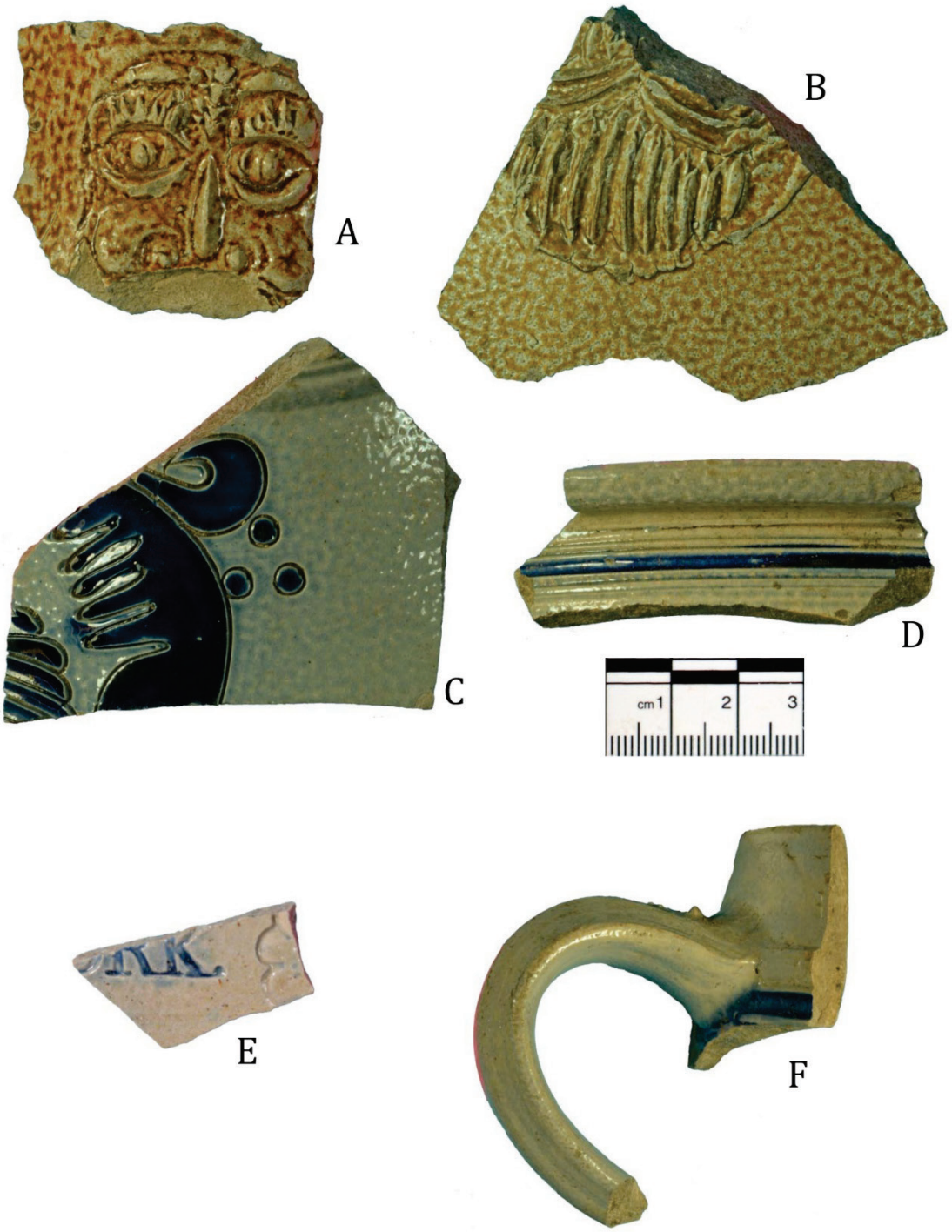

Figure 92. Kendal Bellarmine and Westerwald stoneswares. A-B. Bellarmine. C-D, F. British Westerwald stoneware. E. American-made gray salt glazed stoneware.

Westerwald Stoneware

Also known as Rhenish blue and gray, Westerwald is a gray salt glazed stoneware with incised, stamped, sprigged, and cobalt or manganese painted decorations. A common applied ornament motif was the armorial or heraldic medallion. On vessels exported to the colonies during the late seventeenth and eighteenth centuries, the royal initials "WR," "AR," and "GR" were often added (King William, Queen Anne, and King George, respectively).

Gaimster comments that the Westerwald chamber pot became popular by the beginning of the eighteenth century, with tanards and jugs following and being common through the end of the century. He suggests that the decline in Westerwald for table use among the wealthier classes is explained by the arrival of relatively inexpensive “fineware” ceramics by mid-century. There are well-dated Westerwald assemblages in North Carolina towns such as Brunswick, Bath, Halifax, and Edenton (Gaimster 1997:104-105).

There is also a Rhenish brown, a buff to dark gray bodied ware coated with a speckled brownish slip. This was produced by adding a brown engobe or a thinner wash before firing. Afterwards the slip would appear in various mottled shades of brown. The appearance led to the popular name of “tiger ware.”

On the brown stoneware, one of the most typical decorations was the "Bartmann" face mask (*Bartmasken*), also known as "Bellarmine" or "graybeard."

Gaimster’s (1997) study found that sixteenth and early seventeenth Bartmann bottles were round and squat with elaborate face masks. By the mid-seventeenth century the bottles had become pear-shaped. While the face mask tends to become “debased” or cartoonish in appearance during the latter half of the seventeenth century, this cannot be used for dating. Both high and low quantity face masks occur on contemporary vessels. Moreover, many vessels remained in use for decades before they entered the archaeological record.

Although mugs and jugs are most common, there are examples of chamber pots (Noël Hume 1978:280-285).

White Salt Glazed Stoneware

The introduction of this pottery, relatively simple and inexpensive to produce, came at a perfect time for Staffordshire potters, allowing them to introduce comparatively fine wares for the tea ritual and offering competition to Chinese porcelains (Cushion 1976:81). Noël Hume (1978:115) notes that by the mid-eighteenth century these wares became “the typical English tableware” and displaced delft.

White salt glazed stonewares were not only more durable than the earlier style delft, but the creation of block molds allowed the creation of such intricate relief patterns as "dot, diaper and basket" and "barley." A defining characteristic of this ware is the “orange peel” finish on the glossy surface, produced as a result of the salt glazing.

A variation is called Scratch Blue, a white salt glazed stoneware which was incised and neatly filled with cobalt blue prior to firing, resulting in a white body with thin blue lines. These examples are typical of pre-1760 periods when the lines are found on cups, saucers, and bowls. Occasionally the "scratch" design was filled with iron oxide rather than cobalt blue. These are referred to as "Scratch Brown" white salt glazed stoneware.

By the 1780s the quality of the Scratch Bue ware became increasingly sloppy and the fine detail was lost, perhaps in an effort by English potters to copy Rhenish blue and gray stoneware (Noël Hume 2001). This variation, which expanded onto chamber pots and other wares is called Debased Scratch Blue. The style declines in popularity after 1795, but was manufactured to at least the 1820s.

Another variation is slip dipped, sometimes called simply dipped white salt glazed. This is a stoneware with a tan or gray paste that have had a white slip (hence, dipped) applied,

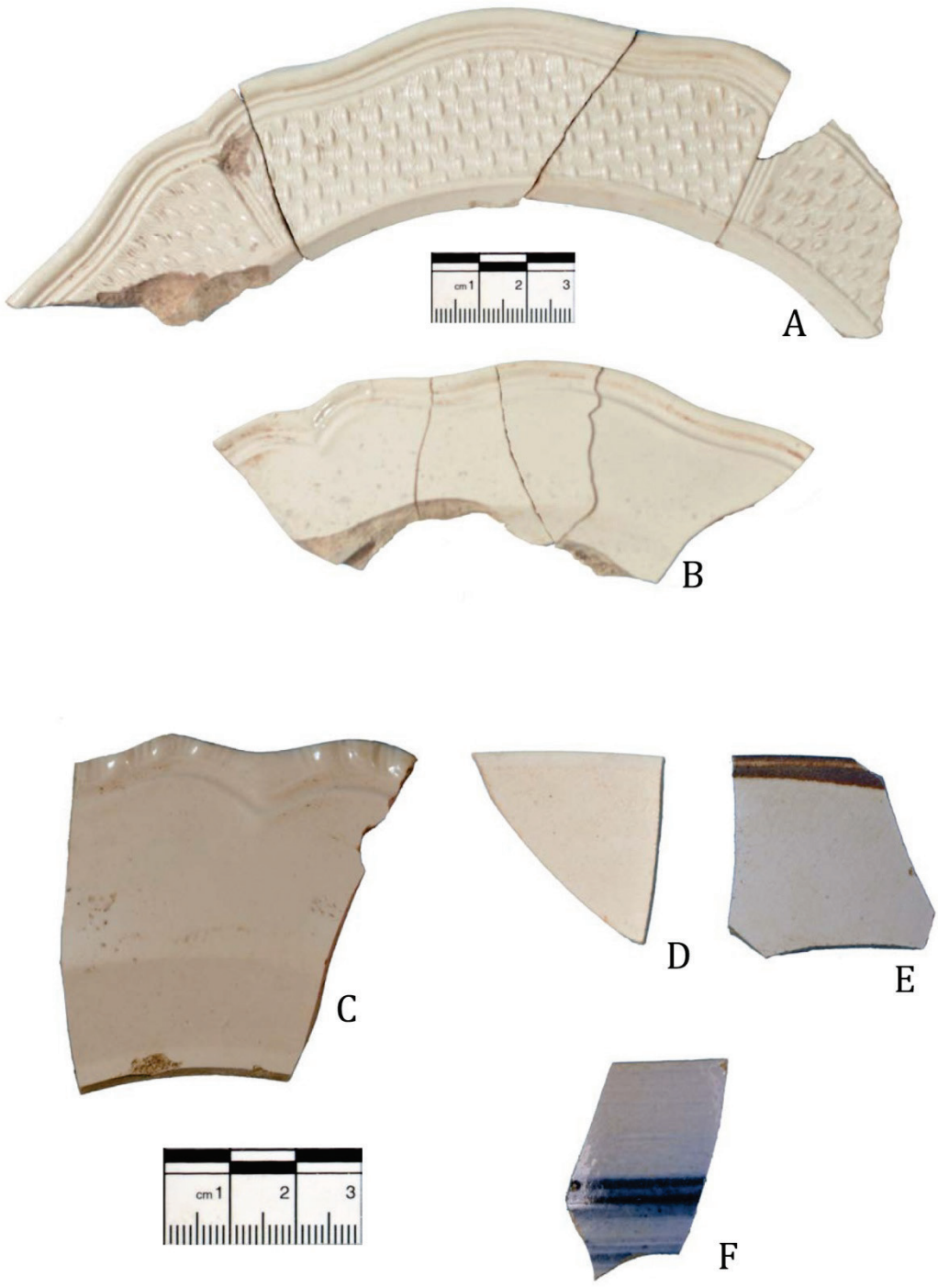

Figure 93. Kendal White Salt Glazed stoneware. A. barley pattern; B. Queen's pattern; C. bead and reel pattern; D. white glazed stoneware; E, slip dipped with brown band; F, scratch blue.

resulting in a whiter and smooth surface, rather than the typical “orange peel” surface. The dipped vessels often have brown oxide coating on hollow form rims, handles, and spouts, areas where the white slip (also known as *engobe*) tended to pull away from the ceramic body.

South has dated the beginning of dipped white salt-glazed stoneware to about 1715, but recently Noël Hume (2001:199) suggests a date perhaps as early as the mid-1690s and certainly by the first decade of the eighteenth century.

Black Basalt

Black basalt was introduced by Wedgwood about 1750 and perfected by 1760 (Gusset 1980). It continued to be used into the first several decades of the nineteenth century, at least partially because it was fashionable to use it in times of mourning.

Black Basalt ware is known as a dry-bodied stoneware. These are fine-grained, non-porous stonewares that required no glaze. The black basalts were fired in an oxidizing atmosphere to produce the characteristic black fabric. Vessels are generally wheel thrown, slip cast, or molded. Engine-turned designs date to after 1760. Most designs found in archaeological sites are associated with tea wares.

Lead Glazed Slipware

Slipware was a traditional eighteenth century form of pottery decoration in which a white or cream-colored slip is trailed over an buff or red earthenware body. A clear lead glazed slip is then applied before firing. Examples of pink and buff fired-clay bodies were encountered.

The lead glazed slipwares are examples of “everyday necessities for the more humble table” (Cushion 1976:79). Erickson and Hunter (2001:95) comment that these wares were “a mainstay of domestic and utilitarian pottery for the masses.” Vessel forms were typically plates, trenchers, mugs, and pitchers, exported to the American colonies from England in huge numbers.

Characteristic are "piecrust" rims, found on both plates and bowls.

Astbury Ware

Astbury is a thin earthenware with a dense, dull-red body and a dark red colored lead glaze. It may be found plain, decorated by engine turning , or with white clay sprig-molding.

This pottery appears by the mid-1720s and declines in production after the 1750, being a good marker for the second quarter of the eighteenth century (Noël Hume 1970).

Named after John Astbury (1686–1743), some researchers prefer Astbury-like since it was produced by many potteries and others prefer "fine red earthenware" since there is no evidence that Astbury actually produced this pottery. Nevertheless, we retain the traditional name.

Jackfield

Noël Hume describes Jackfield as a "class of thinly turned wares" with a purple to gray body coated with a deep black glaze (Noël Hume 1978:123). Of all the forms produced, most seem to be tea and coffee ware, often tea or milk pots (Feild 1987:95).

Green Glazed Cream Body Refined Earthenware

Thomas Whieldon and Josiah Wedgwood developed a rich green-glazed cream-colored ware in 1759. Press-molded fruit and vegetable-shaped table and teawares were glazed, primarily in bright greens and yellows. The pottery peaked in popularity in the 1760s, but continued to be produced through the early 1780s (Hildyard 2005:92).

The pottery has thin walls and iron oxide contaminants give the paste a cream color. Bisque wares were dipped into colored glazes and some would also be painted to produce the realistic appearance. Green glazes contained copper oxides and yellow glazes contained iron oxides.

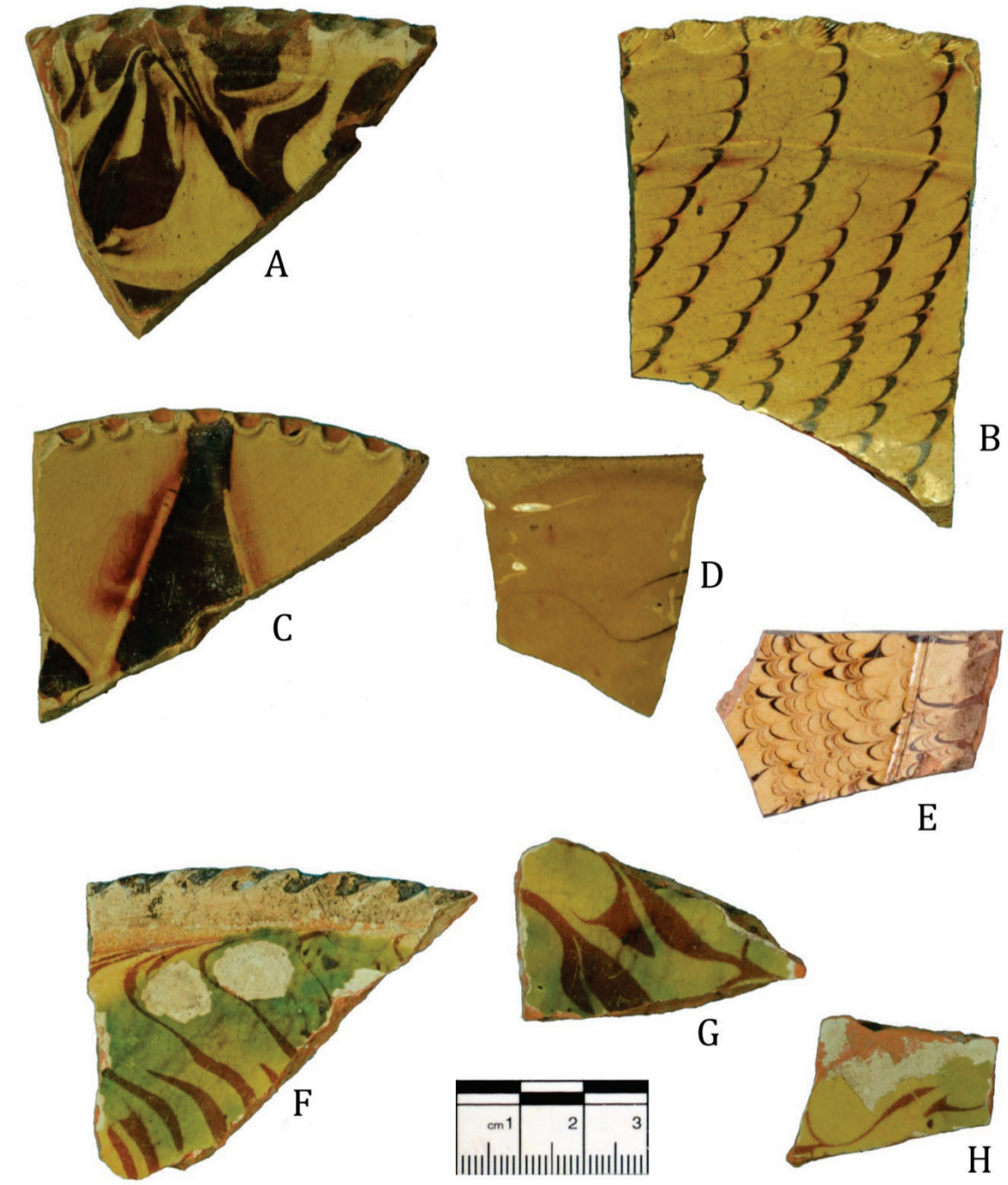

Figure 94. Lead glazed slipwares from Kendal. A-C. plate forms with pie crust rims; D. cup; E. light paste variation; F-H. probably Moravian wares with light red paste and green glaze decoration.

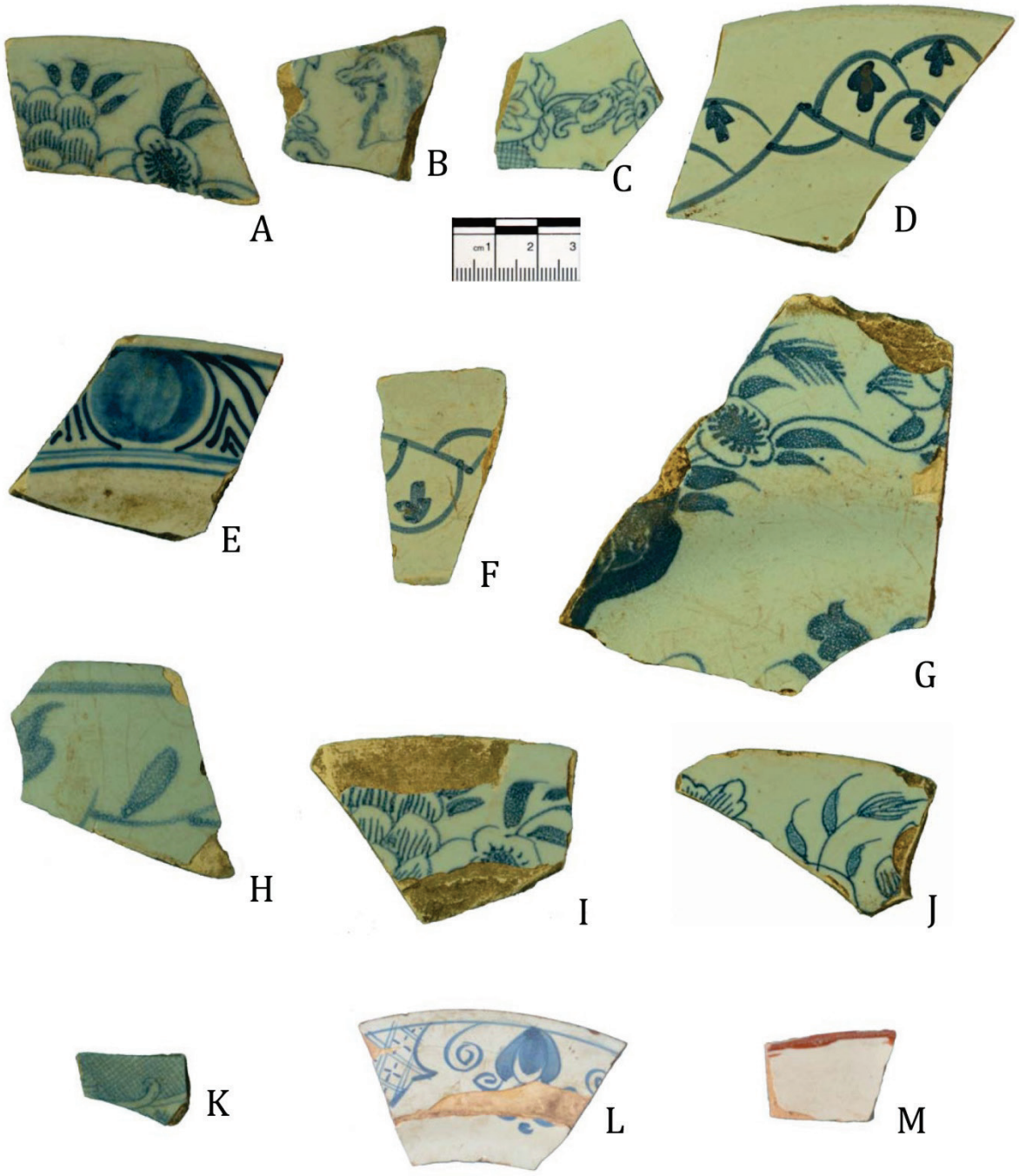

Figure 95. Delft pottery from Kendal. A-L. blue on white delft. M. polychrome delft.

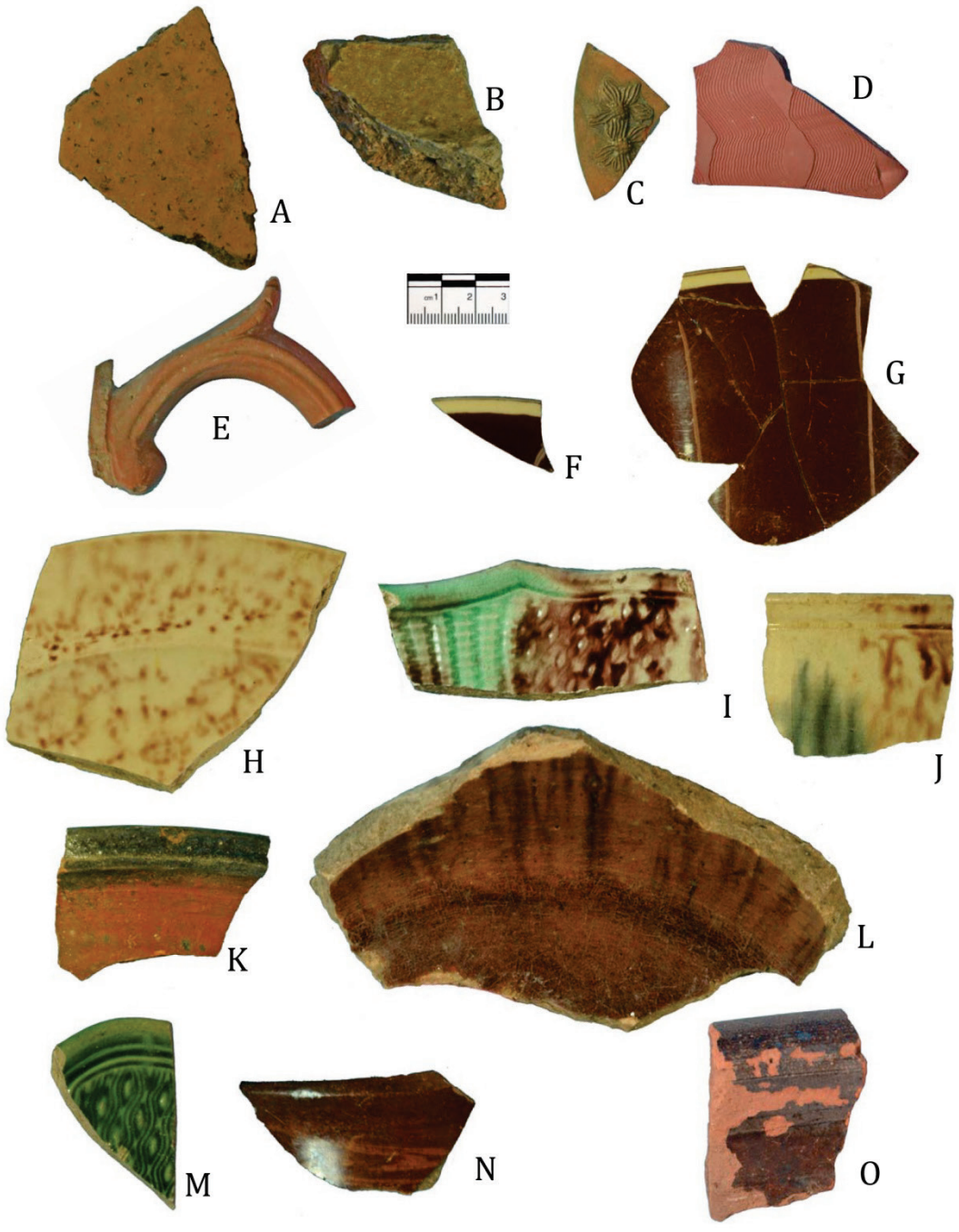

Figure 96. Miscellaneous earthenware from Kendal. A-B. North Devon Gravel Tempered; C-E. Elers ware; F-G. Astbury ware; H-J. Clouded ware; K. Buckley ware; L. tortoiseshell; M. green glazed; N. agate ware; O. coarse red earthenware with a brown lead glaze.

Clouded Wares

The last of the eighteenth century wares, which bridge into the creamwares (themselves transitional between the eighteenth and nineteenth centuries) are clouded wares. These have a cream body with a dip glaze resulting in wares with purple, blue, brown, yellow, green, and gray colors (Noël Hume 1978:123). In effect, they represent a creamware body being decorated with colored glazes (Walton 1976:73).

Delft

The term defltware is often used as a generic term for tin-glazed or enameled earthenwares since not all were made at Delft (Noël Hume 1978:285, Beaman 1997:18). The convention is not, however, universal and we will use delft as a general term.

Delft is a typical eighteenth century ware with a lead glaze to which has been added tin-oxide to produce a very white glaze in imitation of Chinese porcelains. The ware is generally Dutch or English, although French, Italian, Portuguese, and Spanish tin-glazed wares were also manufactured.

The most common decorations include cobalt blue painting (occasionally red, yellow or green also occur) and a purple or manganese splatter, although undecorated vessels were also produced. Decorative motifs included geometric, floral, landscape, figures, and Chinese designs (Shlasko 1989).

Cushion indicates that, like slipware, the bulk of the delft until sometime in the eighteenth century was utilitarian, intended for the table, a view also expressed by Noël Hume (1978:13, 25) who describes delft as a "modestly priced ware." By the eighteenth century some merely decorative forms appeared. Additional research suggests both vessel forms and decorations may be temporally sensitive.

Utilitarian Wares

El Morro is a coarse, lead-glazed earthenware – probably often called by others simply lead-glazed earthenware. Although uncertain, it is suggested that the ware originated in either Havana, Cuba or Puebla, Mexico (Deagan 1987:50-51) and was probably introduced as storage vessels.

Similar, but coming from England, is the North Devon gravel tempered ceramic. The North Devon wares have a pink body, often with gray core, and are immediately recognized by the large quantity of gravel temper. They have an interior light-brown to green lead glaze and Noël Hume (1978:133) notes that their forms are limited to creampans, jugs, and jars.

Buckley wares are usually identified by a hard, brick-red earthenware paste made by combining red and yellowish or white clays, often visible in cross-section. Generally, the darker clay predominates. Vessels are usually thick, often with ribbed exteriors, and generally glazed with a thick black lead glaze. This glaze may be found on only interior surfaces (bowl forms) or on both surfaces (typical of storage jars). A red slip may also be present.

Creamware and Pearlware

Creamware was developed or refined (not invented) by Josiah Wedgwood in the 1750s and was considered to be a revolution in the industry. Wedgwood was able to provide a fine glazed ware at a relatively inexpensive price. Originally called cream-colored ware, when Queen Charlotte, wife of King George III, became a user of it, Wedgwood began calling his cream-colored product “Queens ware.” Soon replicated by a number of other potters, the dominance of this cream-colored ware dealt a death blow to the older tin-glazed delft and the white salt-glazed stonewares – “rejected from genteel tables” (Collard 1967:105; see also Cohen and Hess 1993:31).

Peter Walton notes that there are four major decorative styles for creamware — colored glazes (including many molded examples and some of the so-called "clouded wares"), enamel hand painting, transfer printing, and slips (Walton 1976:73). The transfer printed wares, beginning perhaps as early as 1761, were printed in either an Indian-red, black, or lilac enamel. Subjects

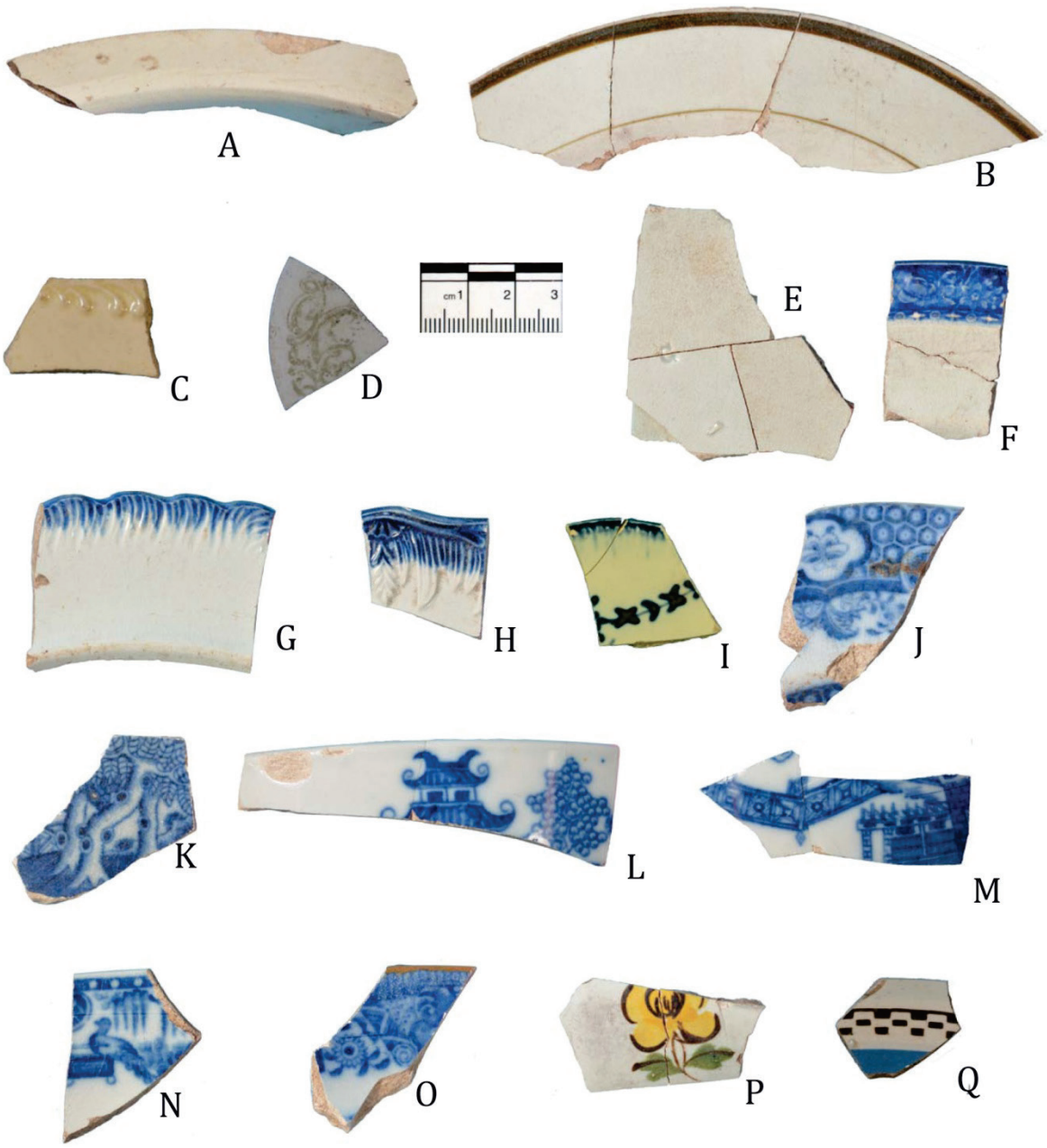

Figure 97. Creamwares and pearlwares from Kendal. A. undecorated creamware rim, probably chamber pot; B. polychrome creamware (brown bands at plate rim); C. undecorated creamware, feather edged; D. transfer printed creamware; E. undecorated pearlware showing "G" imprint on base; F-H. blue edged pearlware; I. transfer printed and blued edged pearlware; J-N. blue transfer printed pearlware (chinoiserie patterns); O. blue transfer printed pearlware with painted rim; P. polychrome handpainted pearlware; Q. banded annular pearlware.

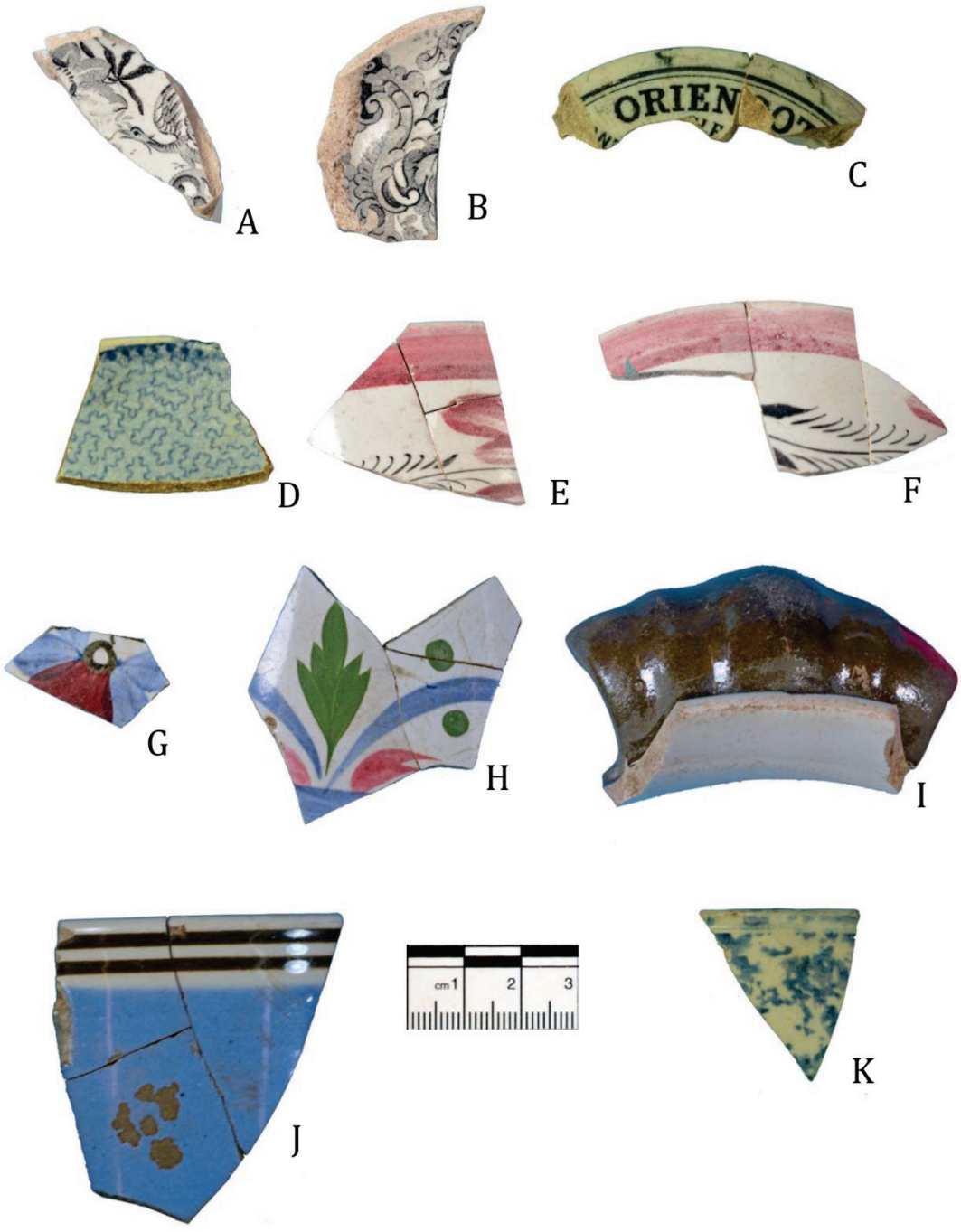

Figure 98. Whitewares from Kendal. A-C. black transfer printed whiteware; D. blue transfer printed whiteware; E-I. polychrome handpainted whiteware; J. annular whiteware; K. sponged whiteware.

included pastorals, coats-of-arms, figures, landscapes, birds, and flowers (Cushion 1976:88). There is also a scratch blue decoration, similar to that found on white salt glazed stoneware, although of course on a creamware paste (Noël Hume 1969:128).

The conventional wisdom is that pearlware "replaced" creamware. Cohen and Hess (1993:31) note that Wedgwood added cobalt frit to the glaze and greater proportions of white clay and flint in the paste than creamware. Yet others, such as Collard (1967:109) emphasize that Wedgwood did not develop the ware to any extent – an issue that is dealt with at length by Miller and Hunter (2001). They note that potters had developed "China glaze" by the last half of the 1770s (perhaps a little earlier) – clearly in response to a market glutted by the production of creamware and the resulting falling prices. Josiah Wedgwood himself wrote that "from the moment a finer ware than the Cream-color is shewn [sic] at our Rooms, the sale of the latter will in great measure be over" (quoted in Miller and Hunter 2001:150-151).

Nevertheless, Miller and Hunter (2001:154) argue that pearlware didn't simply "replace" creamware; rather, they suggest that *decoration replaced creamware*. Most of the creamwares being sold were undecorated (although as discussed above, some decorations were present). In contrast, pearlware is almost never undecorated.

Miller and Hunter explain that while creamware was fashionable for over two decades, it was produced at a price that made it available to the middle classes and that its production actually cut dramatically into the sale of porcelain. The blue-painted chinoiserie patterns of the pearlware manufacturers were those that English porcelain potters had been using at least 20 years earlier, but were abandoning because of the fierce competition of the new "China glaze." They also suggest that "China glaze" be specifically limited to those blue-tinted glaze earthenwares, decorated in Chinese-style patterns, copying Chinese vessel forms, and produced from about 1775 to 1812 (Miller and Hunter 2001:157). While this practice doesn't seem to have been picked up by many archaeologists, it does help us to better understand assemblages.

Agatewares

Agateware fabric consists of two or more colored clays and the veined and mixed paste was the primary decoration found. A clear lead glaze was applied over the paste.

The English production of agate ware didn't begin in any quantity until the second quarter of the eighteenth century, reaching its height of popularity by mid-century. It seems, however, to be found on American sites spanning the period from the 1770 through 1780s (Erickson and Hunter 2003:90-91). Although mugs and bowls were made, teawares were the most common forms.

Whitewares

The difficulty distinguishing between whiteware and ironstone has been discussed by South (1974:247-248), who uses an "ironstone-whiteware" category, and Price (1979:11), who uses a "whiteware" category which includes ironstone. Both researchers point out that differentiating between whiteware and ironstone using vessel hardness (or degree of vitrification) is an uncertain or even invalid approach (cf. Worthy 1982). For the purposes of this study, whiteware will encompass both categories of ceramics.

Yellow Wares

Yellow ware, distinct from the yellow-glazed earthenwares of the eighteenth century, is a simple kitchen and tableware with a buff or yellow paste and a clear glaze (Ramsay 1947:7). This ceramic was made from primarily New Jersey and Ohio clays that, when fired, take on a dark yellow color. Sometimes wheel-thrown, it was more often mold-cast, with the subsequent application of an alkaline glaze to intensify the yellow color. Best known are bowls, often with decorative color bands of white, blue, and black decoration.

Red Wares

Redware is an early form of low fired earthenware made from red colored clays. Glazes may be on one or both surfaces. or absent. Redwares were locally produced during the entire seventeenth through nineteenth centuries and are therefore difficult to date. In Pennsylvania redware production began in 1780 and continued to 1904 (Lasansky 1979:6). Border wares are a type of buff ware produced in England.

Container Glass

The olive green glass (appearing black in reflected light) fragments are typical of wine or ale bottles. Bottle fragments with thicker walls, gentle lines, and kick ups are attributed to champagne, wine, or brandies, while those with thinner walls, pronounced shoulders, and flat bases are characteristic of stout or ale. Jones and Smith, However, warn such containers "were probably multipurpose containers used to contain any of the alcoholic or non-alcoholic beverages as well as other items such as vinegar, linseed oil, or any substance sold in quantities over a pint and under a gallon" (Jones and Smith 1985:13).

There are, however, additional differences with temporal importance.[13] Barrelet (1953:102) describes the French wine bottle of early eighteenth century as being "onion-shaped." Noël Hume's (1961: 99-100) wine bottle typology calls this the "squat form" and dates it from about 1685 to 1730. These bottles have short, globular bodies with broad bases and kick ups. Necks are tapered and finished simply with a racked-off lip and applied string rim, possibly down-tooled on English bottles (Harris 1975). [14]

During this early period wine was commonly purchased and stored in barrels and the wine bottles were merely used for decanting and serving at the table (Price 1908:116; Leeds 1914:290). However, during the first half of the eighteenth century it gradually became common to bin wine bottles, first upside down and later on their sides, in order to keep the corks damp (McKearin 1971:125, 127). This required a change in bottle shape since the "onion" bottles could not be stored in this fashion. From 1740 to the 1760s, the commonest "wine" bottle style was characterized by a short, wide cylindrical body. The string rims were flattened, downtooled, or V-shaped and the lip was usually cracked off and fire polished (Jones and Smith 1985:14). Beginning in the 1760s the English "wine" bottle started to have a taller and narrower body and a longer neck, resulting in a taller bottle. Two visually distinct styles, the wine and beer, developed.

Between 1770 and 1800 wine bottles evolved into what Noël Hume (1961:105) calls the "evolved cylindrical form." The body became tall and slender with a much smaller basal diameter than before (and smaller than beer forms). The neck became longer and more cylindrical and was often bulged in the middle. Additional glass was sometimes used to form the lip and the string rim, making finishes generally larger and more varied in shape (Harris 1975).

Jones and Smith also observe that French wine bottles are characterized by a tapered body and sloping shoulder during the mid-eighteenth century. Finishes tend to be crudely made (Jones and Smith 1984:22).

Some of these wine bottles also exhibit seals, usually placed at the shoulder. These seals were most commonly round and might identify an individual, a tavern, merchant, or a vintner. Shortly after being blown, a small wad of molted glass was placed on the still-warm bottle and a brass die was used to stamp the glass (Dumbrell 1983).

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[13] Others argue that the "development of English glass bottles from the 1640s to the 1740 can be defined into six types. The first and earlies is the 'shaft and globe' bottle, followed (chronologically by a steady design evolution into what is now classified as the 'onion', 'bladder onion', 'mallet', and 'cylinder' or 'cylindrical shape' . . ." (Jeffries and Major 2015:132).

[14] Even still wine bottles were sealed with a cork tied down with wire wound over the top and then fastened below the lip (Jones and Smith 1985:13).

Figure 99. Examples of "black" glass from Kendal. A-I. Neck and shoulder forms; J. octagonal bottle; K. cylindrical bottle with kick-up; J. case bottle; M-O. Roger Moore bottle seals; P. bottle seal with the negative impression "_TCHOFFMA _".

Figure 100. Examples of container glass from Kendal. A-C. hand applied lips on aqua glass bottles; D. hand applied lip on clear glass bottle; E-G. hand applied lips on brown glass bottles; H. fragment of a blue glass bottle base.

In their study of London wine bottle seals, Jeffries and Major (2015:133) have identified two forms: those associated with taverns and those which they identify as "gentlemen's or private individuals bottles." [15] Both are found in about equal proportions in London collections.

Seals were a sign of status and Dumbrell (1983:152) reports that sealed bottles cost up to 5 p. extra per dozen, not including the cost of the die. White and Beaudry (2009:218) suggest that seals with an owner's full name, being rarer than bottle seals with only initials, may have carried special importance, further reinforcing and reaffirming the masculine, patriarchal identity of the owners.

Jeffries and Major provide yet another reason for marking bottles, suggesting that it illustrates the "importance of the take-out trade to taverns and alehouses, and how the new medium of glass bottles enabled drink to be easily transported from these premises, and taken back for refilling; thus gentlemen's or private individuals bottles represent vessels meant for private and domestic use" (Jeffries and Major 2015:146).

South (2010:90, 106) reports the discovery of wine bottle seals impressed with "W Dry Cape Fear 1766" at multiple locations in Brunswick. Dry was a merchant and his seal was likely viewed as advertising. The *Culture Embossed* database of wine bottle seals held by the Council of Virginia Archaeologists lists only one other location in North Carolina where seals have been identified. A site in Carteret County has produced seals stamped, "Jervis White 1739."

So-called "case bottles" were square-sectioned bottles blown in dip molds manufactured as early as the first half of the seventeenth century in England. They apparently preceded circular bottles as containers for wine (Noël Hume 1969:33). With the development of strong circular bottles they became less common, only to reappear in the eighteenth century when they were used as containers for medicines, blacking, and gin.[16]

Case bottles from the eighteenth and early nineteenth centuries are recognizable based on the taper from shoulder to base, horizontal shoulders, and short necks. Finishes were simple, typically only an applied lip or collar. Bases were concave, resulting in a four-point bearing surface (Harris 1975). The style remained the same until the early 1800s when the use of hinged moulds increased (Toulouse 1969a: 535).

The green and light green glass collection appears typical of non-alcoholic soda (and possibly mineral) water.

Pharmaceutical bottles are characterized by fragments of small, thin-walled vials of clear, light green, or aqua glass. Also included are ground glass stoppers unless they are so ornate that they are more likely associated with decanters of clear or leaded glass.

Clear or aqua panel bottles probably contained proprietary or "patent" medicines and were first introduced in England shortly after Robert Turlington patented his well-known cure-all, "Balsam of Life," in 1744 (Harris 1975). While these concoctions frequently contained a high percentage of alcohol, Wilson notes that it would be a mistake to assume these preparations were primarily consumed for their alcohol. He notes that nineteenth century living conditions were such that there were a "plethora of fevers and aches" to which proprietary medicines were routinely applied (Wilson 1981: 39). That these "medicines" were frequently used as intended is evidenced by Cramp (1911, 1921, 1936). Those

[15] Bottle seals are largely male-gendered objects, although Jeffries and Major (2015:150) note that at least two London seals were commissioned by women. Consequently, they acknowledge that the reference to "gentlemen's bottles" is anachronistic and a better term might be "private individual's bottles."

[16] Gin, distilled from grains and flavored by the addition of juniper berries and other aromatics, was the drink of the English lower classes during the first half of the 18th century (Sullivan and Smith 1985:11).

lacking lettering likely predate 1867 (Lorrain 1968:40).

Brown glass is often associated with bitters. Bitters, as a product, are only a step away from the proprietary medicines of the nineteenth century and they claimed to cure a number of illnesses. Bitters were made from a variety of botanical substances, aromatic flavorings, alcohol (up to 40%), and occasionally sugar (Wilson 1981:24).

Wines

Many of wine bottles likely held Madeira wine from the Portuguese islands by the same name. From as early as the 1500s Madeira was imported into Europe. British ships began stopping there to take on wine, water, fresh food, and ballast. Pipes (casks of 95 gallons) were taken on board to be sold at American ports such as Charleston, Savannah, and Baltimore. Tuten comments that, "unlike every other wine, which would have been bruised by the thousands of miles of rocking in the super-heated ship's hull as it sailed down into the tropics, Madeira became dramatically improved" (Tuten 2008:57). Not only did the trans-Atlantic shipment mellow the wine, but Madeira, fortified by the vintners with brandy, also held their quality for decades or even centuries.

Jones and Smith (1985:9) identify Madeira in Canada as old Sterling from 3 to 5 years old, Particular and London Quality, London Particular, London Market, New York and Cargo, and India Market. Thomas (2007:140) mentions Memsey, Malmsey, or Malmsea Madeira.

Port was another common red wine from the Douro valley in Portugal. During the eighteenth century it became a favored wine of English gentlemen and by 1800 virtually all Port was fortified with the addition of brandy. This made the wine much sweeter and stronger in alcoholic content than the original. While still largely sold in barrels, some was being bottled and allowed to mature, although Sullivan and Smith note that "even in the 1790s much port was drunk that was only a year old" (Sullivan and Smith 1985:9).

Claret is a generic term for clear red wines, typically from the Bordeaux region of France. In spite of trade restrictions, claret was readily available both in England and America (Jones and Smith 1985:9, Thomas 2007:140).

Champagne had by this time acquired the reputation of being a "special occasion" wine. It would be still or sparkling, white or red.

A number of other wines are mentioned by Thomas (2005:140) including Sherry, a fortified golden wine from Portugal.

The Ritual of Wine Drinking

Smith observes that "alcohol drinking is an art" and that societies around the globe "have devised complex rules to govern where, when, how much, and with whom one can drink" (Smith 2008:135). In exploring the context of drinking, Smith repeats work by both Donald Horton and William Rorabaugh (Smith 2008:3-5). The former suggested that "an unpredictable existence leads to anxieties that are ameliorated by regular bouts of excessive drinking,", while the latter has argued that "excessive drinking in the early American Republic stemmed in part from the anxieties caused by the rapid pace of economic growth and the inability of Americans to live up to the revolution's ideals of individualism and independence" (Smith 2008:4-5; Rorabaugh 1979:174).

Thomas has a slightly different focus, explaining that, "gentlemen considered wine drinking a serious sport with a detailed protocol that included the necessary possession of elaborate accessories associated with wine's consumption" including not only the wine, but decanters, glasses, wine coolers, coasters, funnels, strainers, and other paraphernalia (Thomas 2007:1, 96). Knowledge of wine and its proper handling, as well as possessing wine,

> was a strategic way for the English or American gentleman to demonstrate his worthy place in a higher level of society. He successfully distanced himself

> from those below him by creating an atmosphere that could not be replicated by the lower classes for both lack of funds and for lack of the social and cultural knowledge necessary for achieving the desired effect (Thomas 2007:46-47).

Thomas goes on to observe that the wealthy filled "their elaborate houses with frivolous objects in order to truly separate themselves from ordinary people" (Thomas 2007:62). As mentioned earlier, she believes that wine drinking among men was the equivalent to the tea ritual among women in eighteenth century society.

Tableware Glass

By the late 1670s a glass of potash-lead-silica composition, usually called just leaded glass, became the common medium for English table glass. Leaded glass is colorless, heavy, and lustrous. McNally notes that during the nineteenth century leaded glass came to "be accepted as the standard of crystal ware for the bourgeois table" (McNally 1982:11). Nevertheless, soda glass continued to be made many years after the introduction of leaded glass. Gabriel suggests that not only did the smaller manufacturers continue to use soda in order to avoid taxes, but soda also offered an inexpensive alternative to the costlier leaded glass (Gabriel 1974:15). Another technique used to escape taxes was to establish glass houses in Ireland. Gabriel notes that glass was exported from Ireland to the America in large quantities between 1780 and 1825 (Gabriel 1974:10), although with free trade glass was also imported from Germany, Italy, and the Netherlands (Thomas 2007:90).

Thomas contends that wine glasses had their long stem to distance the wine from table, "giving the liquid an unusual importance" (Thomas2007:90). Moreover, it was thought that the small, vase-shaped opening enhanced the color and brightness of the wine.

Pontal marks, the scar left by the iron rod attached to the base of a blown glass, were not ground out before 1750. After this, grinding became more common and by the end of the eighteenth century all good glass was polished to remove the scar (Gabriel 1974:10).

During the early eighteenth century the most common stemware was the elaborate knopped baluster. During the 1740s, new decorative forms appeared, including the air twist, opaque twist, incised twist, and facet cut. Plain drawn stems remained popular throughout the eighteenth century, but they became shorter and slighter in weight during the last quarter of the century. There was also a marked increase in engraving and cutting about mid-century (Jones and Smith 1985:38).

Glassware was often described in invoices and inventories either by appearance, such as "plain," "neat," "enameled," or "cut," or by the type of wine the glass was intended to hold, such as "claret" (Thomas 2007:90). The latter terminology should be viewed with caution since Jones and Smith (1985:35-57) were unable to identify any direct relationship between the type of drinking glass and its particular alcoholic function.[17]

The most common decoration was engraving, which was done using several techniques, including diamond point engraving, often in Holland on glassware of English origin. Both lines and stippling were used. Wheel engraving was conducted by holding the glass against a revolving wheel. The finished design would be frosted in appearance, but was polished after about 1740. Cutting was developed in England and generally consisted in geometric designs, such as panels, flutes, and miters (Jones and Sullivan 1985:55-56).

Painting is another decoration

[17] Examples of advertised glasses include dwarf wines, Spanish wines, half-pint glasses, ale and beer glasses, brandies, ciders, drams, flutes, gills, goblets, hock glasses, rummers, wines, wine and waters, clarets, Champagnes, cordials, and liqueur glasses (Jones and Smith 1985:38).

occasionally identified. It consists of oil paints applied to the glass and then heated to fuse the colors. This technique required glass with a relatively high melting point, so it is found more often on lime than leaded glass (McNally 1982:18). Gilding was not fired onto glass, but was applied in a mixture with a water-resistant cement (McNally 1982:18). Gabriel (1974:11) notes that gilding was not particularly popular on English wares until the middle of the eighteenth century and since the technique was not well developed, the gilding tended to wear off.

A common form of glassware decoration involved inclusions. A common air bubble decoration is the air tear, found in eighteenth century glass. Air twists, typically in stemware, often in single or double series. These are generally English, dating between 1740 and 1740. They were called "worm'd" glass in contemporary accounts (Thomas 2007:90). Opaque twists use canes of opaque glass rather than air and were popular between about 1750 and 1780 (Jones and Sullivan 1985:50). They created spiral and gauze designs within the stems.

Tumblers were typically used at the same table as stemware and how the two were used is not really clear. Moreover, tumblers tended to be more expensive than stemware (although wine glasses were socially and aesthetically superior). This initially seems counterintuitive, but glass was sold by weight and tumblers were typically far heavier than stemware (Jones and Smith 1985:34).

During the second half of the eighteenth century, the usual tumbler form was conical. By the early nineteenth century a cylindrical form appeared. Also in the nineteenth century tumblers with low, wide cylindrical bodies appear. Most tumblers were plain, but decorated specimens were pattern molded, engraved, cut, or (very rarely) gilded. Perhaps the most common decoration was pattern-molded flutes, which on bases appear as ribs (Jones and Smith 1985:36).

There are a variety of tableware forms, including bowls (deep, open vessels using for serving food or holding water; if decorated, these were usually pattern molded or rarely engraved), carafes and decanters (which may be easily confused), dessert glasses (often footed vessels with tall slender bowls or stems resembling those found on stemmed drinking glasses), stemware (drinking glasses with a foot, stem, and bowl), and tumblers (typically with flat or shallow concave bases, plain rims, and circular horizontal cross-section (Jones and Sullivan 1985:127-145 provide an excellent overview of forms and terminology).

Utensils

By 1729 La Salle prescribed rules for polite dining,

> At table you ought to use a napkin, a plate, a knife, a spoon, and a fork. It would be totally contrary to politeness for you to fail to use any of these things while eating (Wright 2007:61).

Plates were to be used rather than a trencher. Knives were no longer used to transfer food to the mouth and hands no longer made direct contact with food. These new utensils began appearing among the wealthiest about 1720, but rapidly spread to less affluent groups by the 1740s. Similar rules were transcribed by George Washington (1971), including an admonishment not to use one's fingers nor convey food to the mouth with a knife. The increasingly complex rules of civility were intended to create and support a disciplined and stratified society (Shackel 1992:209).

Noël Hume (1978:177-178) describes the gradual evolution of the knife, noting that as forks began to be used, the spearing knife was replaced by a square-ended knife in the third quarter of the seventeenth century. During the last quarter of the seventeenth century knife blades became slightly

Figure 101. Tableware glass from Kendal. A. plain drawn stem; B. air-twist stem; C. engraved stemware; D-H. tumbler bases; I. fluted tumbler; J. blown in mold bottle with pontal scar, possibly a carafe.

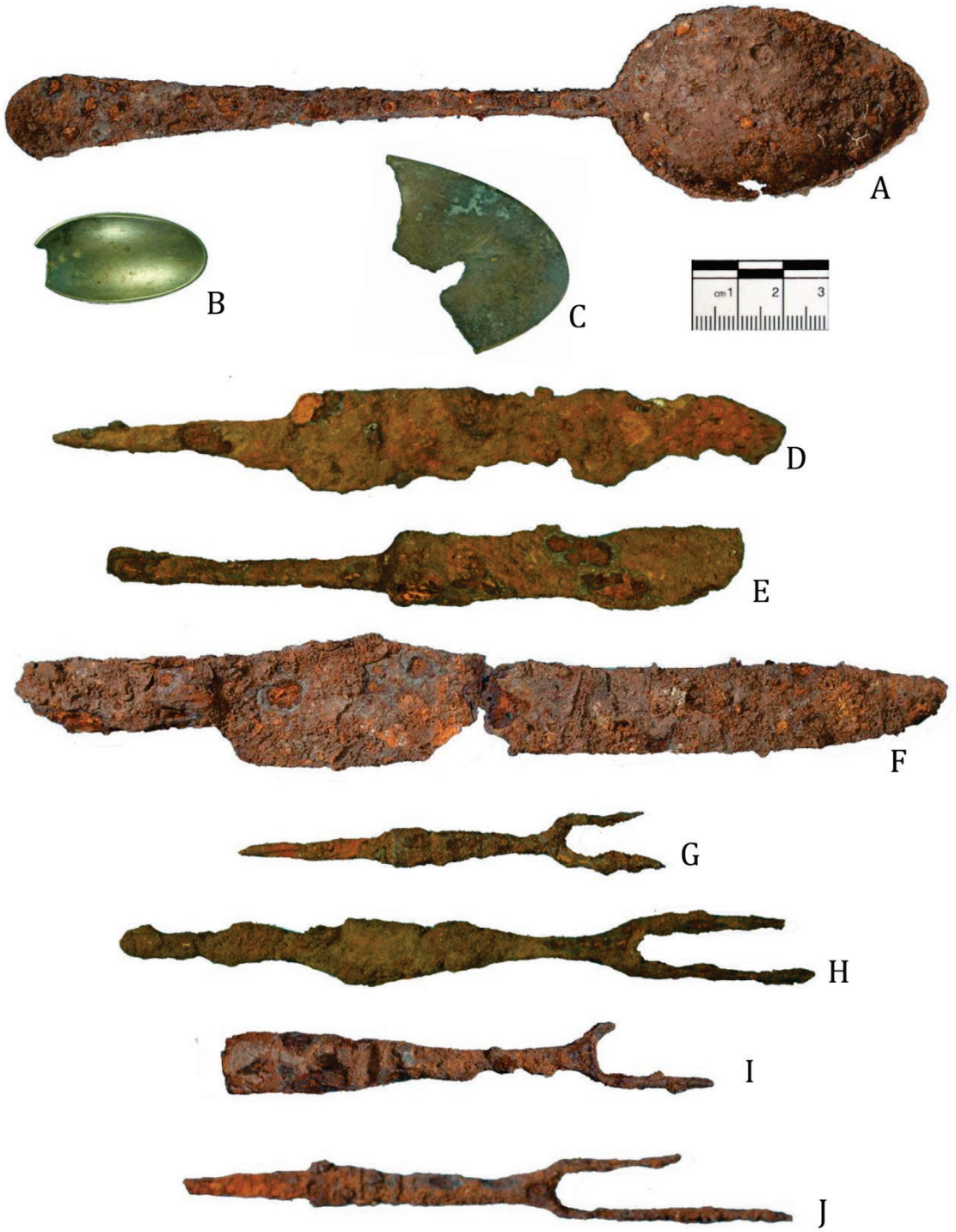


Figure 102. Examples of utensils from Kendal. A-C. spoons (B. white metal, C. brass); D-F. iron knives; G-J. iron forks.

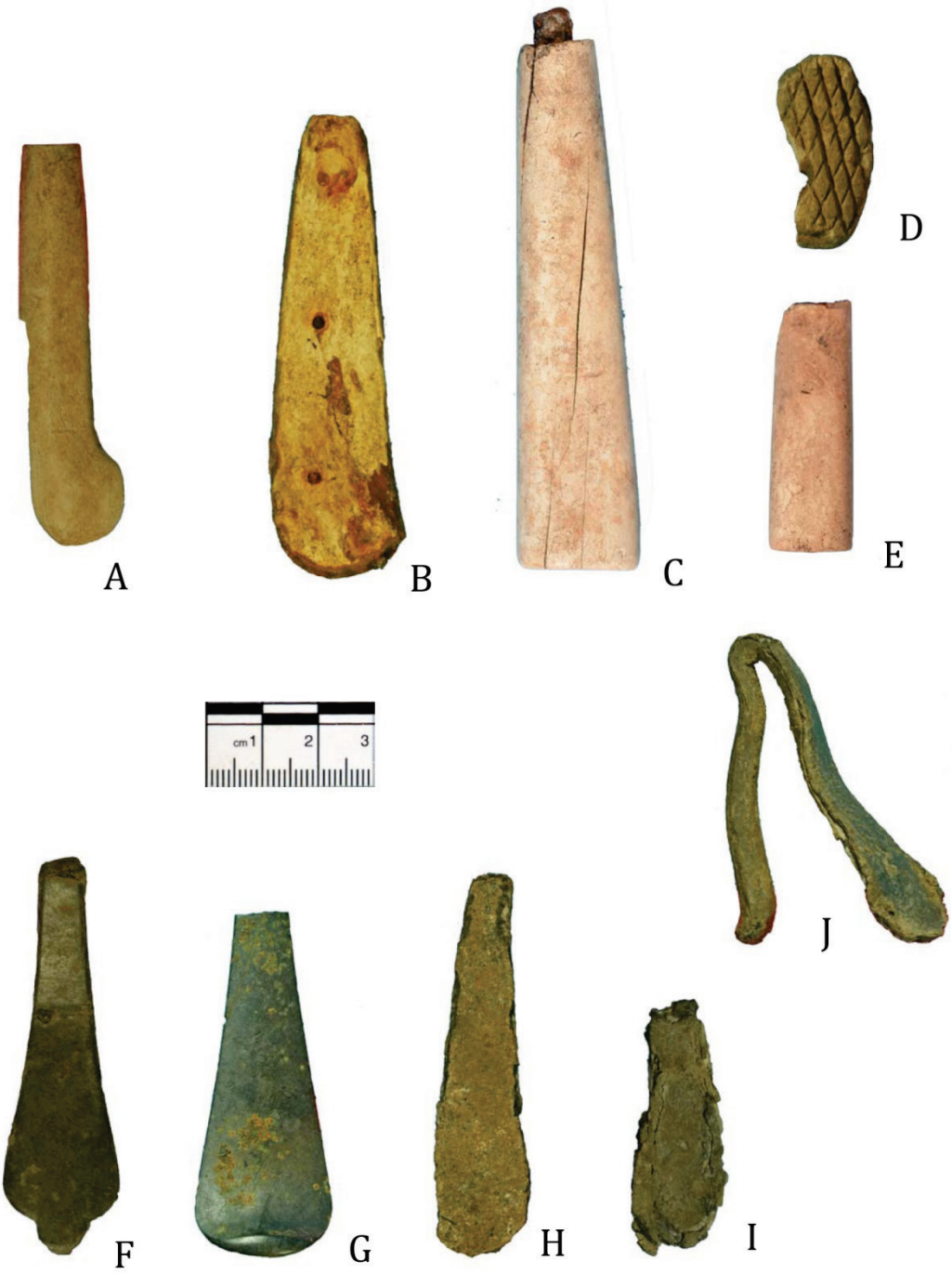


Figure 103. Examples of utensil handles from Kendal. A-E. bone handles (B and D show iron rivets; D shows cross-hatch incising); F-J. pewter handles (F is a trifid terminal).

concave at the back and proportionally convex along the cutting edge. The rounded end became more bulbous. At the beginning of the eighteenth century he reports that blades acquired a "dorsal ridge about a third of the way along the blade, which gave it the appearance of a round-ended scimitar" (Noël Hume 1978:178). Handles during this period began curving down into what has been described as a "pistol grip," a style that lasted until about the mid-eighteenth century.

Two tined forks are common from the last quarter of the seventeenth century until the beginning of the nineteenth century (Noël Hume 1978:180). In the second half of the eighteenth century the two-tine variety overlaps with a newly introduced three-tine fork with a wider-shoulder. Fork handles are similar to those of the knives they accompanied, although smaller.

Many knives and forks had bone handles, sometimes plain, often incised.

Iron, pewter, and brass spoons followed the same forms as silver examples, although Noël Hume suggests there was a time-lag. Up until the mid-seventeenth century spoon bowls were fig-shaped with stems that were rectangular in section. After this spoons became more oval in shape. Terminals were trifid and there was a spinal rib reinforcement down the back of handle, known as a rat-tail. By about 1710 the bowl had taken on an egg-shape and by 1715 the trifid end was lost, being replaced by a rounded, upcurling spatula, usually thickened on the edges. By the second half of the eighteenth century the bowl became more pointed and the stem terminal turned down, rather than up. In the third quarter of the eighteenth century, continuing throughout the nineteenth century, there was a widening of the stem to provide two small, ear-like projections above the bowl (Noël Hume 1978:183).

While utensils might initially have been used as odd-lot assortments, by about 1760, matching sets of knives, forks, and ceramics become common in archaeological contexts (Bedell and Scharfenberger 2000:37). It is suggested that this effort to establish consistency extended to dining room chairs and other objects (Carson 1994:505).

Kitchenware

One of the most common kitchenware items are kettle fragments. Iron kettles were designed to either hang over the fire, if the weight could be supported, or to actually sit in the coals of the hearth (Feild 1984:93). By the eighteenth century the kettle was firmly established in kitchens and, being costly, would be "passed down from generation to generation and were highly valued" (Lantz 1970:15). By the late nineteenth century kettles, at least in urban areas, were on their way out of fashion, being replaced by the iron stove and more manageable pots (Lantz 1970:31). This decline is clearly evidenced when period catalogs are examined. For example, in the mid-nineteenth century there were two full pages of different types of iron kettles (Russel and Erwin 1980 [1865]:392-393), but by the end of the century, they had been reduced to but one entry with seven different sizes (Israel 1968:130). In spite of this gradual decline in popularity, it seems likely that kettles continued into use well into the first several decades of the twentieth century.

Colonoware Pottery

Originally called Colono-Indian ware by Noël Hume (1962) from the Virginia tidewater, he attributed it to Native American trade with early Virginia settlers. Since that time Henry (1980) has provided a detailed analysis of this low fired earthenware in the Chesapeake area of Virginia, recently supplemented by Veech's (2013) examination of colono from northern Virginia. In Virginia this pottery is found in the seventeenth century, but diminishes rapidly in the early nineteenth century.

Colonoware was also recovered from the Caribbean, where it began in the eighteenth century and is still made by some African groups in the area. It has been suggested that the "migration of people from the Caribbean to South Carolina may have helped stimulate the development of colonoware" (Chodoronek 2013:60). This view is further supported by Hauser and Decorse, who comment, "what unifies

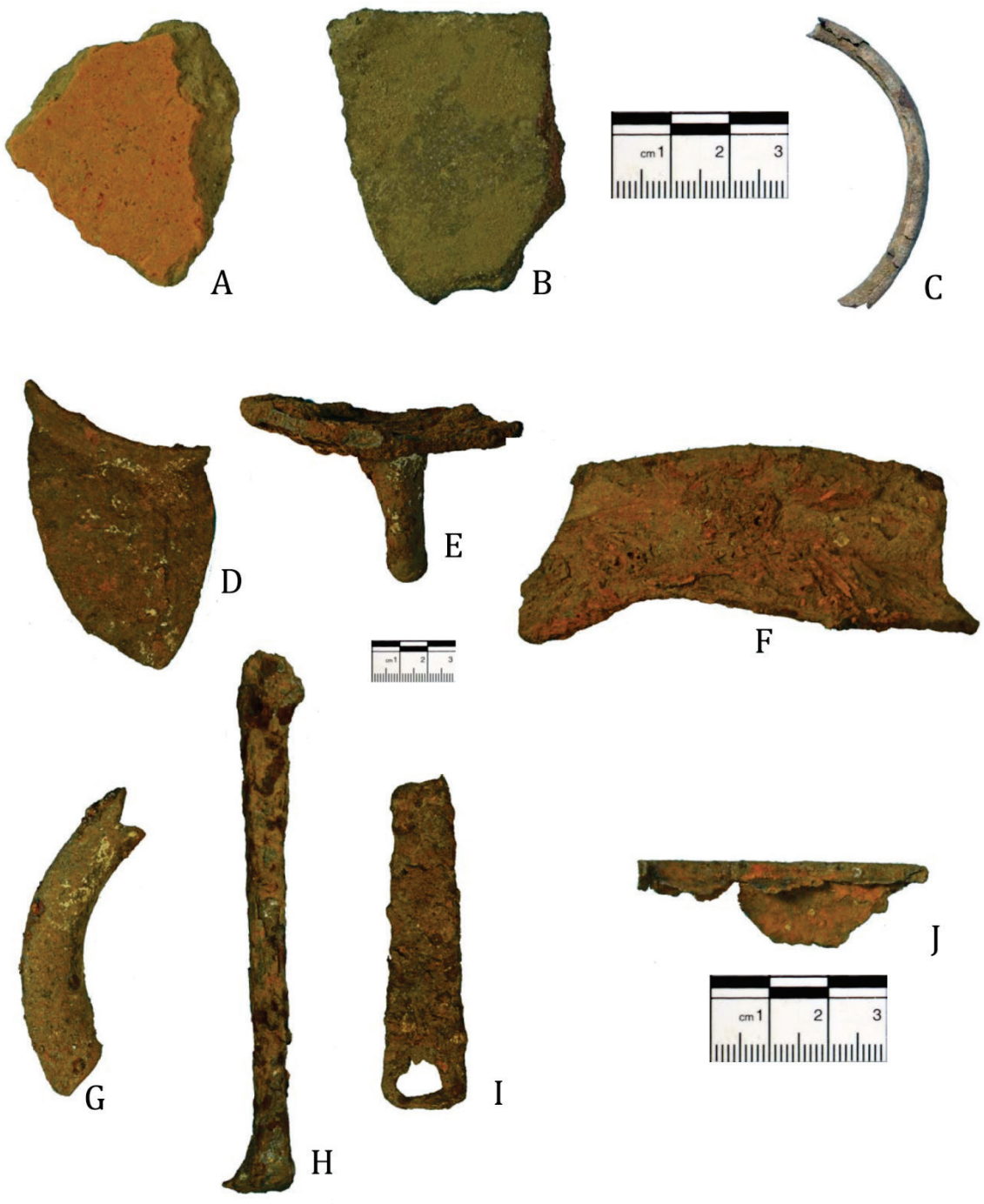


Figure 104. Colonoware and kitchenware items at Kendal. A-B. colonoware pottery; C. rolled brass cup handle; D, F. iron kettle rims; E. iron kettle base and foot; G. iron kettle spout; H-I. pot/pan handles; J. sanitary can lid seam.

this disparate group of ceramics is not method of manufacture, design and decoration, or even form and function but the association or potential association with African diaspora populations" (Hauser and Decorse 2003: 67).

In the South Carolina lowcountry it is found in the early eighteenth century, but declines by the nineteenth century. There are a number of studies and descriptions of South Carolina Colono wares including Anthony (1986), Ferguson (1980, 1989, 1992), William Lees (1980), William Lees and Kathryn Kimery-Lees (1979), and Thomas Wheaton et al. (1983). More recent studies include Anthony (2002, 2009, 2016), Joseph (2004), and Espenshade (2008), to name just a few.

Several of the typologies resulting from this work are summarized in Table 30, but clearly they continue to be in a state of flux and are often difficult to apply given the variety of qualitative statements and overlapping data. Perhaps, as Richards has noted, "the inherent nature of Colono ceramics does not lend itself to fostering consensual views and interpretations" (Richard 1998:117). He goes even further, "by failing to acknowledge the essentially fluid nature of ethnic entities and the dynamic contours of their borders, "traditional" typologies become meaningless conceptual boxes which help perpetuate "static" approaches to culture and cultural understanding (Richard 1998:125).

One of the primary researchers notes that the types are a "continuum" from Yaughan to River Burnished in terms of finishing and the quality of production (Anthony 1986:7-28 – 7-30). A similar view was offered by Crane, who found colono from the Heyward-Washington House "to be different ends of a continuum, rather than two distinct, and mutually exclusive types" (Crane 1993:81).

The North Carolina literature, perhaps because colono is far less common, does not offer as many typological details. Richard does question South's Colono-*Indian* interpretation of the Brunswick pottery, observing, "the problem here was that instead of questioning the validity of his interpretation in front of glaring historical evidence, South chose to follow Noel Hume's conclusions uncritically and to accept the hypothesis of Indian manufacture at face value" (Richard 1998:154).

An early re-assessment of South's original discussions of Brunswick colono wares (where colono represents 1.03% of the ceramic assemblage), reported that both slab and coiled pottery was present, surfaces ranged from smoothed to polished to burnished, and poor firing control produced primarily reduced sherds (Loftfield and Stoner 1997:7-8). The paste was reported as very fine with little variation and a compact texture. Rims are "crudely" rounded or flattened and sherds 6.25 mm in thickness. Bowls (9-23 cm in diameter) and jars (11-14 cm in diameter) are the most common vessel forms (Loftfield and Stoner 1997:8-10; see also Richard 1998:169-170). Richard suggests that, "Brunswick Town' s handbuilt materials compared poorly with the Charleston pool of Colono Ware data" (Richard 1998:176).

Loftfield and Stoner observe that the Brunswick Colono wares were "limited to a few discrete loci within the excavated area of the town" (Loftfield and Stoner 1997:9). Most came from cellars (where we might assume enslaved Africans would work or be housed). Loftfield and Stoner (1997:11-12) note that the enslaved Africans around Brunswick lived in isolation from Europeans and this isolation caused Colonowares to "be produced and used" in "significant quantities." This conclusion will be examined in the context of Kendal Plantation. These findings are disputed by Richard, who instead reports the,

> quantities of Colono pottery and numbers of slaves associated with the contexts of retrieval bespoke no correlation whatsoever. No relationship between the function of building, slave workers and Colono pottery seemed to exist either. The compiled data showed virtually no trend, and was totally chaotic

Table 30.
Attribute Summaries for Various Colono ware Types

	Wheaton et al. 1983		Anthony 1986, 2002, 2009			Joseph 2004				Loftfield and Stoner (1977) and Richard (1998)
	Yaughan or Colonoware	River Burnished or Catawba	Lesesne Lustered	Yaughan	River Burnished	Colonial Burnished	Lesesne [Lustered]	River Burnished	Yaughan	Brunswick (Plain & Burnished)
Thickness	Average 7.25 mm thick up to very uneven on individual vessels and even single sherds.	Average ±5 mm thick; 11 mm regular and even.	3.9-11.0 mm. Thicker than River Burnished; more uniform than Yaghan.	4.2 - 16.0 mm.	4.0 -8.6 mm; 3 to 7 mm.	2.5-6 mm.	4-8 mm.	2.5-5 mm.	5-14 mm.	Sherd thickness averages 6.25 mm ± 11 mm.
Form	Generally open incurving bowls and small flared mouth jars, lips were crudely rounded, or flattened with a finger or stick.	Generally straight sided, open, outflaring bowls, and small well-made jars, lips were tapered and well finished.	Necked and neckless jars, bowls, cups, bottles, multipodal vessels. Straight or slightly convex sided with slightly rounded to almost flat bottoms. Distinctive bulbous lip.	Bowls, necked jars, cups, pans, plates, bottles, chamber pots. Convex-sided, rounded to slightly flat-bottomed bowls and both large and small globular jars with everted rims and gently rounded bottoms.	Bowls, necked jars, cups, multipodal vessels, possible chamber pot. Vessel shapes include straight sided flat-bottomed bowls and pans, unrestricted bowls, and relatively straight/vertical necked jars.					Bowl and jar forms. Rims are crudely rounded and flattened, perhaps with a finger or stick.
Body/Paste	Wide variation in size, amount and type of non-plastics, generally various water-washed sands, oxidation was usually not complete, leaving a dark core.	Limited variety of nonplastics, generally fine particle size and completely oxidized or completely reduced.	Fine, medium, and coarse. Incompletely oxidized, oxidized, and reduced. Fine to medium coarse paste, and, at times, virtually temperless. Not as well-fired as River Burnished.	Fine, medium, and coarse. Incompletely oxidized, oxidized, and reduced. Elsewhere medium coarse paste with fine to medium sand.	Fine, medium, and coarse. Incompletely oxidized, oxidized, and reduced. relatively hard, very well-fired, Generally non-laminar paste which is often micaceous with fine sand.	Fine paste, sand with some shell, grit. Dark brown to black surfaces.	Medium to fine, sand. Medium dark to reddish brown surfaces.	Fine, predominantly sand. Black to dark brown surfaces.	Coarse to medium, sand. Reddish brown to dark brown surfaces.	Very fine-grained, compact-textured clay with no tempering aplastic added and rare inclusions.Usually reduced, with little differential firing between the cores and surfaces of sherds.
Surface	Range from crudely smoothed to polished with obvious evidence of the polishing tool, generally interiors of bowls and exteriors of jars were polished, color ranges from black to dark brown to reddish orange, great variation on individual vessels and sherds.	Usually highly polished on interior and exterior of bowls and wide mouthed jars, polish marks were often evident, color ranges from black to gray to buff, little variation on individual sherds, some vessels were intentionally reduced.	Lustrous, well smoothed, rubbed surfaces with waxy feel; no tooling facets. Elsewhere, burnished or rubbed surfaces that are often not as completely or evenly rubbed as River Burnished vessels, although they often retain a smooth, almost waxy feel.	Crudely smoothed surfaces with grainy texture; no luster or tooling marks.	Lustrous, rubbed surface; conspicuous tooling facets. Well-fired, well-burnished market ware.	Burnished to highly polished. Heavily polished and smoothed to lightly burnished, not highly fired.	Highly smoothed to polished.	Highly burnished. Heavily burnished and highly fired.	Roughly smoothed.	Crude smoothing to high gloss burnishing, with the exterior of jars and interior of bowls generally polished.
Decoration	0.3% had decoration on interior of bowls, including prefiring notched rims, reed punctate, thimble impressed, incised lines; post firing incision in the form of a cross in a square and a circle occurred on the interior bottoms of a few bowls.	3.5% of Catawba had undulating "day-glo" red painted lines on the exterior of jars and the interior of bowls applied after preliminary or final firing of the vessel; occasionally red dots were placed around the undulating line, or around small regular facets taken out of the interior lip; or both.	Finger impressed, notched, nicked lips; paint, slip.	Incised, punctated, possibly cord impressed, possibly stamped.	Finger impressed; painted with luminous designs.	Incision.	Notched rims, red film.	Day-glo paint, impression.	Incision.	Chevron motifs, punctations, and English-derived scalloped incisions.
Method of Manufacture	Bases occasionally coil made and body was hand modeled, poor control over firing temperature and firing time; handles appear to be attached to the surface of the vessel.	Evidence supports hand modeling, but sample is too small for definite conclusions, firing temperature and time were well controlled, reduction when it occurs was intentional, handles had plugs on the end which were inserted in the wall and smoothed from the inside.		Manufactured by hand modeling rather than coiling.						Uneven thicknesses and laminar cross sections were signs of a potential coil and modeling manufacture.

at best (Richard 1998:173).

Madison (2005), describes the situation at Hope Plantation in Bertie County in the northeast coastal area of North Carolina. In the posited slave settlement area the colono wares comprised 54.1% of the ceramics (while European wares accounted for the remaining 45.9%).

Madison notes only that the Colono is slab built, vessel wall thickness ranges from 3 to 11 mm, the pottery is found primarily as hollow form vessels, and three rims are found with the most common being flattened. The other two are both rounded, apparently with differences of how rounded they are (Madison 2005:115-117).

The reason or reasons that Colonoware ceased production have not received much attention. An exception is Espenshade, who comments,

> the newly freed African Americans of South Carolina faced many difficult decisions after emancipation. Those who had been making and using Colonoware before the war chose unanimously to stop. It was not a decision based on economic considerations, and it flew in the face of traditional rituals and foodways (Espenshade 2008:11).

After reviewing, and dismissing, the most common explanations, he suggests,

> this interpretation sees Colonoware transformed from a valued and useful item to a marker of all that was wrong in slavery. This interpretation recasts the final users of Colonoware from the most stringent resistors, nobly holding on to their identity in defiance of the planters, to the misfortunate, who could not recognize the negative symbolism of Colonoware (or who recognized its symbolism, but still needed Colonoware). By this model, those slaves who were still using Colonoware when the war [Civil War] came were immediately educated upon emancipation, and the abandonment of Colonoware was final and complete (Espenshade 2008:11).

Galke (2009) also suggests that Virginia's nineteenth century slaves in Manassas, Virginia used Colonoware out of economic necessity, not as a way to express their ethnicity.

Architecture Group

Window Glass

Flat glass may be either window glass or mirror glass and often the two cannot be distinguished from each other unless some remnant silvering remains. One other distinction is that mirrors may be made from plate glass, which because of its production expense was rarely used in windows until the nineteenth century. Plate glass is several times thicker than window glass, may still exhibit polishing, and if edges are present, may be beveled.

Flat glass or window glass during the eighteenth and nineteenth centuries was either blown or cast (in the case of plate glass). The former might be made by the crown method or by cylinder blowing (see Thorpe 1912:731 for a description of the two methods). Distinguishing between the two is difficult, most especially with small fragments (Jones and Sullivan 1985:171).

Previous work in the region has attempted to use window glass thickness to determine the mean construction dates. The major shortcoming of this technique is that the regression formulae have a number of correction factors (for a detailed discussion see Adams 1980 and Orser et al. 1982). Studies by Jones and Sullivan have cast doubt on the validity of this dating technique. They comment that, "the very nature of window glass suggests that one should

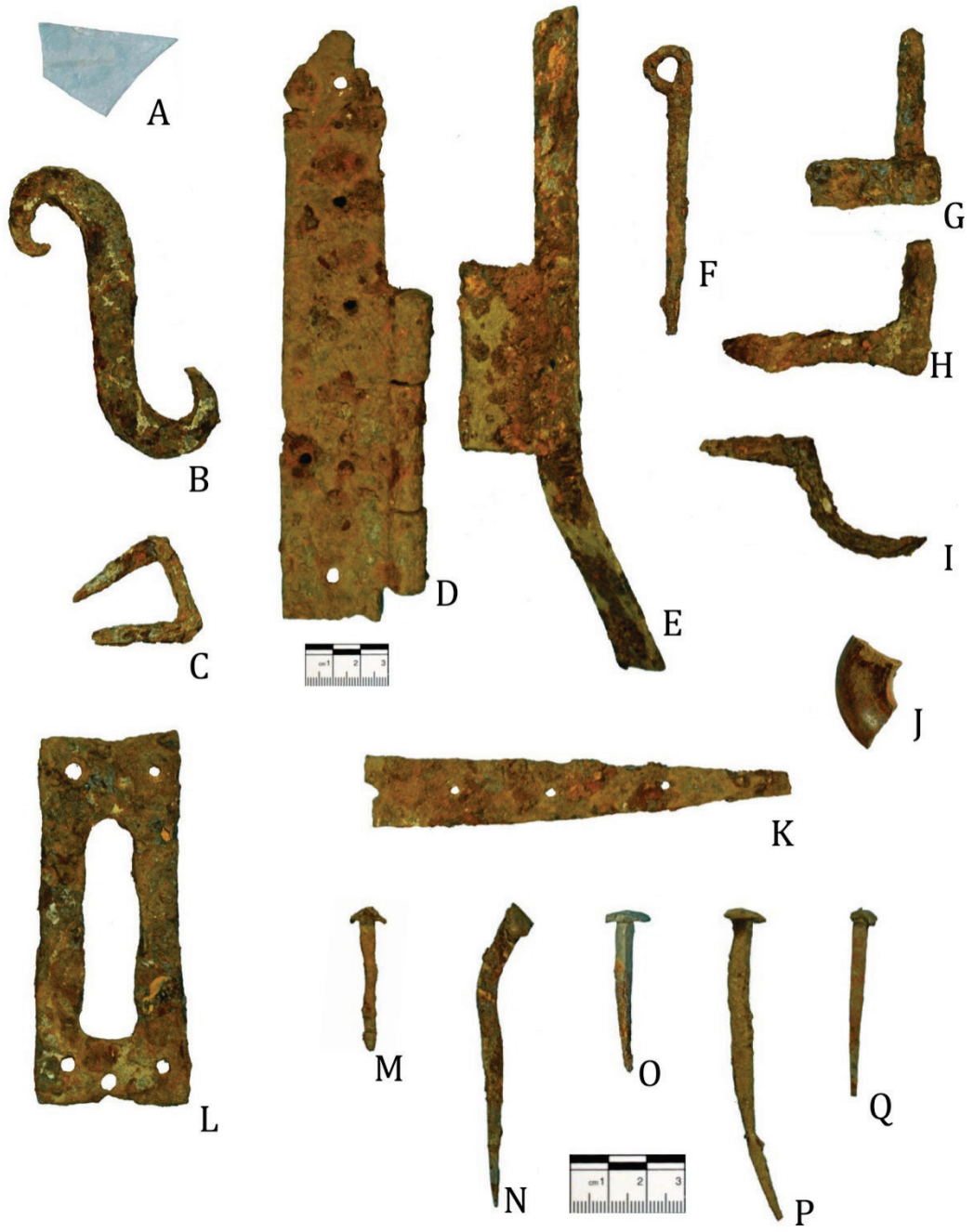


Figure 105. Architectural artifacts from Kendal. A. window glass; B. shutter dog; C. staple (door latch); D-E. hinges; F. eye pin; G-H. pintles; I. drive hook (possibly for hanging gutter); J. agateware door knob; K. strap hinge fragment; L. escutcheon or strike plate; M-N. hand wrought "T" head nails; O-P. hand wrought rose head nails; Q. machine cut rose head nail.

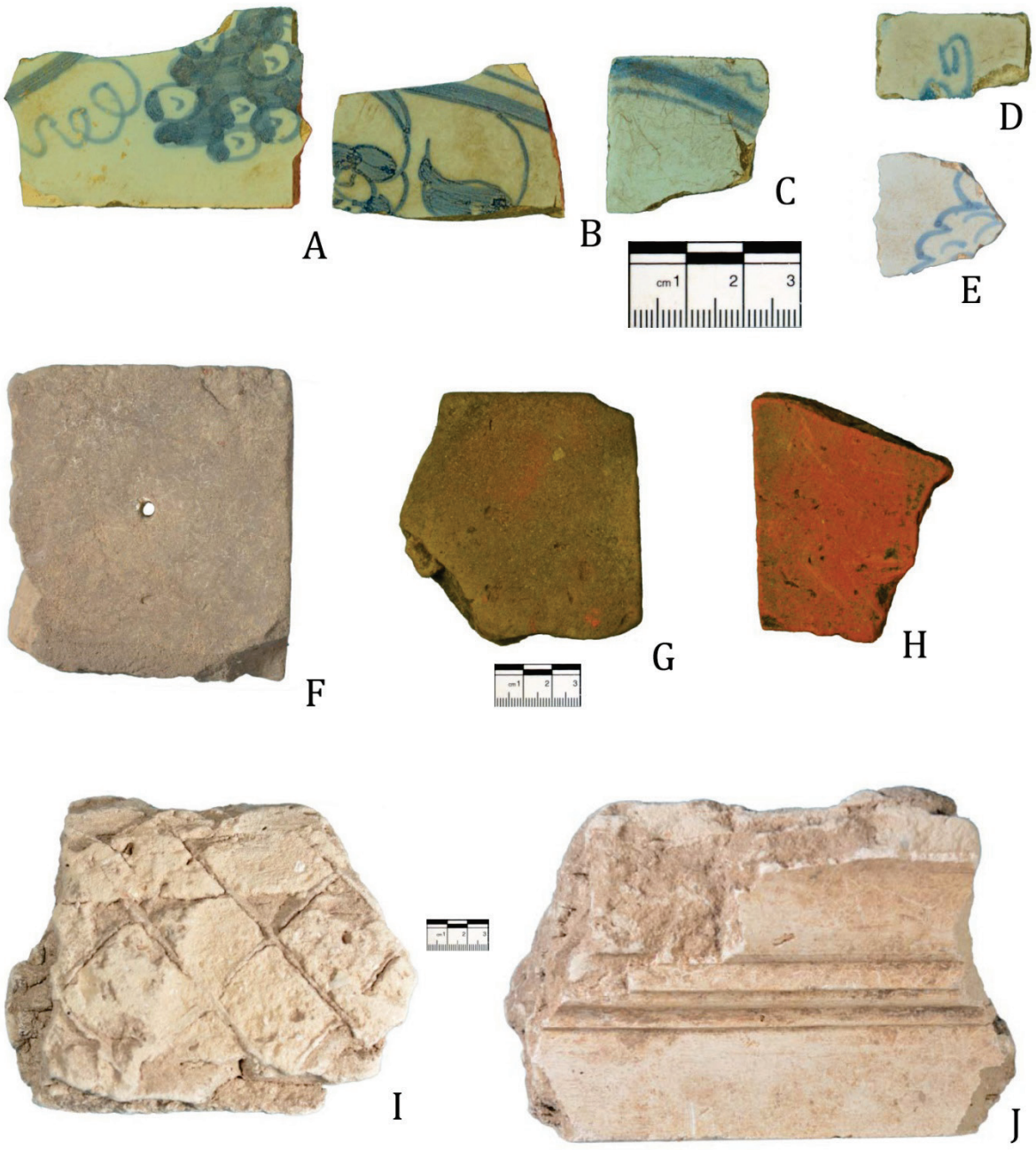


Figure 106. Delft tiles, paving tiles, and plaster artifacts from Kendal. A-E. delft tile fragments; F. paver with drilled hole; G-H. clay paver fragments; I. reverse of lime plaster cornice showing cutting used to reinforce and hold the plaster; J. lime plaster cornice.

take great pains to avoid using it for dating except under special circumstances" (Jones and Sullivan 1985:172). In contrast, Weiland suggests that, "the study of window glass can produce valuable information about historic sites, and if approached correctly these studies can be conducted in an efficient fashion" (Weiland 2009:39).

In particular it appears that the Moir (1982) method may have some applicability for dating the construction of the Kendal House. The formula was developed for the southern United States and has an applicable date range of 1810 to 1920. There are, of course, some limitations. For example, context is better than quantity. The formula is simple:

$$ID = 84.22\ \ (TH) +\ \ 1712$$

where

ID = date of site construction ± 7 years
TH = thickness in 0.01 mm.

Consequently, while windows glass from the colonial structures at Kendal is not suitable for dating, we have implemented Moir's method at the Kendal slave house and the Kendal house itself.

Architectural Hardware

Archaeological sites with structural remains often include a very large assortment of architectural hardware. A partial list of potential items would include strap hinges, pintles, HL hinges, butt hinges, skew hinge cast butts, skew joint butt hinges, hinge hooks, shutter catches, shutter ring pull clinches, shutter staples, lead window caning, window sash pulleys, window sash weights, inside corner braces, and L-braces.

Door lock parts consist of a variety of locks and latches including slide bolt locks, rimlocks, Suffolk and Norfolk latches, thumb latches, and door knobs. Both Suffolk and Norfolk latches are thumb latches; however, Norfolk latches have a full-length mounting plate, whereas the Suffolk latches are mounted on cusps which are an extension of the handle (Streeter 1971a:12). Thumb latch parts that do not include diagnostic parts were simply called thumb latches. Also included are keyhole surrounds, brass door stops, door lock escutcheons, brass door pulls, lock strikes, lock boxes and lock box fragments, as well as door knobs.

Architectural hardware generally has only broad dates of use. Both Suffolk and Norfolk latches were introduced at about the same time. The cast iron latches may have been produced before the end of the eighteenth century, since cast iron butt hinges were being made in relatively large numbers by 1780; and a jointed hinge calls for technology equal to the thumb latch. Thumb latches have been documented back to the first decade of the nineteenth century where they were advertised as available with cast or wrought plates. The cast iron latches were cheaper, but apparently did not drive the wrought variety out of use as the cast iron butt hinge did the HL hinge (Streeter 1971:12-17). HL hinges were manufactured as early as the late 17th century. These early ones had ground surfaces, beveled edges, and the nail holes were staggered. By the late eighteenth or early nineteenth century the surfaces are untreated and the nail holes are aligned and less numerous (see Streeter 1983:6). Skew joint hinges, which had the joints filed sloping so the door would rise as it opened and would be self-closing, were manufactured by the late eighteenth century (Streeter 1973:23). The cast iron butt hinge, invented in 1775 in England, was being manufactured in the United States by 1815, if not earlier. At this point the HL hinge was driven out of use (Streeter 1973:47-49).

Delft Tiles

The term defltware is often used as a generic term for tin-glazed or enameled earthenwares since not all were made at Delft (Noël Hume 1978:285, Beaman 1997:18). The convention is not, however, universal and we will use delft as a general term.

Noël Hume (1978:285) explains that fireplace tiles were being made in not only the Netherlands, but also in England by at least the late sixteenth century and distinguishing origin is

nearly impossible. Those for flooring were about ⅝-inch in thickness, while those for fireplace surrounds were typically no thicker than 5/16-inch. The latter measured about 5¼ inches square. A number of studies are available to archaeologists, including Horne 1989, Jonge 1971, and van Dam and Tichelaar 1984).

The earliest advertisement we have found for Charleston dates to 1735 when "white or painted tiles for chimnies" imported from London were available from James Crokatt in Charleston (*South Carolina Gazette*, August 2, 1735, pg. 3). By 1750 Richard Martson on Charleston's Broad Street was advertising "Dutch tiles for chimneys" (*South Carolina Gazette*, May 14, 1750, pg. 2). Noël Hume (1978:287) reports them as early as 1716 from Boston.

Beaman (1997) examined the Dutch tile fragments from three structures at Brunswick Town: Russellborough, Prospect Hall, and the Public House. He identified "six distinct sets of pastoral motifs" and one of the "common designs is an idyllic countryside setting with no decorative border or corner motif (Beaman 1997:24). Even more common was a landscape tile in blue with a Louis XV border with diaper corner similar to the design found on white glazed stoneware.

While the designs offer only limited chronological control, it remains useful to compare the finds at Kendal with those at Brunswick Town.

Nails

Nails are typically classified as hand wrought, machine cut, or wire, although each of these has a variety of subclassifications. In many collections, however, the nails are in such poor condition that more detailed classification is impossible.

Hand wrought nails were individually forged by blacksmiths, either in America or England.[18] The wrought nail shank can be distinguished from machine cut nails (introduced about 1780) by their taper on all four sides, instead of only two (see Howard 1989:54; Nelson 1968). These nails, while largely replaced by machine cut nails at the beginning of the nineteenth century, continued in specialized use far longer. Two head styles may often be distinguished. Rose heads have a distinctive head created by four strikes of a hammer, giving it the form of a four-leaf clover. Lounsbury (1994:412) notes that this style was most commonly used in rough framing and attaching exterior cladding. The other style is a clasp head (sometimes called a "T-head"). This style was produced like the rose head, but was struck two additional times on either side of the head, to form the characteristic T-shape. These nails were usually used in trim work where the holding power of the larger head was not needed and the head would distract from the appearance (Lounsbury 1994:412).

It is worth noting that Neve (1736:218-220) identified no fewer than 22 different types of nails. The descriptions for many are today difficult to understand, but those of some archaeological importance include "clasp nails," or what we call as T-head nails, which are described as "proper for any fine Building with Firr, or other soft Wood: The clasping of the Head brings them into little Compass, and admits of their finking into the Wood, makes the Work smooth, and will admit a Smoothing plane to go over them, when drove" (Neve 1736:218).

Neve also describes "rose nails," identical to our type of the same name. He notes that they are

> drawn four-square in the Shank . . . as all common 2 d. Nails are, and most Commonly 3 d. and 4 d. In some Countries they make all their larger Sort of Nails in this Shape, but their being square, drowneth the Iron, and the Nails do not shew so fair to the Eye, as those laid upon the flat; but if

[18] Lounsbury (1994:239) notes that while nails were certainly manufactured locally in the South, "a sizable proportion of the nails used in buildings through the late 18th century were imported from England."

Table 31.
Nail Sizes and Probable Uses

Penny Weight	SAE Size
Small Timbers and Shingles	
2d	1
3d	1¼
4d	1½
5d	1¾
Sheathing and Siding	
6d	2
7d	2¼
8d	2½
Framing	
9d	2¾
10d	3
12d	3¼
Heavy Framing	
16d	3½
20d	4
30d	4½
40d	5
50d	5½
60d	6

made of tough Iron, they are very serviceable (Neve 1736:219).

Cut nails were produced by a machine that cut each shaft from a flat plate or sheet of iron, tapering the nail along its length on only two, instead of all four, sides. Although this machinery was invented in the 1780s, nails produced by machine were slow to reach the South, not becoming widely available until the first quarter of the nineteenth century. Lounsbury (1994:107) suggests that the most widely available variety from the 1790s through the early 1820s were those whose heads were still hand forged (that is, a machine cut nail with a hand forged head). After about 1815 machines capable of both cutting and heading the nails were introduced and hand forged heads gradually declined in significance.

Wire nails have round heads and round, pointed shanks. The wire nails may be further subdivided into common nails, finishing nails, and roofing nails. The earliest wire nails were introduced about 1850, but were only available in very small sizes for picture frames and boxes (Nelson 1968:7). Larger sizes were not widely available until the late nineteenth century. By the 1880s they became inexpensive enough to supersede cut nails (Nelson 1968:7). Galvanized roofing nails were introduced at the beginning of the twentieth century (Fontana et al. 1962:50).

One of the few commonly accepted rules in nail length is, "to have the Nail full three times as long as the Sheathing Board is thick" (Neve 1736:220). Within certain broad limits the size of nail used to perform a certain task was flexible, depending on the carpenter and the availability of nails. This variation is reflected in Orser et al. (1982:677). Nevertheless, it is possible to use the relative frequencies of nail sizes[19] to indicate building construction details. Table 31 provides equivalences and probable uses.

Furniture Group

Furniture artifacts are represented in the archaeological record primarily as fragments of brass hardware remaining after wood, fabric, and upholstery have decayed. Some items are so generic that they may actually represent other artifact groups. For example, brass tacks were also used on harnesses and some lock boxes are only distinguished from architectural items by their smaller size.

Tacks

Tacks, being a very humble artifact, are rarely given much discussion by archaeologists. Even Noël Hume deals with furniture tacks in one sentence: “small tacks were used around the skirts of seventeenth-century chair seats and it is impossible to distinguish these and the common upholstery tacks of the eighteenth century” (Noël

[19] Nails were not only sold by shape, but also by size, the lengths being designated by *d* (pence). This nomenclature developed from the medieval English practice of describing the size according to the price per thousand (Lounsbury 1994:239). Nelson (1968:2) provides the same interpretation, although the price was per hundred. Common sizes include 2d - 6d, 8d, 10d, 12d, 20d, 30d, and 40d. It was not, however, until the late nineteenth century that penny weights were standardized.

Figure 107. Furniture artifacts from Kendal. A-C. brass tacks; D-E. ferrous tacks; F-G. brass drawer pulls; H. brass drawer pull ring/decoration; I. brass drawer pull; J. brass hinge; K. molded figurine; L-M. brass escutcheon plates; O. brass decoration; P. small iron pintle; Q. brass escutcheon fragment.

Hume 1978:227).

A few researchers are not so cavalier in their dismissal. Jobe, for example, notes that "the differences between eighteenth-century examples and their modern counterparts are quite marked" (Jobe 1987:72). Prior to about 1790, tacks were made of hand forged shanks with hammered heads – similar to nails. Cut shanks were introduced in the 1780s, although the heads continued to be hammered by hand. It wasn't until the nineteenth century that machine-stamped heads replaced hammered ones (see also Anonymous 1881).

Tacks have generally been measured overall, including the head, with the measurements in 1/16-inch increments (thus a tack ½-inch in length would be described as measuring 8/16-inch). They were sometimes also referred to by an ounce designation. This, however, referred to the thickness of the leather the tack was able to clinch. Thus, a 9/16" tack might also be described as an 8 ounce tack.

This is seen in Neve, who explains that the largest tacks are "for Upholsters" and the sizes range from "2¼ , 5, 6, 8, 9, 14, and 15 Ounces a Thousand" (Neve 1736:220).

Brass dome-headed tacks are even more commonly found in archaeological contexts. These historically were measured from under the domed head to the point. They would often be identified by both the diameter of the head, as well as the shank length. Similar tacks are briefly mentioned by Stone (1974), where head diameters vary from 9 to 12 mm (⅜ to ½ inch).

Noël Hume is more impressed by these artifacts, describing in more detail their use as decorative items. He notes that these tacks were "used to ornament and anchor the leather of straight-backed side chairs of the second quarter of the seventeenth century; these were either circular or lozenge-shaped, concavo-convex, and with a welded brass shank" (Noël Hume 1978:227). McInnis (1999) notes that the quantity of brass tacks increased through the eighteenth century, peaking in the early nineteenth, when Neoclassical items used continuous lines to enhance reflection.

Other Hardware

Other hardware may consist of small lock plates, brass escutcheon plates, brass finials, brass drawer handles, brass drawer pulls or knobs, brass corner protectors, and brass hinges. Noël Hume (1978:228-229) traces the development of plates and handles from the seventeenth through early nineteenth centuries. He notes the presence of "bat's" or "angle's-wing" escutcheon plates with bale handles during the first half of the eighteenth century. By the mid-eighteenth century the handles were anchored by posts with threaded shanks. Handles lost their central knops and instead they had bulging midsections. Noël Hume (1978:229-230) also notes that much hardware during the Georgian Period can be identified by its association with Chippendale (1750-1775), Hepplewhite (1785-1800) and Sheraton (1800-1820) styles.

A useful outline of hardware types by period is provided by Kauffman (1968:210), although there is considerable overlap of styles (see also Miller and Miller 1988:46-47).

Aronson (1965:80) notes that the earliest casters were of wood, replaced by brass and leather. Brass castors appeared in the third quarter of the eighteenth century (Noël Hume 1978:231). By the mid-nineteenth century porcelain casters were introduced. Casters could be of two designs. Stem casters were mounted inside furniture legs, while cup casters support the leg inside a constructed cup.

Of course some items, such as trunks, may also have ferrous metal hardware. Both small brass and iron keys may be classified as furniture items, although they are more generally included with Personal Group Artifacts. Mirror glass, briefly discussed under window glass, is typically included in the furniture group, as are remains of lighting devices, such as lamp chimney glass and candle holders. Household clock parts, such as gears or decorative items, are also included in the

Furniture Group.

Arms Group

North Carolina, like many other southern states, enacted laws preventing or limiting the access of enslaved African Americans to guns and other weapons. Justification may have included that hunting was a gentleman's sport and it was seen as unseemly for blacks to be engaged in the "sport," but certainly the primary reasons were the desire to keep arms out of the hands of the enslaved to prevent an insurrection and to prevent slaves from killing hogs or other stock in the woods.

The first North Carolina law was enacted in 1729. While the title did not specifically mention either slaves or guns ("For Preventing People from Driving Horses, Cattle, or Hogs, to Other Persons' Lands"), the statue incorporated a provision prohibiting slaves from hunting with a dog, or gun (or any other weapon), on any land but their masters', except in the company of a white man. Bassett (1896:37) suggests this early act, passed prior to the first significant slave insurrection, the 1739 Stono Rebellion in South Carolina, was intended to protect the stock.

In 1741 a more aggressive law was passed. Anyone who "found an armed slave hunting or ranging in the woods without the written permission of his master" was to take the slave before the nearest constable, who was to give the slave 20 lashes without further process, then send the slave to his master. The master was to pay the "apprehender" for his trouble (Bassett 1896:37). The law also allowed one slave per plantation to take game and to drive away animals destroying stock. Such slaves would carry a certificate signed by their owner and the chairman of the county court. We have previously (this report, page 91) discussed how Benjamin Smith had such a certificate for his slave Bob at Kendal.

An even more aggressive act was passed in 1753 since the 1741 act "has proved ineffectual to restrain many Slaves in divers parts of this Province from going armed, which may prove of dangerous Consequences" (Clark 1904:388). This law held the master accountable for his slaves' actions and required that a bond be given for the good behavior of the slave. Moreover, no slave could carry a gun on a plantation on which no crop was planted and a gun could only be carried on cultivated lands. This law also established the first patrol to secretly search the slave quarters for guns or other weapons (Clark 1904:389).

Such laws have occasionally been interpreted as meaning slaves had no access to arms; this seems unrealistic, especially on isolated properties such as Kendal.

Available Firearms

The two most common firearms likely to be found on Kendal are flintlocks and percussion cap arms.

Flintlocks were developed in France around 1612 and slowly spread throughout Europe, gradually replacing the earlier wheel lock and snaphaunce. Most flintlocks were muskets, a muzzle-loading smoothbore long gun that was loaded with a round lead ball, but could also be loaded with shot for hunting. In addition to the flintlock musket, there were also flintlock pistols.

They continued in common use until the first quarter of the nineteenth century, when percussion cap arms were developed. The exposed flashpan of the flintlock is replaced by a simple tube that leads straight into the barrel. An explosive cap is placed on top of the tube and, when struck by the hammer, ignites the powder inside the barrel. This system provided a major advancement in reliability. The cap was almost certain to explode when struck and it was largely immune to dampness.

By the 1850s an effort was being made to integrate the percussion cap into a metallic cartridge containing the bullet, powder, and primer. By the late 1860s, breech-loading metallic cartridges had made the percussion cap system obsolete, although percussion cap weapons continued to be used, especially by sportsmen.

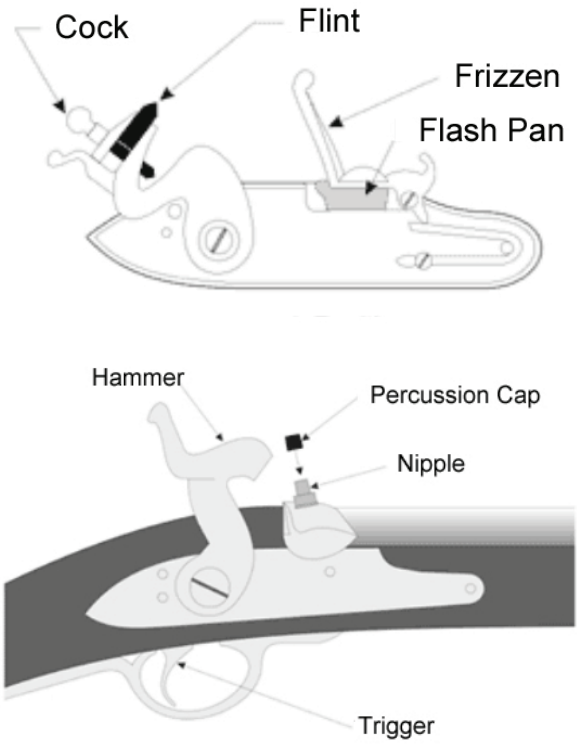


Figure 108. Flintlock and percussion cap systems (adapted from International Hunter Education Association).

Gunflints

Hamilton and Emery (1988:5) discuss at length the different definitions of flint used by geologists, archaeologists, and shooters. For the purposes of our study we have largely adopted the definition of Hamilton and Emery (1988:9), calling historic materials, likely associated with flintlocks, flint, while similar siliceous sedimentary materials typically found in prehistoric contexts has been called chert.

Thus, flint will include the black and gray kinds from England, and the brown to honey-yellow kinds typically from France, rather than England (Hamilton and Emery 1988:9). The French, however, used a wide variety of flint, described as ranging from "gray through gray-brown to a light brown, then through a darker brown and eventually merges into black" (Hamilton and Emery 1988:30). In spite of this variety, however, they observe that "French gunflints are very uniform in color and general appearance of the flint source material" leaving readers to question the consistency of flint origin identifications (Hamilton and Emery 1988:52). Figure 110 compares nearly perfect English and French gunflints (blacks and blondes).

Table 32.
Gunflint Sizes Correlated with Probable Weapon

Weapon	Flint Size (side to side in mm)
Muskets	>34
Folwer or Carbine	28-34
Tradegun	20-28
Pistols or Tradeguns	<20

The role that ballast stone played in gunflint production has not been well researched. Hamilton and Emery certainly note the presence of brown to black French and English Upper Cretaceous ballast flint, some with a white cortex, that were available along beaches of both countries (Hamilton and Emery 1988: 53-54).

Hamilton and Emery describe the earliest gunflints "were pieces of flint picked up by the shooter that happened to fit his lock" and were called simply "chips" (Hamilton and Emery 1988:9). Lacking uniformity, they are difficult to recognize and it is suggested that by the second decade of the eighteenth century they had largely been replaced by commercial gunflints, defined as either spalls or flakes. Ballin (2012:125-126) illustrate what they call "minimally shaped and 'amorphous' gunflints" from a sixteenth and seventeenth English site. Such material would be exceedingly difficult to identify at a plantation such as Kendal.

Spall gunflints ("Dutch," "edge-shaped," or "gunspalls") were individually made from chance pieces of flint that offered suitable striking platforms or from prepared cores (Hamilton and Emery 1988:10-12). In contrast, the flake gunflints were produced from blades or "flakes" struck off prepared cores.

Distinguishing between French and English flakes, however, can be more difficult. Hamilton and Emery (1988:13) suggest that most French flakes were made from a glossy, translucent yellowish flint. They are usually single-edged with sides and a nicely rounded heel showing delicate chipping. Double edged French flakes are rare and by the 1800s, French flakes were almost square.

English flakes were made from flint without a glossy surface and from dark gray to black in color. There is little or no chipping on the sides, demicones of percussion are almost always present (they were removed in French flakes) and Hamilton and Emery (1988:14) argue that English flake gunflints don't appear in America until after 1800. Virtually all were produced in southern and eastern England. None are known from Scotland, Wales, or Ireland (Hamilton and Emery 1988:175).

Figure 109 provides a drawing showing gunflints and their terminology.

Hamilton and Emery (1988:17) also note that the size of the gunflint will vary, depending on the type of arm it was used in. They establish at least three guns sizes, based on bore diameters. Military long arms generally had a larger bore than civilian arms, typically about 0.75-inch for English weapons and 0.70-inch for French weapons. Civilian long guns, usually called "fowlers" ranged from 0.75-inch down to 0.60-inch, although their locks were smaller and thus they used smaller gunflints. The smallest locks and smallest gunflints were used with tradeguns that had bores from 0.62-inch to as small as 0.45-inch. Table 32 provides some general information correlating gunflint sizes and the guns in which they were most likely used.

Bye (2013:74) provides detailed instructions on fitting gunflints and indicates that, at least today, common sizes range from ⅜-inch (9.5mm) for pistols, ⅝-inch (15.9mm), ¾-inch (19mm), ⅞-inch (22mm), 1-inch (25mm), and 1⅛-inch (28.6mm) for large musket locks. These are all substantially smaller than identified in archaeological collections, suggesting that direct comparisons using these sizes may not be appropriate.

Schock and Dowell are more cautious in their interpretations, noting that, "it is very difficult and frequently impossible to determine whether a particular gunflint was used with a rifle or a pistol" (Schock and Dowell 1983:61). They do, however, provide ranges that are very similar to those provided in Table 32. This seems to be a reasonably cautious approach adopted by Ballin (2013:132).

Hamilton and Emery (1988:23, 26-27) argue that the British fought most of the American Revolution using largely French gunspalls because the British were learning how to make flake gunflints, although English gunspalls also existed.

Most were imported in kegs of mixed sizes, with customers selecting the gunflints that best fitted their guns (Hamilton and Emery 1988:20). A list of tonnage duties paid for powder, shot, and flints at the Edenton Courthouse is available for the period between the end of 1714 and the middle of 1715. The flints were identified by the dozen, with shipments of as few as 32 and as many as 180. Combined, in the seven months covered, a total of 2,306 were brought into the port (in contrast to 192 pounds of powder and over 761 pounds of lead shot) (Anonymous 1901:114). A separate list, however, reports Col. Maurice Moore taking possession of 4,344 flints for "ye Country's Use" in June 1715.

Bye reports that one trading list from 1768 reveals that flints were priced "by size, demand, quality, and distance from the coast; a reasonable price was two cents each" (Bye 2013:70).

Schock and Dowell (1983:62) note that the 1849 Ordnance Manual stated gunflints were to last for about 50 shots and one gunflint was issued in the U. S. Army for every 20 rounds of ammunition.

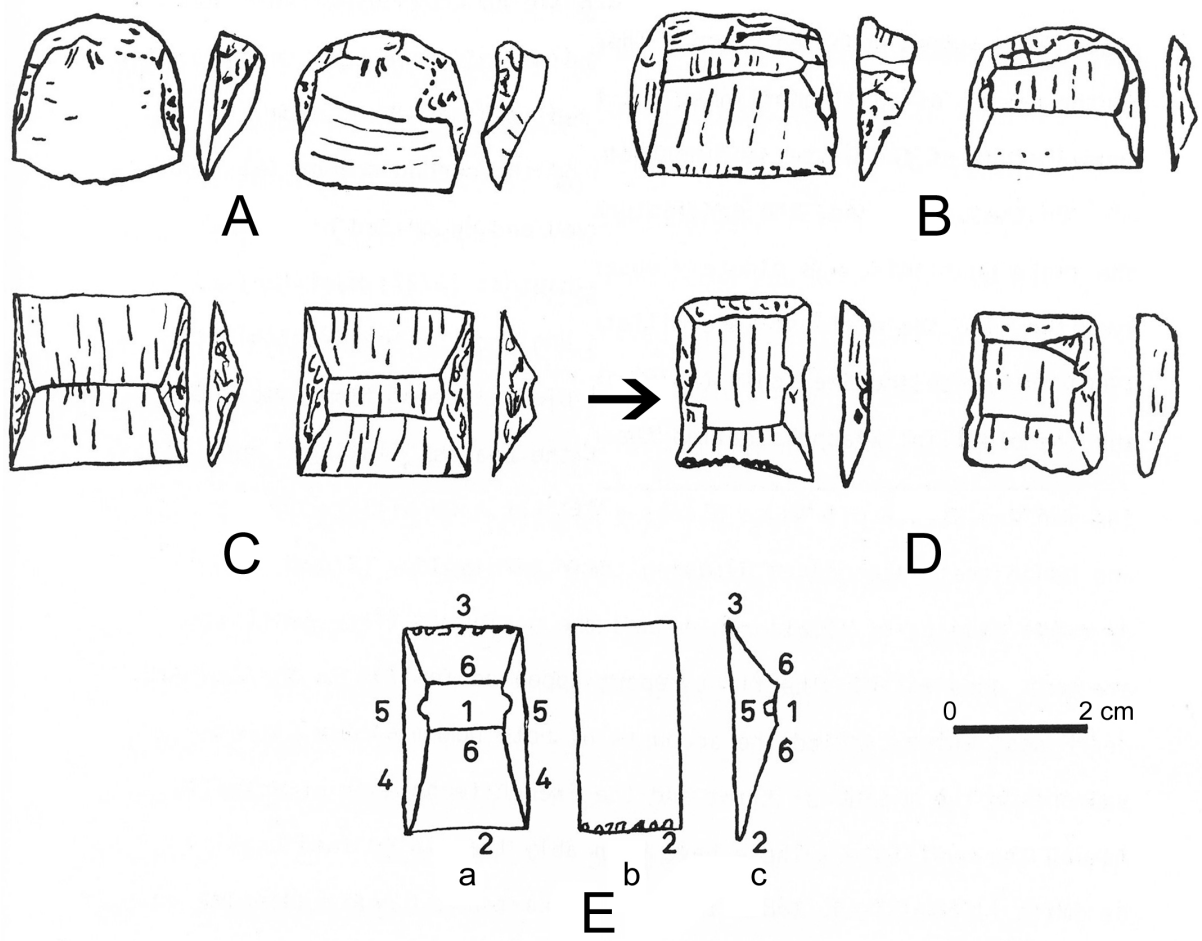


Figure 109. Gunflint terminology (adapted from Hamilton and Emery 1988:Figure 2). A. French spall gunflints; B. French flake gunflints with rounded heels; C. French flake gunflints, double edged; D. English flake gunflints, arrow points to demicone of percussion; E. English flint knapper terminology with a showing the back, b showing the face, and c showing the side; 1 = back, 2 = edge, 3 = heel, 4 = sides, 5 = bulbs (demicones of percussion), 6 = ribs.

South (2010:49, 210) illustrates gunflints from Brunswick Town, but there has been no detailed analysis of examination of this artifact type.

Percussion Caps

Arms using percussion caps were available as early as 1833, but it wasn't until 1841 that the system was adopted by the U.S. Army (Weber and Scott 2006:131). Percussion caps consisted of small copper caps, punched out by machine, with a small quantity of igniting compound, typically mercury(II) fulminate ($Hg(CNO)_2$), pressed inside. This was then sealed in place using varnish or another waterproof sealer (Coggins 1962:30; Weber and Scott 2006:132).

There were a variety of cap designs. Among the more common were caps with ribbed sides. The ribbing was developed to make the caps less likely to fragment during ignition and became

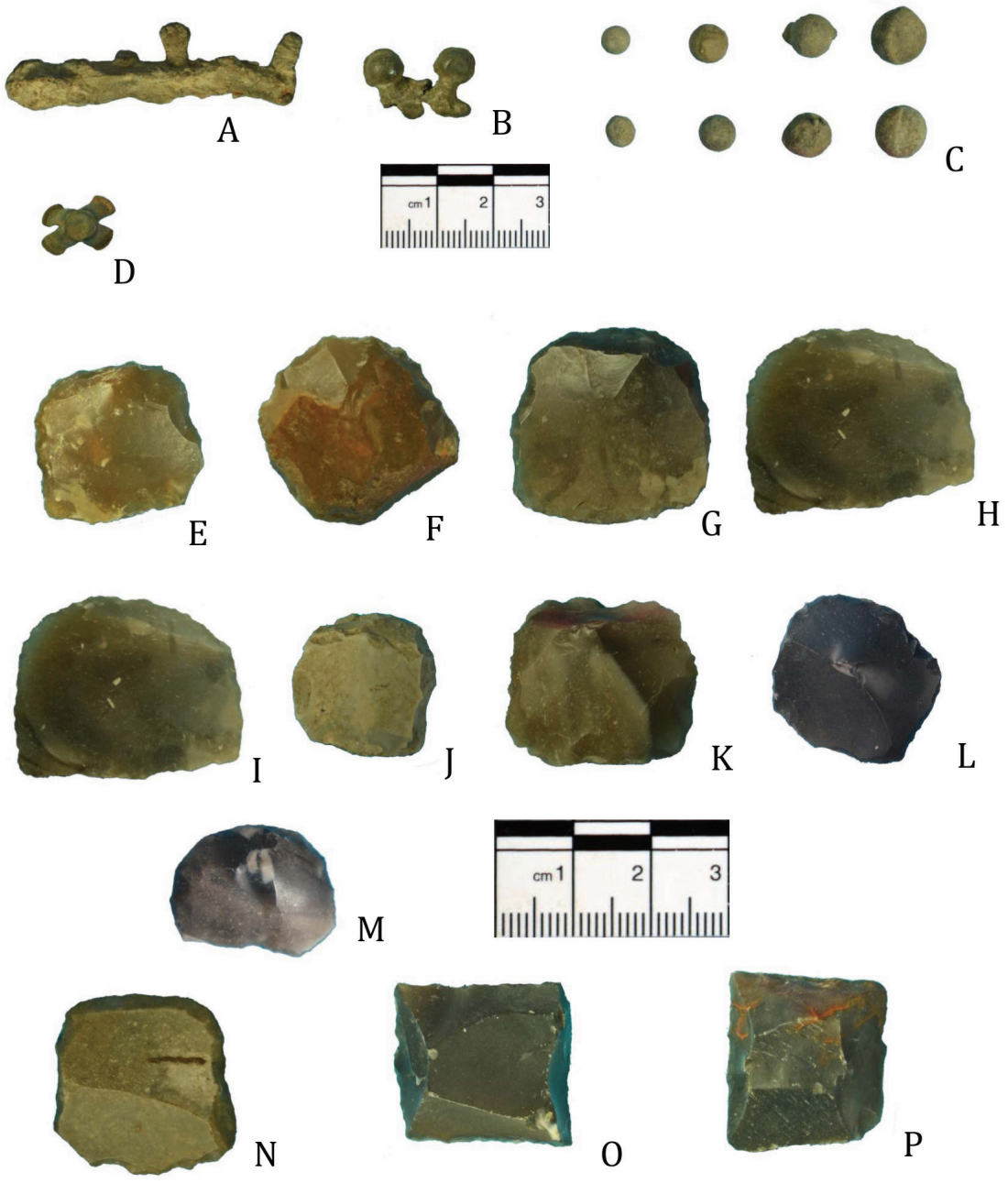


Figure 110. Arms group artifacts from Kendal. A-B. lead sprue; C. range of lead shot (one with remnant sprue attachment and several showing mold lines); D. brass "top hat" percussion cap; E-K. French spall gunflints; L-M. English spall gunflints; N. French flake gunflint; O-P. English flake gunflints.

known as "common" caps. Since they tended to be smaller than other varieties, they were also known as pistol caps, although being used on a variety of small rifles (Weber and Scott 2006:132).

Another variety became known as the "top hat" cap since it had protruding sides, like the brim of a hat. It is also called a military or musket cap and there seems to be general agreement that it was designed to make for easier handling by soldiers in battle (Barry 2006; Weber and Scott 2006:132).

Weber and Scott provide basic data on the measurements of the two types:

> Common caps range in diameter from 0.17 to 0.18 in. (0.43-0.46 cm) with lengths of 0.17 to 0.24 in. (0.43-0.61 cm), and musket or top hat caps range in diameter from 0.22 to 0.24 in. (0.56-0.61 cm) and in length from 0.22 to 0.25 in (0.56-0.64 cm) (Weber and Scott 2006:133).

Percussion caps faded from military service in the 1860s, as a variety of metal cartridges containing both a primer and black power were developed in response to the Civil War. Nevertheless, turn of the century catalogs continued to advertise a wide-variety of percussion caps. In 1897, seven different caps were offered by Hibbard, Spencer, Bartlett & Company (1897:1100). Prices ranged from 40¢ to 80¢ per 1,000 (the caps came in tins of 100, 10 tins to a package).

Cartridges

In 1857 the .22 short round was developed for use in the Smith and Wesson revolvers (Ball 1997:113) and by the late nineteenth century there were a variety of rimfire and centerfire metal cartridges (Treadwell 1873).

Contemporary cartridges consist of a bullet (the projectile), a charge of gunpowder, a primer for igniting the gunpowder, and the cartridge case (which serves to hold the various components). Bullet calibers (diameters) are generally (but not always) expressed in increments of 0.01 inch, although some are expressed in millimeters. The former are generally of U.S., Canadian, or English origin, while the latter are typically of European origin (Ball 1997:114).

Ball (1997:121-122) provides a useful compilation of different cartridge sizes and their chronology (inception and terminus). He also provides an introduction to the many headstamps used to identify manufacturers of cartridges.

Lead Ball and Shot

Early lead projectiles may be classified as either balls or shot. Balls were used in smooth-bore muzzle-loading weapons and common calibers ranged from .354 to .669 inches. At military sites the calibers are generally between .527 and .59 and Nobel (1973:121) notes that calibers of .551 inch and above were likely the most useful in bringing down deer or heavier game.

The difference between the lead ball diameter and the weapon's bore caliper is referred to as windage. During the Revolution, ball diameters of 0.69 inch are typically associated with the 0.75-inch British ("Brown Bess") muskets. Balls with a diameter of about 0.64-inch are generally associated with French or American muskets. Schablitsky (2014:192) has found that musket shot by the first quarter of the nineteenth century ranged from 0.60 to 0.70 caliber and weighed 19.2 to 30.2 g. She distinguishes British and American balls by the diameter and/or weight. The standard issue for the British was the "Brown Bess" musket with their 0.75-inch bore, which she found primarily loaded with 0.69 to 0.70 caliber lead balls. In contrast, American troops were primarily using the Model 1795 Springfield with a 0.69-inch bore and their shot was typically 0.62-inch in diameter (Schablitshy 2014:193).

Many lead balls are distorted by impact and are thus difficult or impossible to measure accurately. Sivilich (1996) has developed a formula based on weight to determine caliber:

$$C = 0.223204 \ x \ W^{1/3}$$

where

C = caliber
W = weight of ball in grams.

Another type of lead ball artifact is lead sprue – lead waste remaining from the casting of the balls in molds. One would assume that much of the sprue would be recycled into additional shot. In addition, the presence of sprue indicates that the balls were being produced on the plantation, rather than being purchased in quantity.

Lead shot will vary considerably in size, today being produced from 1.3 to 15.24 mm (0.05 to 0.6 inch). Nobel explains that,

> Differences in shot size are correlated with the type of bird or small game to be hunted. It is inferred here that such was also the case in the past. It seem probable that the smaller 3 mm. to 4 mm. shot in the bimodal frequency curve are convenient sizes for shooting ducks, grouse, pheasants, pigeons or other upland game birds. The second curve in the bimodal frequency represents larger shot sizes between 4.5 mm. and 6 mm. These sizes are effective in shooting geese, swans, cranes or small game such as rabbits and beaver. Frequently the early traders' documents refer to different types of shot (e.g., swan shot, beaver shot and bird shot) (Nobel 1973:122).

Table 33 identifies common lead shot using current names, measurement, and type.

Lead shot is usually characterized as either Rupert or drop shot. The earlier form is Rupert shot made by heating lead in a colander from which small drops fell as pellets into a container of water. The process forms slightly dimpled, oval shot. Drop shot, invented in 1769 was also produced by dropping lead through a screen, but at a great height. This technique could form nearly perfectly round shot and size could be varied by adjusting the height above water (Burns 2005:112-113). Nevertheless, Rupert shot continued being made into the nineteenth century (Meide et al. 2011:128). A third type is, however, found at some sites and has been called "shot with tails" and is tear drop in shape. This was produced by carefully dripping lead from a ladle into water. Tails would usually be removed, although this still leaves a misshaped shot.

Table 33.
Common Lead Shot Sizes

Size	Type	Size (mm)	Size (in.)
#TriBall 12	Buck	15.24	0.60
#0000	Buck	9.40	0.380
#000	Buck	9.14	0.360
#00	Buck	8.38	0.330
#0	Buck	8.13	0.320
#1	Buck	7.62	0.300
#2	Buck	6.86	0.270
#3	Buck	6.35	0.250
#4	Buck	6.09	0.240
#FF	Waterfowl	5.84	0.230
#F (#TTT)	Waterfowl	5.59	0.220
#TT	Waterfowl	5.33	0.210
#T	Waterfowl	5.08	0.200
#BBB	Bird	4.82	0.190
#BB	Bird	4.57	0.180
#B	Bird	4.32	0.170
#2	Bird	3.76	0.148
#4	Bird	3.28	0.129
#5	Bird	3.05	0.120
#6	Bird	2.77	0.109
#7½	Bird	2.39	0.094
#8	Bird	2.26	0.089
#8½	Bird	2.16	0.085
#9	Bird	2.01	0.079

Recent documentary research reveals that George Washington did not order more than four shot sizes in any given year and, in fact, never ordered more than five bird shot sizes. However, archaeological investigations have also revealed that there are many more shot sizes in the middens than were ordered. This suggests to Breen that "the terminology had not yet been

developed to specify lead shot smaller than No. 4 and larger than No. 1, and instead was encompassed by generic terms such as mustard seed (for the smallest sizes) and Bristol drop (for the larger sizes)" (Breen 2013:325-326).

Tobacco Group

Noël Hume (1978:296) notes that tobacco pipes are of considerable use to archaeologists, being "manufactured, imported, smoked, and thrown away, all within a matter of a year or two." Presumably his observation is based on the fragile nature of the artifact, which was often made of white ball clay. By the 1570s tobacco smoking was fashionable and by the early seventeenth century the pipe was common.

There were, however, other forms of tobacco use during the eighteenth century, such as cigars (introduced by 1762) and snuff, which are nearly invisible archaeologically. Mackenzie (1957:193) claims that snuff was more popular in Europe than smoking. Chewing tobacco was introduced during the first half of the nineteenth century and by the mid-1850s snuff was largely rejected in the United States in favor of chewing (International Agency for Research on Cancer 2007:42). By the 1880 cigarettes were being produced in both America and England (Gately 2001:212-213).

Beaman (2005:55), using surviving fragments of the Port Brunswick Shipping Register, reports that 168,480 pipes were brought into Brunswick from London and Bristol from late 1773 to early 1775. Of course, not all were used in Brunswick, or even the surrounding countryside, since Brunswick was a port of entry for much of interior North Carolina. Nevertheless, this suggests a reason for the abundance of pipe stems found in archaeological collections of the region.

We have previously discussed the use of tobacco pipe dating (pages 214-215). Far less accurate are pipe stem lengths, discussed by Noël Hume (1978:296-297), as well as bowl shapes (Noël Hume 1978:302-303). In fact, Noël Hume notes that bowl shape or form remains the most accurate dating technique for seventeenth century pipes. Some have suggested pipe bowl form and size varied with the price of tobacco, growing larger as tobacco prices fell (Fox 1998:27).

Noël Hume (1978:304-305) also remarks on the ability to sometimes obtain pipe dates based on the identification of makers' marks. These marks may occur on flat base of the heel or on either side of the heel or spur, typically as initials. Sometimes there is identifying information on the back or sides of the bowl. Obtaining useful manufacturing information can be difficult and generally the date range is rather broad. Nevertheless, there are a variety of information sources (e.g., Davey 1980; Walker 1966; at least one on-line reference is available at http://webarchive.nationalarchives.gov.uk/20090510221705/http://museumoflondon.org.uk/claypipes/pages/marks.asp).

Beaman (2005) examined a number of North Carolina archaeological sites, looking at their location, date range, the proportion of Tobacco Group Artifacts, and the bowl-to-stem ratio. He arrived at a variety of observations. He dismisses the idea that some areas (for example, areas with annoying insect populations) were more inclined to have pipes than others; he also found that there is no significant difference in tobacco pipe use between rural and urban sites; and finally, he found no indication that status was a factor in tobacco pipe use (Beaman 2005:84-86).

He did discover that the normative bowl-to-stem ratio was 1:4.0, although a range from 1:1.2 to 1:29.8 was found (Beaman 2005:83-84). He suggests that a high bowl-to-stem ratio may indicate "a less stable, higher transient population" (Beaman 2005:84).

By the mid- to late-eighteenth century stub-stemmed redware pipes were being produced and were initially included in the Activities Group by South; since that time most archaeologists have incorporated them in the Tobacco Group (see Beaman 2005:88-89). Notable among these pipe makers was Gottfried Aust - potter at Moravian settlements in Pennsylvania and North Carolina - who was producing distinctive

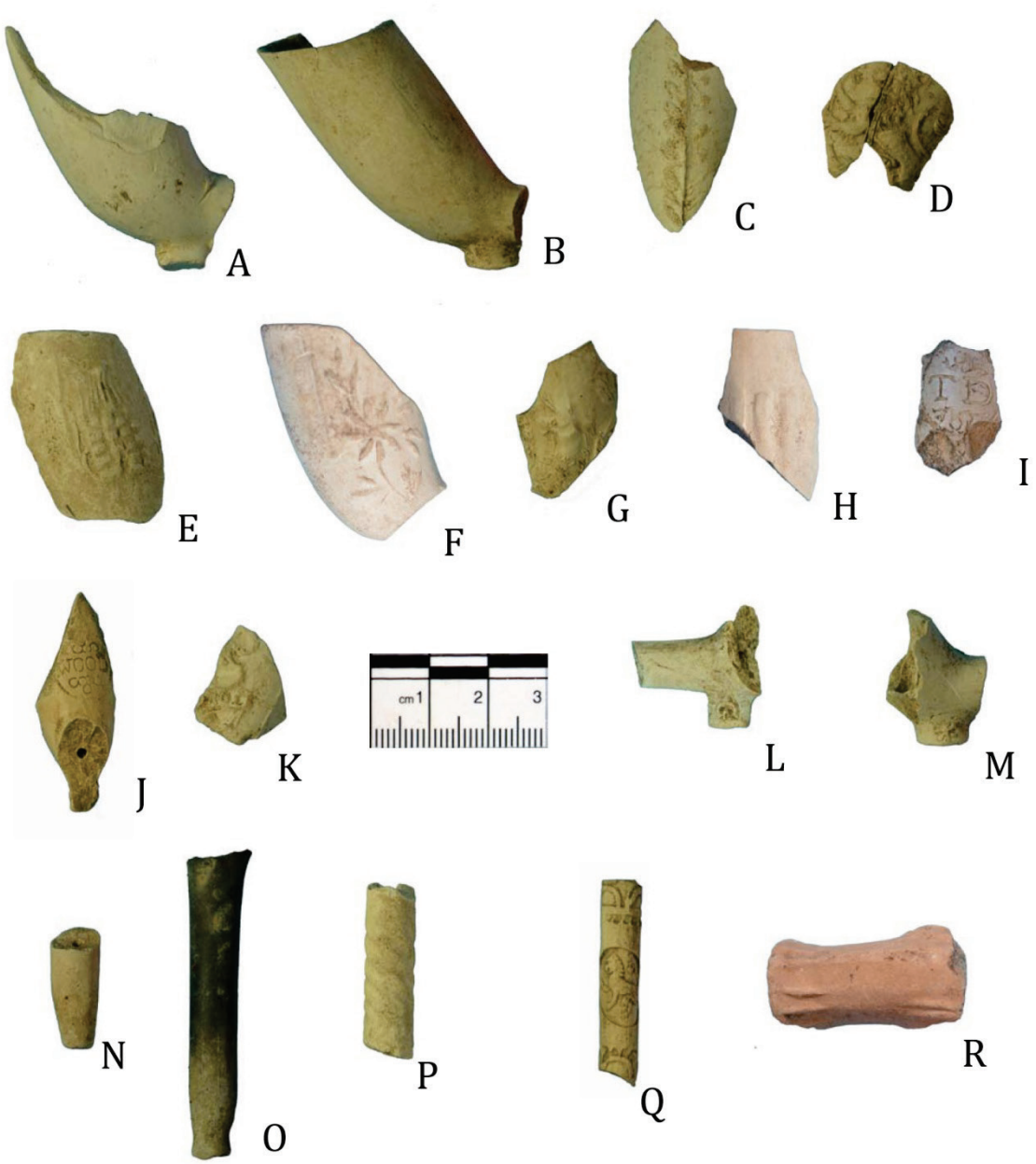


Figure 111. Tobacco artifacts from Kendal. A-B. profile of tobacco pipes typical of Kendal (Noël Hume [1978:303] characterizes the form as dating between 1700 and 1770); C. leaf decoration along mold seam; D. lion motif; E. thistle motif; F. flower motif; G. unicorn motif; H. pipe bowl with ribs; I. "T D" pipe; J. "Wood" pipe; K. "Droit" pipe; L. pipebowl foot with "G.W." stamp; M. pipe bowl foot with star impression; N-O. pipe stems with chew marks; P. pipe stem with swirl motif; Q. pipe stem with lion motif; R. fragment of stub stem earthenware pipe bowl.

anthropomorphic and fluted reed-stem pipes (South 1967b; see also Walker 1975, 1980).

Another regional stub stem pipe production center was in Pamplin, Virginia. First beginning as a cottage industry, pipe production became more automated by the end of the nineteenth century and the pipe factory didn't go out of business until the second quarter of the twentieth century (Sudbury and Jung 2009:140).

Clothing Group

Epictetus (*Discourses* 3.1) explained, "Know first who you are, then deck yourself out accordingly." White (2005:57) provides a brief introduction to late seventeenth and eighteenth century men's clothing. Examining period portraits she also comments on how even paintings served to convey the status and wealth of the individual through their accessories. The individual's "impeccable and luxurious garments, buttons, hat, walking stick, watch seals and fob, gleaming shoe and knee buckles" all served as visual reminders to the public.

Buttons

Buttons are often the most numerous Clothing Group artifacts at a historic site, even while comprising only a very small percentage of the total collection. Nevertheless, the kinds of materials used in the manufacture of buttons can provide clues regarding the clothing worn by the occupants of a site and this can help archaeologists better understand the socioeconomic status of these individuals. White (2005:57), for example, explains that pewter buttons will be common among all economic levels in the seventeenth and early eighteenth centuries, but were relegated to the lower classes by the mid-eighteenth century.

While there are a variety of button terminologies, there are really only two broadly defined button attachments. The first is the sew-through button, often utilitarian and generally with two or four holes, although three or five may be present. These buttons can be made of a wide variety of materials, including wood, bone, porcelain, and various metals. The other button attachment form is a metal loop that forms a shank. This shank may be soldered onto a metal disc or attached to a two-piece metal button using a hole, to form a loose shank. Metal loop shanks may be found on glass, metal, mother-of-pearl, and bone buttons.

Buttons occurred as fasteners on a broad range of clothing. White explains,

> Coat, jacket and vest buttons are decorative types used to fasten these garments. Sleeve buttons consist of a set of linked buttons used to fasten one cuff to another. Sleeve buttons are a special class of buttons, commonly decorated, and the shape of the links can be used to date the buttons. Buttons were also used to fasten shirts, breeches and trousers, boots and shoes, undergarments and gloves (White 2002:74; Noël Hume 1961 discusses sleeve buttons).

In the eighteenth century, however, most women's clothing did not use buttons, instead relying on lacings, pins, or hooks and eyes. Eighteenth century men's clothing used buttons on coats, waistcoats, breeches, stocks, cloaks, sleeves, and even handkerchiefs (White 2005:57).

Buttons come in a variety of sizes and were typically measured in 'lines', a term derived from the French *lignes* of 40 "lines" to 1-inch (25 mm). The size ranges follow generally accepted concepts of use, with those buttons 6 mm and under being associated with undergarments or delicate outer garments, those between 7 and 13 mm used on shirts and pants, and the larger buttons being used for coats (Luscomb 1971:121).White offers alternative measurements of 18 to 35+ mm for coats, waistcoats used buttons ranging from 14.5 to 19.5 mm, and sleeve buttons were generally 13 to 17 mm (White 2005:57).

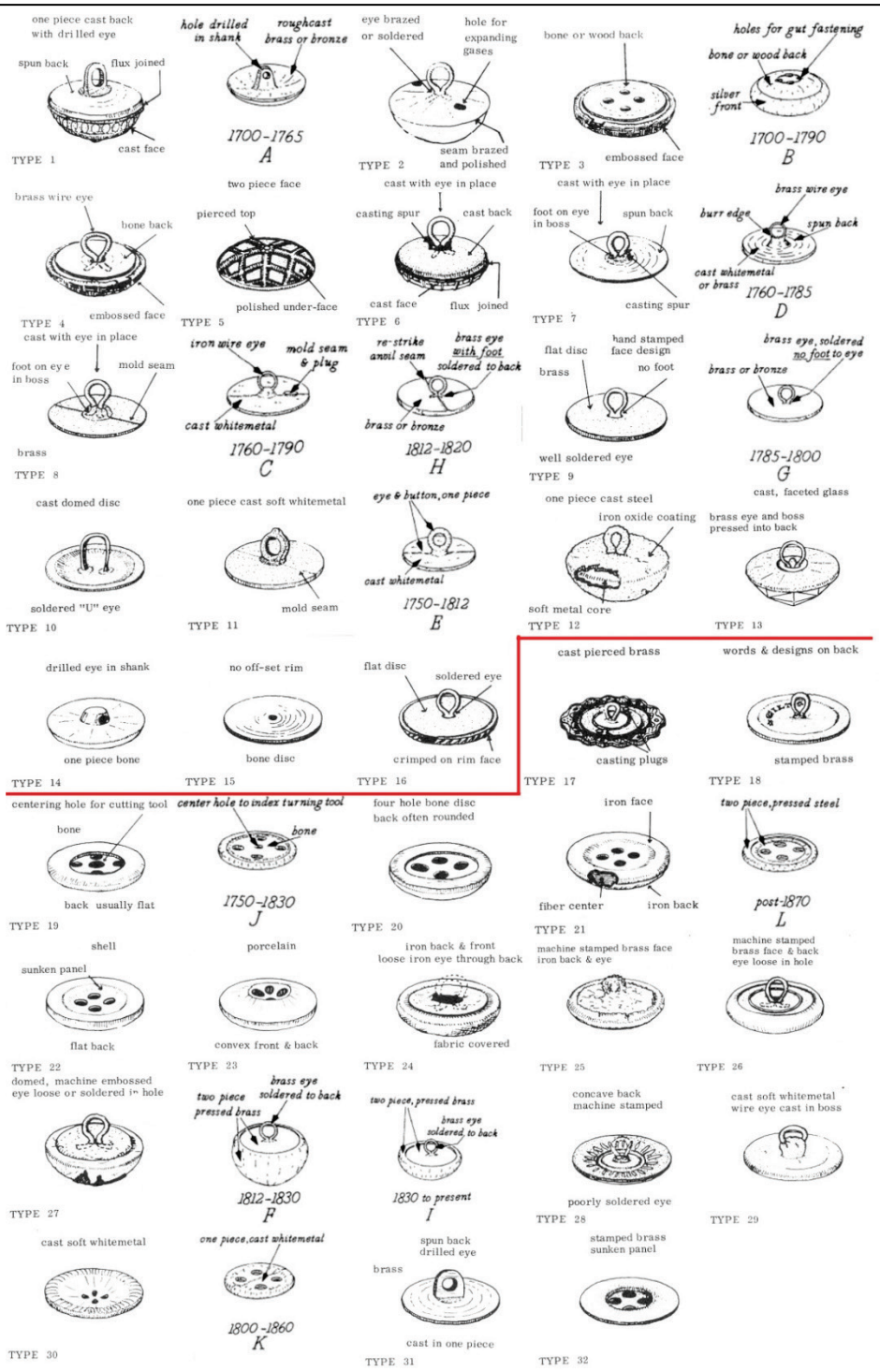


Figure 112. Comparison of South (1961) and Olsen (1963) button classifications. South's types are shown with numbers, Olsen's are shown with letters. Those above the red line are dated by South from 1726 to 1776. Those below the line are dated from 1800 to 1865.

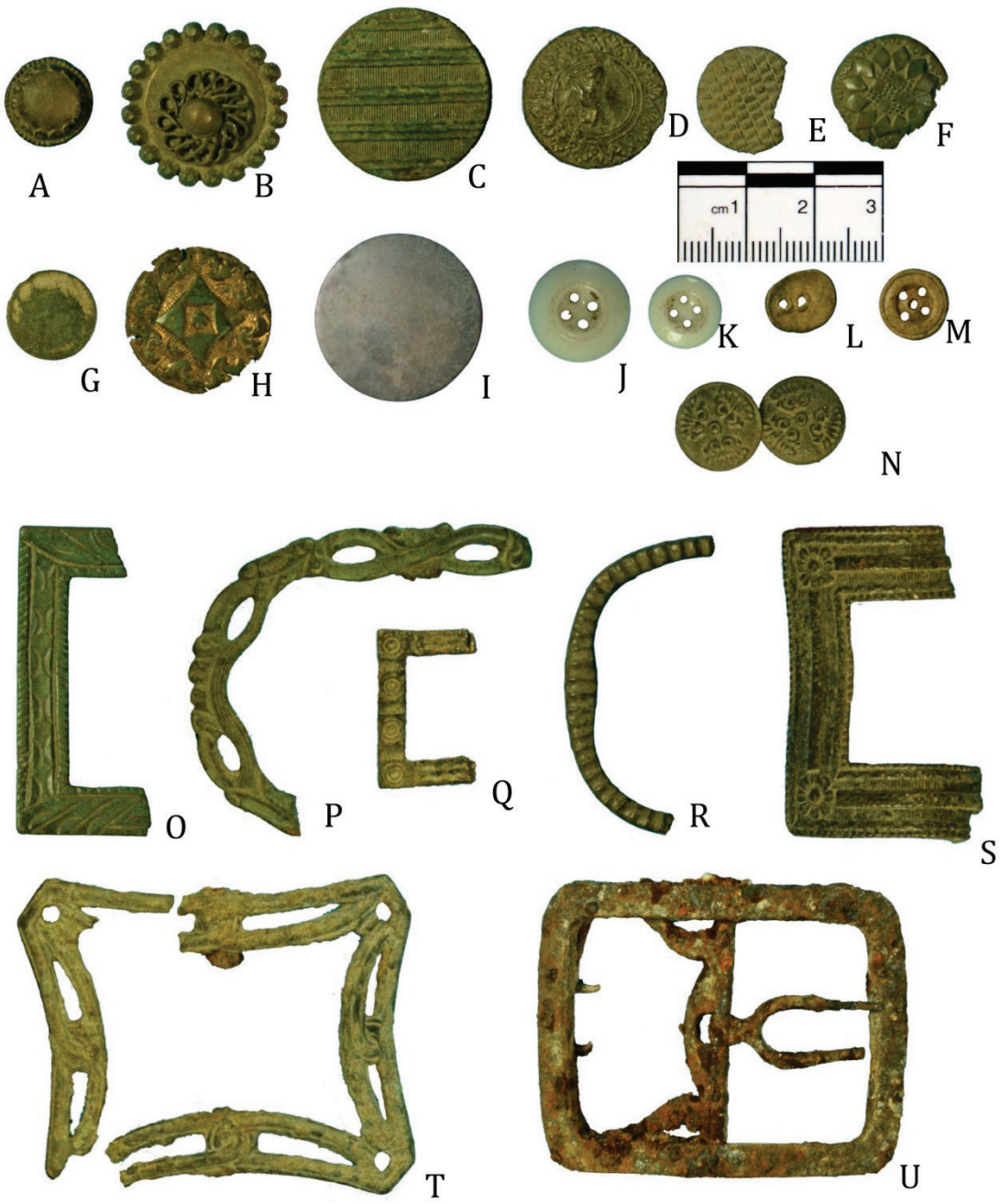


Figure 113. Buttons and shoe buckles from Kendal. A. South's Button Type 35; B. three piece brass button, no type; C. South's Button Type 3 with bone back; D. South's Button Type 28; E-F. South's Button Type 25; G. South's Button Type 18; H. South's Button Type 3 or 4 (back is missing); I. South's Button Type 18; J-K. South's Button Type 23; L. possible lead button, no type; M. South's Button Type 19 bone button; N. cuff buttons; O-T. examples of decorative brass shoe buckles; U. iron shoe buckle.

Figure 114. Other buckles and clothing items from Kendal. A. shoe buckle chape (compare with Figure 116D); B-E. spur buckles; F. straight pin; G. ultramarine translucent glass bead (Kidd and Kidd type 1a19); H. square black opaque glass bead (Kidd and Kidd type 1c); I. clear translucent wound glass bead (Kidd and Kidd type W1d). J-K. scissor fragments. L. sad iron.

As focused on typologies as archaeologists tend to be, there is no complete button typology. The closest is that developed (and widely used) by South from work at Brunswick Town and Fort Fischer, North Carolina. South identified 16 types of buttons which date from 1726 to 1776, and an additional 16 types which date from 1800 to 1865 (South 1961). Shortly after South's publication, Olsen (1963) published on plain metal button forms. While there is considerable overlap, Figure 112 illustrates some of the differences. Most notable are differences in ages assigned to many of the buttons.

More recently Deagan (2002:161-174) discusses Spanish buttons from the sixteenth and seventeenth centuries, noting that by the eighteenth century French fashion dominated Europe and America. She separates eighteenth century buttons on Spanish sites by materials, such as bone buttons and button backs, copper-alloy buttons, two-piece metal buttons and so forth.

An exception to this absence of typologies is work with military buttons, where collectors have focused on developing detailed lists of buttons broken into different state regiments and other governmental groups. Examples include Albert (1969), Calver and Bolton (1950), Tice (1997), and Troiani (2001).

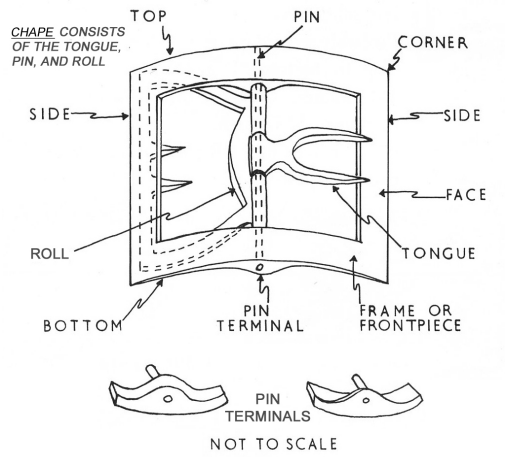


Figure 115. Parts of a shoe buckle with pin types (adapted from Abbitt 1973:Figure 8).

Noël Hume, in discussing common eighteenth century buttons, provides some dating guides, typically providing only very general information. For example, "hollow-cast examples, usually in white metal or brass, and often with embossed decoration, plain, or gilded, were the rule in the first half of the eighteenth century, while flat copper-alloy disks predominated in the second, getting larger and larger toward the end of the century" (Noël Hume 1978:89-90).

Often of greater use are the backstamps found on many buttons. Luscomb (1967) provides discussions of a great many manufacturers and there are additional resources on-line (for example, http://www.oldcopper.org/button_makers.htm and http://www.angelfire.com/wa/dianaspage/BritishButtonBackmarks.html). There are also resources available for a few particular button types, such as the porcelain or Prosser buttons (Sprague 2002).

Shoe Buckles

Buckles are nearly as well studied as buttons (Abbitt 1973; Noël Hume 1978:84-88; White 2005:31-50). They represent a variety of qualities, making them useful as an index of class and status. Noël Hume (1978:84) divides them into dress (clothing) and harness, with those used on or with clothing further divided into shoe, knee, stock, hat, garter, spur, and sword buckles (White 2005:39). Of these the shoe buckle seems to be the most common.

Figure 115 shows the parts of a typical eighteenth century shoe buckle, which might be made of silver, copper-alloys, gilded brass, tin, pewter, iron, and a variety of other metals. Various accents were occasionally added, such as paste or rare jewels, although these don't seem to be common in archaeological collections.

Eighteenth century shoes (both men's and women's) had two leather straps over the tongue. The lower strap (these straps were also known as lachets) was secured by the chape and the upper

strap was fastened over the lower by the tongue of the buckle. A useful graphic is available at http://www.american-duchess.com/fitting-buckles.

White (2005) suggests that both the buckle shape and the chape itself can be used to date shoe buckles, but many of the changes are gradual, resulting in overlaps and only very general dates. For example, from the late seventeenth century through about 1720 shoe buckles were relatively small, about 30-40 mm in length and 20-30 mm in height. By the 1750s the size had increased to about 50-70 mm in width and by the 1760s, the width might be 100 mm.

Table 34.
Outline of Shoe Buckle Types based on Abbitt (1973)

Type	Decoration	Metal	Face Shape	Corners	Side to Side	Top to Bottom
1	Plain	Brass/copper alloy	Flat to convex	Right angle	38-47	44-89
1-A	Plain	Iron	Flat to convex	Right angle	38-47	44-89
2	Decorated	Brass/copper alloy	Flat to convex	Right angle	33-51	41-83
3	Plain	Brass	Flat to convex	Rounded	37-51	48-70
3-A	Plain	Iron	Flat to convex	Rounded	37-51	48-70
4	Decorated	Brass/copper, some plated	NS	Rounded	35-52	51-76
4-A	Decorated	Silver	NS	Rounded	35-52	51-76
5	Openwork	Brass/copper alloy	NS	NS	41-67	51-102
5-A	Openwork	Iron	NS	NS	41-67	51-102
6	Commemorative	Copper alloy	NS	NS	NS	NS
7	Paste Jewels	Solid set in brass	NS	NS	NS	NS

Measurements in mm
NS = not specified

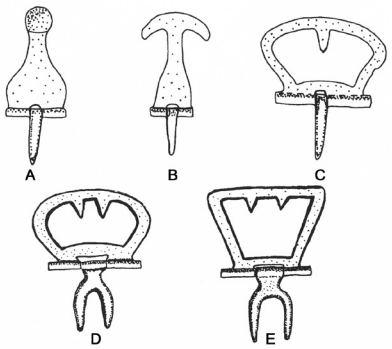


Figure 116. Evolution of shoe buckle chapes (adopted from White 2002:Figure 3.8)

The very large buckles, called Artois buckles, were most popular from 1775 through about 1790. By the nineteenth century the shoe string was introduced and shoe buckles in America are generally not found later than 1820. Openwork buckles tend to be most common after about 1750.

The chape evolved through three basic forms (White 2005:Figure 3.8, reproduced here as Figure 116). The roll changes from a stud to an anchor shape about 1720, then changes to a loop shape, all with a single tongue. In the last half of the century the roll develops two teeth and the tongue becomes fork-shaped.

A detailed typology of shoe buckle frames, is briefly outlined in Table 34 (Abbitt 1973). Dating of the various types is not particularly secure and no mention is made of the chape style.

Other Buckles

Knee buckles were worn on breeches, short trousers, fastened either just above or below the knees. The long axis of the buckle was vertical, allowing cinching of the band holding the breeches tight to the leg. Knee buckles were introduced about 1735; prior to that time buttons were used. Curiously, even after buckles were common, buttons continued to be found on the bands. White (2005:43) identifies only anchor-shaped chapes with knee buckles. Initially the buckles were small and square, increasing in size as the century continued. By the 1770s, the knee buckles reached their maximum size of about 30 by 40 mm and might be either square or oval. By the 1790s buckles began to be replaced by ties.

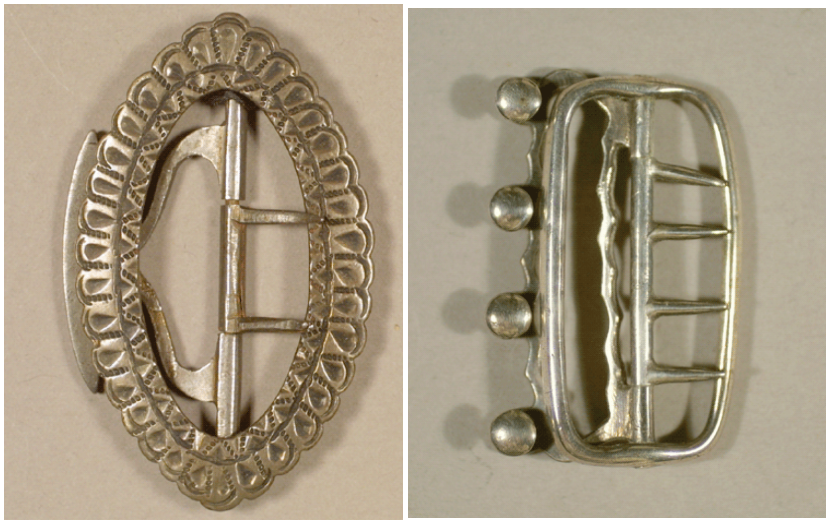


Figure 117. A knee buckle on the left and a stock buckle on the right (courtesy Historic New England).

White notes that the knee buckles have four distinct characteristics. First, as previously mentioned, the roll or chape is always anchor shaped and often has a half-heart cut-out design. The chape will have either two or three tongues, while the anchor chape of shoes has only one tongue. A second characteristic is the location of the pin terminal on the short axis of the buckle frame (since the buckle was worn vertically). The third feature is that knee buckles are flat, unlike shoe buckles which are convex. Finally, the knee buckle will have a relatively small frame, especially compared to shoe buckles (White 2005:45).

Stock buckles were also common during the eighteenth century. The stock was a neckcloth worn by men and wrapped around neck, being secured in the back using a buckle. These buckles had rectangular or oblong frames. The pin terminals were on the long side of the frame, giving the buckle a vertical orientation like knee buckles. The stock buckle roll had three or four buttons used to fit into corresponding buttonholes on the stock. The chape tongue generally had four tines or spikes used to attach the buckle to the stock (White 2005:45).

White (2005:47) suggests that hat buckles, found on round and tricornered hats, are almost impossible to distinguish from knee and stock buckles, generally being rectangular with pin placement on the short axis.

Other buckles include those to hold up tall boots, fashionable in the last quarter of the eighteenth century, girdle buckles worn by women around the waist of dresses beginning in the second quarter of the eighteenth century, spur buckles worn from the seventeenth century on, and sword buckles (see White 2005:46-47). Deagan (2002:187-189) provides a particularly detailed account of spur buckles, although Noël Hume reports that eighteenth century spurs are uncommon in archaeological contexts, perhaps because they were primarily brass and were melted down when broken (Noël Hume 1978:243).

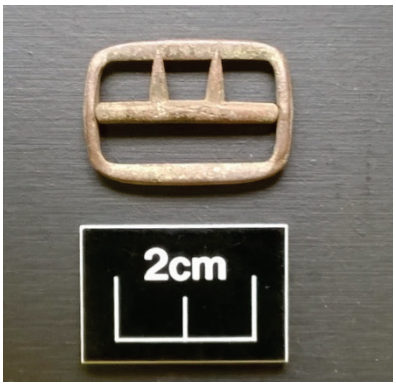


Figure 118. Eighteenth century boot or garter buckle (courtesy Wardell Armstrong Archaeology).

Aglets

Noël Hume (1978) does not mention aglets, although both Deagan (2002:174-175) and White (2005:31) give them some brief context. Rare on eighteenth century Spanish sites, they

appear more commonly on English sites and documentary sources often call them "points." They were typically made of rolled copper, attached to the enveloped lace with a ferrous rivet.

Hook and Eye Fasteners

Noël Hume (1978: 255) reports the presence of these fasteners from at least the seventeenth century on and they are, of course, still present today. Being hidden from view White (2005:74) notes that this makes it "difficult to provide much detail about their form." Moreover, they "exhibit a basic and consistent form" (White 2005:75). White reports that early hooks and eyes were both made from rounded wire, although by the early 1700s, hooks began to be made of flattened wire. Flat brass eyes are not found prior to about 1815.

White (2005:75) suggests that more hooks than eyes are found archaeologically since early eyes were formed with thread. Deagan (2002:176) reports that by the seventeenth century "cooper-alloy examples with the configuration of modern hooks and eyes" were present, at least on Spanish sites.

Beads

Archaeologists typically associated beads with either Native Americans (Orser 2002) or African Americans (Stine et al. 1996). South (1977) included beads in clothing, as we have. Some, however, prefer to include them in the category of Personal artifacts. Readers should be aware of this difference. Regardless, one of the most complete typologies for glass beads (Kidd and Kidd (1970) is based on manufacturing processes such as being drawn or wire wound.

Drawn beads were made from a bubble of glass that was stretched into a long, thin tube. Once hard, it was broken or cut into segments. These segments formed the individual beads. The basic Kidd and Kidd typology for this style of bead is shown in Figure 119. In contrast, wire wound beads were produced individually. A ribbon of molted glass was wrapped around a chalk-covered wire, slowly building up a small bead. Once cooled, it was removed from the wire.

While acknowledging the use of beads by native groups and enslaved Africans, White (2005:81) focuses on beads "as part of European American dress." She discusses beads of higher status, such as gold beads, coral beads, and cut-steel beads, but then admits that "it remains difficult to associate beads with particular items of dress" (White 2005:83). It seems likely that the bulk of the beads from Kendal represent the African American occupation at the plantation.

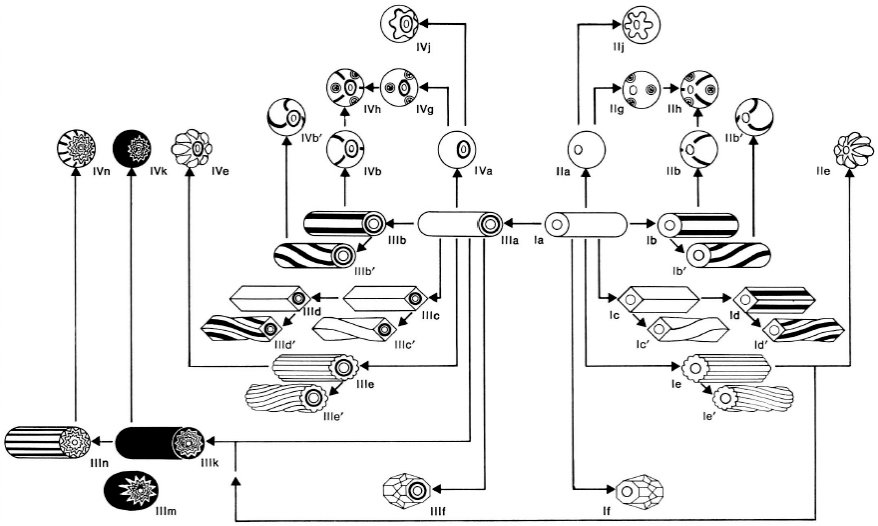


Figure 119. Basic drawn or tube bead typology proposed by Kidd and Kidd (1970: Figure 3).

Sewing Items

Although not worn or items of personal adornment, South (1977) chose to include a variety of sewing items in the Clothing Group, including thimbles, pins, and scissors.

Noël Hume, although noting that thimbles are among the most common small finds at historic sites, provides only a page of discussion and little in the way of chronological assessment. He notes that by the early eighteenth century the thimble crowns were stamped with linear patterns and that there were "no appreciable difference between thimbles of the eighteenth century and those of the nineteenth" (Noël Hume 1978:256). Hill provides a more detailed discussion, noting that by the seventeenth century what are known as deep drawn thimbles were made by pressing sheet metal rather than by annealing (Hill 1995:86). These thimbles had edges that were folded over the outside of the rim. Hand stamping the exterior surface gave way to a mechanical process known as knurling (Hill 1995:87).

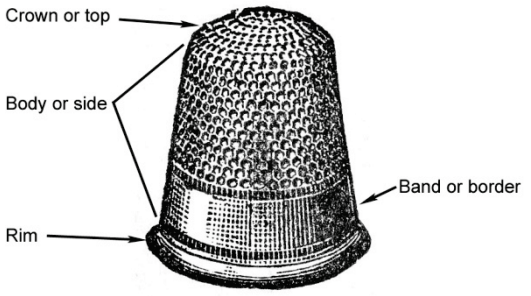


Figure 120. Parts of a thimble (adapted from Beaudry 2006:Figure 4.1).

Although Deagan focuses on Spanish collections, she provides very useful information. In the first half of the eighteen century most thimbles were being produced in England and were cast in two-pieces. Their form was short and wide. The crows were rounded and lacked a tonsure or blank area on the crown. As mentioned by Hill, the sides are knurled. By 1750, thimbles from both England and Holland were cast in one-piece and were tall and narrow with a wider base. After 1800, thimbles were deep drawn and their shape was "beehive-like." The crown was also rounded (Deagan 2002:Table 10.1).

Both Deagan (2002:205) and Hill (1995:90) mention the recovery of small thimbles, sized for children. Beaudry (2006:105) explains that three basic sizes were available: girls', maids', and women's, although elsewhere these seem to be identified as Child's, Small, and Medium each associated with number sizes for a variety of manufacturing countries (Beaudry 2006:106). While admonishing archaeologists to provide sizes of thimbles found on archaeological sites, she does not specifically identify size ranges with the different terms or size numbers.

Scissors are two-piece cutting implements with pivoting blades and loop handles. In contrast, shears are a single piece with two blades operating on a spring action (Figure 121).

Noël Hume (1978:267) reports that "rat tails" bows are common during the first half of the seventeenth century. These scissors have bows formed by drawing the shanks out into narrow rat tails and looping them outward and back toward the shank to make unconnected bows. Otherwise Deagan (2002:207) suggests that scissor form was more typical of function than when they were made, a view that corresponds with Beaudry (2006:135). Beaudry does, however, offer some bow and shank styles, based on English scissorsmiths (Beaudry 2006:126).

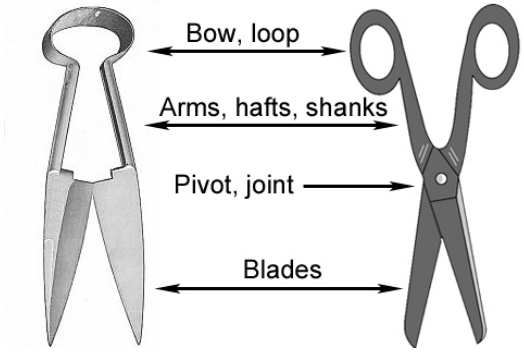


Figure 121. Shears (left) and scissors (right).

Another sewing item found at many colonial sites are pins. In fact, Deagan (2002:193) suggests they are the *most* common sewing artifact recovered when fine screening is used. Most of these pins were brass, often tinned (Deagan 2002:193; Noël Hume 1978:254). Heads generally consisted of wire of the same diameter of the pin twisted around the head and then stamped (wrapped wire headed pins). Deagan comments that pins are not typically useful in dating since the technology changed very little over time.

Table 35.
Pin Sizes in millimeters
(adapted from Beaudry 2006:Table 2.1)

Pin Type	Approximate Length	Approximate Diameter
Lills, lillikins, lillskins, minnikins	12	<1
Sewing pins – short whites	24-30	1
Sewing pins – long whites, middlings	30-70	1.5
Blanket pins, corkins, double long whites	76	3
Wig pins	190	3

While perhaps not useful in dating, Beaudry believes that pin lengths can provide essential information regarding the function of the pin. Table 35 provides information on a variety of pin forms. She suggests that while the smallest size pins, or lills, could be used to pin fine fabrics prior to sewing, they were more often used to pin veils, although they might also have been used to pin men's or boys' ruffs (Beaudry 2006:24).

Sewing pins were divided among short and long whites and Beaudry (2006:25) suggests that most households would have a variety of pin sizes, perhaps mixed together, suitable for a variety of sewing needs. In contrast, blanket pins would have been used for fastening the folds of heavy blankets or other furnishings. Wig pins were used by both sexes (Beaudry 2006:27-28).

Looking at a variety of archaeological sites, Beaudry (2006:41-42) finds that the most common intact pins measured 20 to 25 mm in length – corresponding to what are known as short whites.

Personal Group

As might be expected, the Personal Group can be very broad, although generally these items reflect a relatively small proportion of the total assemblage. Included are items such as coins, religious medallions, jewelry, fans, umbrellas, eyeglasses, combs, toothbrushes, coinage, and even keys. Only a few of these will be selected for additional discussion here.

As previously mentioned, while South (1977) placed beads in the clothing group, many have chosen to instead to view beads as personal adornment and include them in this category. Readers should be aware of this difference before comparing statistics.

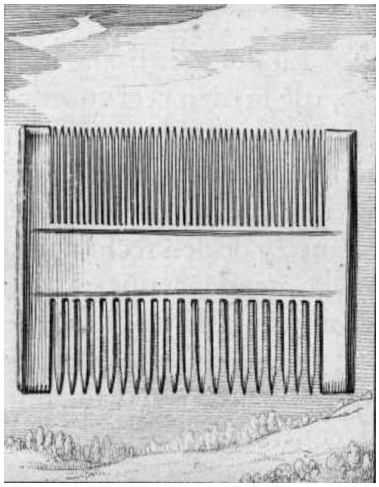


Figure 122. Double-sided bone dressing comb from a 1669 publication, showing how little the artifact changed into the eighteenth and nineteenth centuries.

Figure 123. Personal artifacts from Kendal Plantation. A. bone comb; B. 1771 British halfpenny; C. 1749 British halfpenny; D. 1881 American penny; E. coiled wire ring; F. bear tooth pendant; G. possible watch case; H. fragmentary eyeglass lens; I. umbrella strut; J. pocket knife; K. pocket knife blade; L-M. lined writing slate fragments; N. engraved brass scrap; O. spur; P-Q. door keys.

Toothbrushes

Toothbrushes did not attract Noël Hume's attention, but Mattick (1993, 2010) has prepared fairly detailed histories, although they focus on the nineteenth century. Nevertheless, she recounts the basic history. Toothbrushes, using horse, badger, and hog hair, were in use by 1723 among the elite. By at least 1780 the toothbrush, more or less as we know it today, became commercially available (Carter et al. 1984; Hyson 2003; Mattick 1993:162).

Mattick (2010) expands on her earlier work, establishing a systematic typology and some choronological information beginning about 1820 and extending to about 1920. Deagan (2002:232-233) provides some information on early to mid-eighteenth century Spanish toothbrushes, but notes that the artifact seems to be very rarely found on Spanish colonial sites before about 1780.

Combs

Noël Hume has relatively little to say about this artifact except that it is a type that "persisted throughout the seventeenth and eighteenth centuries, being rectangular in shape with teeth of different sizes along two opposite sides" (Noël Hume 1978:174). White identifies these as "dressing combs" used "in daily tasks of basic grooming and hygiene to rid the hair of tangles and of lice or other vermin" (White 2005:104). Decorative combs, in contrast, were used to secure hair according to particular styles and were larger, one-sided, and usually curved. Decorative combs became more elaborate by the end of the eighteenth century.

Dressing combs were generally bone, horn, or wood (generally boxwood), while decorative combs were more often tortoiseshell and horn. Metal was also used, primarily for decorative combs.

It appears that there is little difference between those dressing combs found on English or American sites and those found on Spanish sites (Deagan 2002:224-227).

Coinage

Noël Hume comments that in a review such as his (or ours, for that matter), little of interest to the serious numismatist will be discussed. Instead, his goal – and ours – is to provide some general information useful to the interpretation of the coins most likely to be recovered at a site such as Kendal (Noël Hume 1978:154-155). This means coinage of low denominations from the eighteenth and early nineteenth centuries. There are, of course, a variety of very detailed publications useful for this study, most particularly Breen (1988). Also useful is the website, The Coins of Colonial and Early America, http://www.coins.nd.edu/ColCoin/.

Although the British currency system of pounds, shillings, and pence[20] was used throughout the North American colonies in bookkeeping, each colony decided for itself the value, or what was known as the "rating," of the coins used in transactions. These coins were not only English, but also French, Portuguese, and Spanish. These ratings were based on the amount of gold or silver contained in the coins and varied by colony. They were always, however, higher than the rating used in Britain. For example, in the mid-eighteenth century the Spanish milled silver dollar was the principal measure of exchange and was appraised at 4 shillings and 6 pence in London, 6 shillings in New England, 7 shillings and 6 pence in Pennsylvania, and 8 shillings in New York (Powell 2005:12). By 1782, the rate of exchange for the Spanish dollar in North Carolina was 8 shillings, but only 5 shillings in Georgia (Chalmers 1898:18).

This process of rating (overrating or underrating) also served to encourage or discourage their circulation. Ratings also changed as the value of silver changed relative to gold and changed with the gradual wearing of coins that

[20] Before decimalization in 1971, one pound (£1) was equal to 20 shillings (20 s.), with one shilling equal to 12 pence (12 d.). The pound continued to be the primary form of currency until the Coinage Act of 1792 when the dollar was established.

reduced their weight and thus their intrinsic value.

A variety of authors comment on the shortage of coin in the colonies, although the cause is unclear. Some economists attribute the problem to the perils of sea travel and trade imbalances with Britain. But another problem that cannot be overlooked is the rating system itself. Powell notes that "overrated coins drove out underrated coins, which were hoarded, leaving light and poor-quality coins in circulation" (Powell 2005:12). This meant that silver and gold coinage of full weight could only be obtained by paying a premium – giving the *appearance* of scarcity.

Efforts to relieve the situation with paper money, typically in war-time, were unsuccessful. In 1740 the change rate in North Carolina for paper money was £1,000 paper for £100 sterling. By 1782 the Spanish dollar was rated at £32.6 in South Carolina paper money (Chalmers 1898:18).

As previously noted, most of the coinage found on archaeological sites are small denominations – farthings (¼ pence), halfpence, and pence. Although gold and silver British coins were not allowed to be exported to the colonies, there was no restriction on the export of "coppers" and over £69,000 in farthings and halfpence was exported to the American colonies from 1695 to 1775. By the 1730s the quantity of British coppers increased and they began to be traded at a premium, or higher than face value. For example, in New York the English halfpence was accepted at twice its face value. However, by the 1740s a number of counterfeit halfpence began to be identified in the colonies, resulting in merchants devaluing the British coppers (Henry 1879:17-18).

Of all the British coppers, the halfpenny was the most common in America. Those dated 1749 are especially interesting, as a large number of those produced in that year were shipped here as payment for the New England-sponsored expedition to take Louisbourg from the French four years earlier (Cook 2006:138-139).

America's small denomination coinage included the copper half-cent, produced from 1793 to 1857. Slightly smaller than a modern quarter, it gradually increased from 22 to 23 mm. While the obverse had five different depictions over time, the reverse always had "Half Cent" encircled by a wreath.

The large cent was also first struck in 1793 and coined every year thereafter through 1857 except for 1815. The coin measured 28.57 mm, thus the name "large cent." Rising copper prices made it impractical to continue their production and they were replaced in 1857 and 1858 by what are known as the Flying Eagle cent. About the diameter of today's penny but thicker, this style was replaced in 1859 by the Indian Head design. The reverse was a laurel wreath, replaced in 1860 by an oak wreath with a shield. The Lincoln cent would go into circulation in 1909.

Of far less importance is a two-cent coin, 23 mm in diameter, produced between 1864 and 1873. A silver three-cent coin was produced from 1851 to 1873 and an nickel version (with a different obverse, but identical reverse) was produced from 1865 to 1889.

Activities Group

South chose to include a broad range items in the Activities Group and these are briefly summarized in Table 36. A few modifications have been made. For example, stub stemmed pipes are included with the Tobacco Group and Colonoware pottery is included in the Kitchen Group with other ceramics. These conventions are common among most archaeologists today. Ethnobotanical remains are not included since their counts would significantly distort the various patterns. Some care is required when examining the Activities Group because modifications to South's original framework are not always obvious. For example, some include writing implements in the Activities Group, rather than in the Personal Group or include scissors here rather than in the Clothing Group (e.g., Alvey 1997:63).

Those hoping that South (1977) might provide a tidy explanation of this broad assemblage

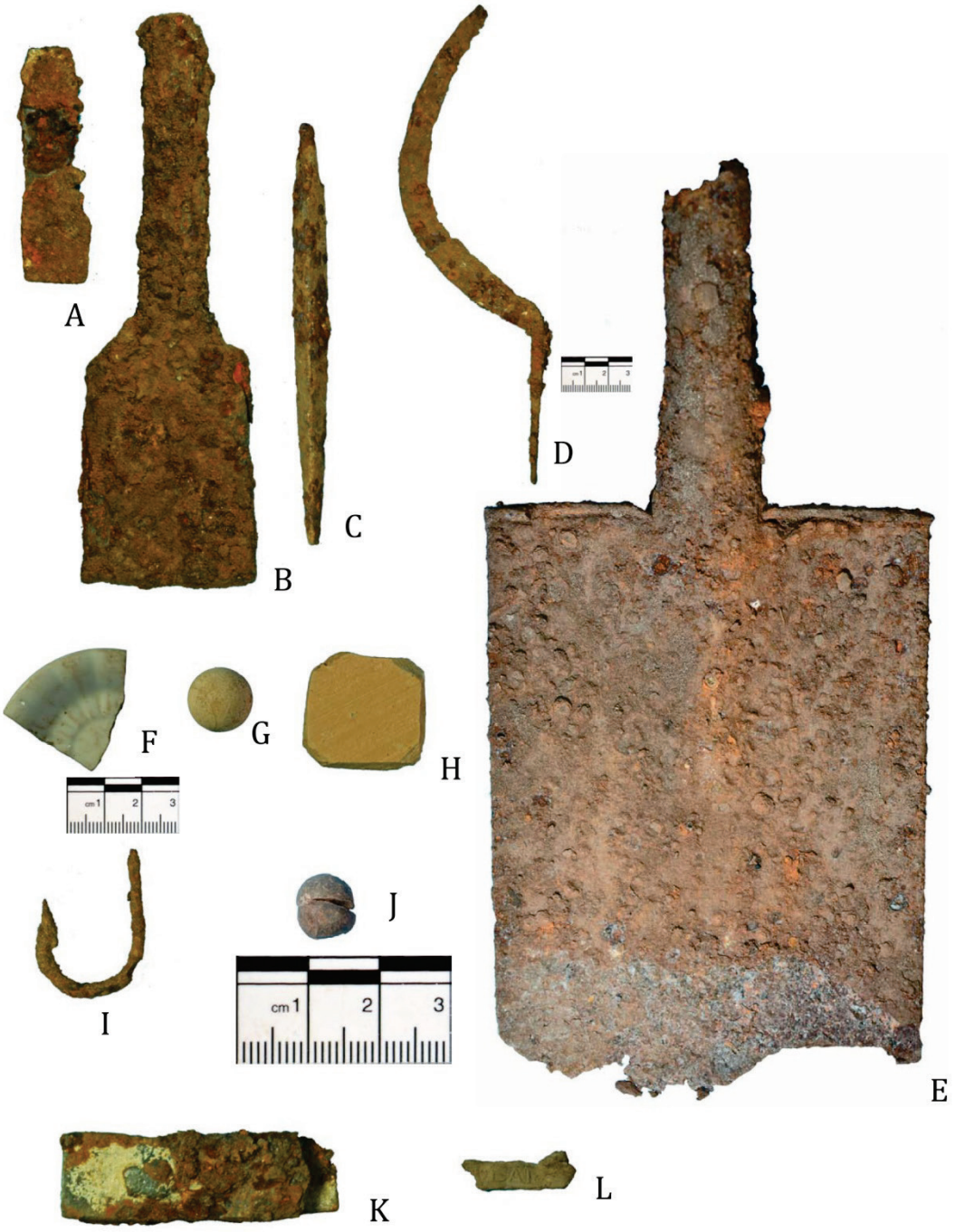


Figure 124. Activity group artifacts from Kendal Plantation. A-C. construction tools (saw blade, wood gouge, triangular file); D-E. farm tools (sickle, shovel); F-H. toys (toy white porcelain saucer, clay marble, gaming or counting disk made from stoneware); I-J. fishing tools (fish hook and lead net or line sinker); K-L storage items (strap metal, lead seal).

Figure 125. Activity Group artifacts from Kendal Plantation. A-F. stable and barn artifacts (snaffle bit, harness buckle, harness decorations, horseshoe, cow bell); G-I. miscellaneous hardware (brass bolt, wrought staple, hook, chain with eye bolt).

are no doubt disappointed. He does, however, explain that,

> the classes in the Activities group should reveal specific behavioral activities through the higher than normal frequency for one or more classes. Such deviation from the ranges defined by the pattern might allow for the interpretation of an industry, a craft activity, or trade with the Indians (South 1977:102).

South illustrates that Fort Moultrie has a higher than expected proportion of Activities Group items, such as bone button blanks, suggesting "by-products of specialized activities" (South 1977:104). He even suggests the group should encourage archaeologists to focus on the artifact classes that the group contains to look for minute differences between the examined site and a specific pattern (South 1977:116).

Some archaeologists have noted that many of the Activities Group artifacts might normally be associated with domestic activities. Toys may sometimes be associated with children, but South (1977:182) cautions that some items associated with children today, such as marbles, were originally used by adults (dice is another example). Fesler (2004:207), however, associates construction and farm tools, livestock items, miscellaneous hardware, and storage items with men living at a site.

Table 36.
Activities Group Classes and Examples
(items removed shown *italicized*)

Class	Examples
Construction Tools	Files, hammers, chisels
Farm Tools	Hoe, rake, sickle
Toys	Marbles, jew's harp, doll parts
Fishing Gear	Fishhooks, sinkers
Stub Stemmed Pipes	*Added to Tobacco*
Colono	*Added to Kitchen*
Storage Items	Barrel bands, brass cock
Ethnobotanical	*Not included*
Stable and Barn	Stirrup, harness, horseshoe
Misc. Hardware	Chain, bolts, nuts, andirons
Other	Items reflecting specialized activities
Military Objects	Insignia, bayonets

Colonial Midden 1

A total of 12,099 artifacts, not including faunal and ethnobotanical remains, were removed from the five units comprising the 300 square foot (345 cubic foot) excavation area. Artifact density was high with 40 artifacts per square feet or 35 artifacts per cubic foot.

The very large quantity of animal bones suggests a secondary refuse area for butchered and cooked meat refuse. But included in the assemblage was abundant domestic refuse (Table 37).

When the assemblage is examined as a whole, 59% of the artifacts are related to kitchen activities and 31% are related to architecture (Table 38). When this assemblage is compared to other notable artifact patterns it closely resembles what is known as the Revised Carolina Artifact Pattern, representative of British colonial sites (such as nearby Brunswick Town). However, there are differences. For example, architecture is only slightly above what is expected, while both arms and tobacco are significantly higher than would be expected, and clothing and personal items are lower.

The assemblage even more closely resembles what is known as the Carolina Elite Pattern, different only in the very high quantity of tobacco artifacts. The similarity of the midden assemblage to this elite pattern is consistent with what is expected for the settlement of Roger Moore.

Kitchen Artifacts

Ceramics

The three most common ceramics are white salt glazed stonewares (n=417, 17.8% of the ceramic assemblage), various Chinese porcelains (n=403, 17.2%), lead glazed slipware (n=344, 14.7%), delft (n=335, 14.3%), and coarse red earthenwares (n=175, 7.5%), Together these five wares account for almost three-quarters of the assemblage, although as Table 37 reveals there are 27 additional ceramic wares present in the assemblage. Thus, the two most common ceramics in the midden are typically considered very high status, expensive wares used by planters and the elite. The lead glazed slipware would have been far more prevalent on the tables of commoners – or slaves. Delft might have been used by either. The coarse red earthenwares are typically storage or preparation wares. Consequently, even the five most common ceramics are suggestive of a significant range of people and activities contributing the midden.

The analysis reveals the presence of 245 minimum number of vessels at Colonial Midden 1 (Table 39). While the inclusion of cups with bowls and saucers with plates to form the hollow ware and flat ware groups makes sense for sites dominated by African American slaves, the process seems to make less sense when dealing with potentially high status colonial settlements. For example, at this midden 47 of the hollow wares are cups likely associated with tea service, reducing the hollow ware forms to about 30% of the total assemblage. It may be more useful to examine the collection on the basis of flat ware (plates), hollow ware (bowls), and tea ware (cups and saucers) since all three would have been characteristic of a planter's table. If divided in this manner, there are 72 flat ware items, 73 hollow ware items, and 55 tea ware items.

Nearly 89% of the collection from the midden represents table wares. Only 11% are utilitarian vessels that might have been used for storage, including pans and chamber pots. In other words, most of the collection represents items that would have been found on the planter's table.

Table 37.
Artifacts Recovered from Colonial Midden 1

	175L5, Lv 1	175L5, Lv 2	175R0, Lv 1	175R10, Lv 1	175R10, Lv 2	175R20, Lv 1	175R20, Lv 2	180R0, Lv 1	180R0, Lv 2	Trowel		
Kitchen Group											7149	59.1
Chinese porcelain, undecorated		1	6		11	1	16			1		
Chinese porcelain, blue hand painted	2	39	23	9	106	1	86	8	24			
Chinese porcelain, poly HPOG	2	9	8	2	26		13		6			
Chinese porcelain, Batavia					1		2					
English porcelain, undecorated									1			
White SG SW	7	13	6	3	19	1	43	1	5	3		
White SG SW, scratch blue			1									
White SG SW, slip dipped		43	34	11	131		68	2	7			
White SGSW, slip dipped, brown rim		3	1	1	9		5					
Delft, undecorated	3	4	29	4	87		77	2	20			
Delft, polychrome hand painted		3	2		2							
Delft, blue hand painted		9	13	3	33		34	1	8			
Delft, sponged			1									
Lead glazed slipware	2	52	35	9	140	8	74	7	17			
Creamware, undecorated					4	1	4					
Pearlware, undecorated					1	2	4	1				
Pearlware, blue hand painted		1		1				1				
Pearlware, annular		1					1					
Pearlware, blue transfer printed		1		1			5					
Whiteware, undecorated						2	10	2	1			
Whiteware, poly hand painted						1						
Whiteware, annular							2					
Yellow ware, undecorated	1	1		6								
Green glazed, cream body						1						
Black basalt				1								
Astbury ware					14		5					
Jackfield							4					
Clouded ware		1	1	1	1		2					
Rhenish stoneware					1		1	1				
Elers ware		1					1					
Refined earthenware, UID		20	3		16		14	1	5			
Tortoiseshell		14		1	67		41	1	19	2		
Rockingham			1									
Agate ware		1		1	9		13					
Nottingham	1	9	3		22	1	7	1				
Westerwald		6	3	3	14	1	18	1	1			
Gray SG SW				2	16		11		5			
Brown SG SW	3	9		2	34		13		12			
Albany slip SW		1		2			4					
Bristol slip SW							1					
Coarse Red earthenware	1	13	9	5	60		59	1	24	3		
El Morro				1								
Buckley	1	18	11		38		11	1	18			
North Devon gravel tempered					4		4					
South European Ware		1										
Burnt refined earthenware			4		7		7		3			
Glass, black	40	703	737	35	659	11	310	18	786	21		
Glass, aqua	1	6	85	6	69	2	78	1	1	4		
Glass, green	1	37	59		151		23		152	2		
Glass, light green	1	61			56	1	69		93			
Glass, brown	1			3	99	3	94	1				
Glass, other			6									
Glass, clear	2	20		2	74	2	89		12	3		
Glass, manganese			1		7		2					
Glass, melted					34		17		2			
Utensil		1			3	1	1		1			
Kitchenware					1							
Colono ware		8	2	3	37		8					
Architecture Group											3752	31.0
Window glass	6	180	136	15	439	8	526	16	159	9		
Eye pin		1										
Staple frag		1										
Paver			5		19		5		6			
Nails, wrought		170	85	12	506	13	234	8	123	9		
Nails, machine cut	1			2	52		107					
Nails, wire					1		1					
Nails, UID	7	155	58	5	355	3	263	5	40	6		
Furniture Group											35	0.3
Brass tacks	1	1	1		5		2		1			
Iron tacks		1	3		1		7		3			
Escutcheon				1					1			
Decorative item							1					
Candle snuffer									1			
Lamp glass					1							
Prism					1							
Hinge fragments					1							
Caster wheel, iron							1					
Statuette, bisque porcelain							1					
Arms Group											110	0.9
Lead shot	1	2			36		19		1			
Lead sprue					1							
Gunflint		1	0	1	3		6	2				
Gunflint flakes		3			11		4					
Melted lead		2			11		1		1			
Percussion cap							1					
.22 shell, rimfire								1				
Shotgun shell base, brass							1	1				
Tobacco Group											935	7.7
Pipe stems, 4/64-inch		16	7	2	34	1	19	1	5			
Pipe stems, 5/64-inch	1	49	25	10	188	1	93	3	26	2		
Pipe stems, 6/64-inch	1	3	3	1	18		3		6			
Pipe stems, fragments	1	2			15	2	10					
Pipe bowl fragments	2	44	29	3	222	4	56		24	3		
Clothing Group											38	0.3
Buttons		2			6		11			1		
Buckles		3		1			1		2			
Pins					3		2					
Scissor		1										
Brass eye					1							
Beads					2		2					
Personal Group											7	0.1
Knife blade/pocket knife					1		1					
Writing slate							1					
Slate pencil									1			
Other		1	1		1							
Activities Group											73	0.6
Construction tools					4		1					
Farm tools							1					
Storage items	1	2	1	1	4		3		1			
Stable and barn items		1		1		1	3					
Misc. hardware						2	3					
Other		12	2		5		21		2	1		
TOTAL	91	1763	1440	173	4010	75	2762	89	1626	70	12,099	

Table 38.
Comparison of Colonial Midden 1 to Various Artifact Patterns

	Kendal Colonial Midden 1	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	59.1	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	31.0	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.3	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.9	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	7.7	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.3	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.1	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.6	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1]Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4]Singleton 1980

Creamwares, pearlware, and whitewares, although comprising a very small proportion of the collection (n=47, 2%), are later wares. They date from the American Revolution through the first half of the nineteenth century. While a quarter of the specimens are found in upper levels, most are found from Level 2, suggesting some mixing of earlier and later collections in this portion of the site. Nevertheless, late materials seem to represent a very small assemblage.

Examination of the designs common on these later wares suggests relatively inexpensive motifs, such as plain, annular, or edged. Fully 100% of the whitewares consists of inexpensive motifs, suggesting that their deposition came from the activities of enslaved African Americans at the site.

Colono ware ceramics are very sparse in this assemblage, accounting for only 58 specimens. Individual sherds are small and the minimum number of vessels is only seven. Most of the specimens (n=51) are body sherds. Only two forms of rim treatment are found, flattened (n=5) and rounded (n=3). Most of the colono ware pottery is burnished (n=49), with only nine specimens being characterized as smoothed (something less than burnished, although the difference is somewhat subjective).

Vessel diameters range from only 2-inches to 12½-inches, with a mean of just over 7-inches. The smaller vessels (with diameters of 2 and 2¾-inches) are likely jars or cups, while the larger vessels are almost certainly bowls.

Glass

There is more black glass in the assemblage (n=3,320) than there are ceramics, providing mute testimony regarding the importance of wine, or more correctly alcohol, in colonial society. Jones (1986:9) notes that the dark green bottles were sturdy and were used to transport wine, porter, ale, cider, distilled liquors, and other products. Authors such as Noël Hume (1978:60-68) and Murdoch (2006) provide dating guides, but these assume the presence of intact bottles, which are not present at Kendal.

Basal diameters range from 108 to 203mm, suggestive of beer and wine styles dating from the 1730s to perhaps as late as the 1770s (Jones 1986, Noël Hume 1978). We have determined that the minimum number of vessels was 77.

Among the fragments of "onion" and

Table 39.
Form of Vessels at Colonial Midden 1

	Hollow Ware		Flat Ware		Serving					Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, undecorated	2	2		2								
Chinese porcelain, blue hand painted	15	14	3	24		1						
Chinese porcelain, poly HPOG	2	4	2	3		3						
White porcelain, undecorated												
Subtotals	39		34				4				0	
Delft, undecorated	1	10		3		4				2		
Delft, polychrome				3								
Delft, sponged		1										
Delft blue hand painted		4		7								
Subtotals	16		13				4				2	
White SGSW	1	3		3						1		
White SGSW, slip dipped	20	9	1	7			1			4		
White SGSW, scratch blue												
Subtotals	33		11				1				5	
Lead Glazed Slipware	2	13		17								
Subtotals	15		17				0				0	
Buckley ware										3		
Subtotals			0				0				3	
Nottingham	1	1										
Subtotals	2		0				0				0	
SGSW, brown										5		
Subtotals	0		0				0				5	
Westerwald						1				3		
Subtotals	0		0				1				3	
Coarse Red Earthenware		3				2				5		3
Subtotals	3		0				2				8	
Tortoiseshell	3	4								1		
Subtotals	7		0				0				1	
Creamware, undecorated				1								
Creamware, annular/cable/mocha												
Creamware, edged												
Creamware, hand painted												
Creamware, cauliflower												
Subtotals	0		1				0				0	
Pearlware, undecorated			1	1								
Pearlware, annular												
Pearlware, edged												
Pearlware, hand painted				1								
Pearlware, transfer printed		1										
Subtotals	1		3				0				0	
Whiteware, undecorated		1			1							
Whiteware, annular												
Whiteware, edged												
Whiteware, hand painted												
Whiteware, transfer printed												
Subtotals	1		0				1				0	
Other ceramics	1	3				4		1				
Subtotals	4		0				5				0	
Totals by Function	121		79				18				27	
%	49.39		32.24				7.35				11.02	

	Totals	%
Flat Ware	72	33.03
Hollow Ware	73	33.49
Tea Ware	55	25.23
Serving Wares	18	8.26
Total Table Wares	218	88.98
Utilitarian Wares	27	11.02
Total	245	

cylindral bottles, there were also recovered six bottle seals. All measure between 31 and 41mm in diameter. This variation does not necessarily indicate different seals, but more likely reflects different application making it difficult to obtain consistent measurements. They are all stamped "R Moore" on two lines encircled by dots (the dots are fairly common on these seals). Sometimes called "blob" seals because they were created using blobs of molted glass on the formed, but still hot bottle and impressing the blob with a custom-made seal.

In addition to the "onion" or cylindral bottles, the midden produced three case bottles, also known as "Dutch gin bottles" measuring 62mm square. These were also dark green glass, but were blown into square molds, producing a nearly flat base. The bottles had short necks and everted lips.

Table 40.
Tableware Glass from Colonial Midden 1

Clear Glass Stemware	rim	#
	1½	1
	2½	3
	2¾	3
	3	1
	3¼	1
	3½	2
	4	1
	4½	1
	5	1
		14
Clear Glass Tumbler	rim	#
	2½	1
	2¾	2
	3	1
	3½	1
	4	1
		6

Also present are eight rectangular bottles, including two 73 by 115mm, one bottle 77 by102mm, one bottle 76x115mm, one bottle 77 by 127mm, and three fragments that could not be measured. These similar to those discussed by Jones and Smith (1985) as being used for wet or dry condiments, snuff, sauces, or preserves.

The next most common glass was green, but in spite of the quantity only one vessel was identifiable, a blown glass bottle with a 127mm diameter. Also identifiable were a light green blown flask and a 76mm blown brown bottle base.

There were also 23 glass tableware items, including a minimum of 14 clear glass stemware glasses, six tumblers, one clear glass decanter with an engraved floral pattern, a clear glass bowl with a 3-inch rim, and an aqua glass plate with a 12-inch rim.

Utensils and Kitchenware

Seven utensil fragments were recovered from the midden, including two 2-tine iron forks, one iron knife fragment, one bone handle fragment, and three pewter handle fragments. The two-tined forks likely date from the first half of the eighteenth century. Pewter, while common in the early eighteenth century, began to be replaced with other materials by the middle of the century. The presence of pewter at Kendal does, however, help to explain the very high lead levels found in bones examined from the Moore vaults at Orton (Trinkley and Hacker 2014), although there were numerous routes of lead ingestion, including lead-glazed pottery, lead crystal, musket balls, lead paint, and lead solder.

Only one kitchenware item was identified, an iron pot handle.

Architectural Artifacts

Nails were the most common architectural object (n=2,221), although window glass was nearly as common (n=1,494). Other architectural remains are uncommon, consisting of several clay pavers and other hardware items. Since all of these materials are found in a midden, we presume they reflect repairs conducted on plantation buildings in the immediate vicinity. That nails and window glass was gathered up and discarded away from the originating structure suggests an unusual degree of tidiness for a colonial settlement. Perhaps the nearby kitchen received renovations at some point and the debris were carted the short distance to the midden for

disposal.

There is very little that can be said about the window glass except that it has a uniform very light green cast. None of the fragments are large enough to allow estimation of the pane sizes. The large quantity of glass, however, suggests repairs taking place over a number of years.

The nails (Table 41), however, provide far more information. Wrought nails are the most common in the midden, indicating an eighteenth century date for the deposit. Machine cut nails, suggestive of a very late eighteenth century or early nineteenth century date, account for only 14% of the assemblage. Most of these (71 out of 75) are earlier, with hand applied heads to machine cut shanks. This suggests that repair work may have continued into the early nineteenth century.

Table 41.
Nails from Colonial Midden 1

		Wrought		Machine Cut		
Penny Wt.	SAE	Rose	T	Hand	Machine	Total
2d	1"	72	7			
3d	1¼"	191	12	1		
4d	1½"	75	11	3		
5d	1¾"	35	27	3	1	
Small timbers, shingles		**373**	**57**	**7**	**1**	**438**
6d	2"	36	26	30	1	
7d	2¼"	25	28	3		
8d	2½"	41	22	7	2	
Sheathing, siding		**102**	**76**	**40**	**3**	**221**
9d	2¾"	17	24	1		
10d	3"	8	12	17		
12d	3¼"	6	15	4		
Framing		**31**	**51**	**22**	**0**	**104**
16d	3½"	5	7	2		
Heavy framing		**5**	**7**	**2**	**0**	**14**
Total		**511**	**191**	**71**	**4**	**777**

Of the 1,160 wrought nails, 702 were suitable for additional analysis. Both rose and T-head nails were present, although the rose head nails were far more common in the midden assemblage (representing 73%).

Figure 126 shows that the rose headed wrought nails were largely used for attaching small timbers such as lath and shingles. Larger rose-head nails were not common, suggesting only minor use in other structural repairs, such as replacement siding and framing. In contrast, the use pattern of the T-headed wrought nails and the machine cut nails are similar to one another with minor small timber use, somewhat more common sheathing and siding use, and almost no framing use.

The near absence of heavy framing nails is likely the result of the structure (the colonial kitchen) being craft built using mortise and tendon connectors. The abundant small nails are suggestive of frequent roof shingle repairs, perhaps associated with some interior repairs of plaster and lath or perhaps wainscoting. Taken together, these finds suggest a structure that served the plantation for a number of years.

Furniture Artifacts

About three-quarters of the furniture artifacts in the midden consist of brass and iron tacks – items that might be associated with chairs or trunks to attach upholstery or as decoration.

The two escutcheons, decorative item, hinge fragments, and iron caster wheel are all items commonly associated with period furniture.

The candle snuffer fragment is wrought iron and a form typical of the early eighteenth century (Lindsay 1964:Figure 342; see also Woodhead et al. 1964:14-15).

A fragment of beaded decorated rim lamp glass is also present in the assemblage. This is likely from the late nineteenth century and is intrusive (Woodhead et al. 1964:62). Another intrusive element is a pressed glass prism from a chandelier likely dating to the late nineteenth century. The prism measures 26mm in length,

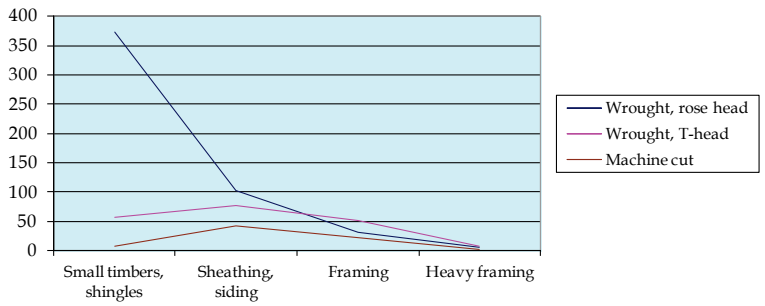


Figure 126. Distribution of nails and sizes in Colonial Midden 1.

21mm in width, and is 8mm in thickness. It has four bevels with holes at the top and bottom on the short sides. A similar item was found associated with the Kendal house.

Arms Artifacts

A range of eighteenth, nineteenth, and early twentieth century arms items were recovered from the midden. Recent intrusions include two paper and brass shotgun shells and a .22 caliber rim-fire shell.

The two shotgun shells, with brass bases and paper walls, date from 1877 to 1972 (Ball 1997b:132). Neither head stamp was sufficiently legible for further identification.

The .22 caliber rim-fire has a "S" head stamp. While sometimes attributed to Smith and Wesson, it seems more likely this was a Sears Ted Williams cartridge that likely dates between 1964 and 1980.

The most common arms artifact in the assemblage is lead shot, representing 59 specimens. Also recovered was a lead sprue fragment 2-inches in length, as well as 15 fragments or puddles of lead, likely associated with either manufacture of shot or the accidental melting of shot.

The lead shot ranges from 3.2 to 9.5mm, incorporating sizes typically used for birds (n=13), larger water birds (n=28), and larger mammals (n=18; buck shot). The size range suggests that a variety of game was being hunted. Some specimens reveal dimples characteristic of Rupert shot, while a larger number were cast using molds, based on the presence of mold seams and the presence of lead runners still attached to the shot.

This colonial midden yielded 13 gunflints, itemized in Table 42. Eight of these were made from flakes, three were made from spalls, and the remainder cannot be assessed because of damage. Nine of the specimens were made from materials that are generally thought to be English in origin – black to light gray chert. In contrast, those thought to be French are all a honey colored chert. What is most curious is that six of the seven identifiable English gunflints are flake forms and only one is a spall. This, if Hamilton and Emery (1988:14) are correct, would mean these flints are post-1800, which is at odds with the other data present in the assemblage. The posited French gunflints, all made of a honey-colored material, are evenly divided between flake and spall forms, even though the French, at least by some, are

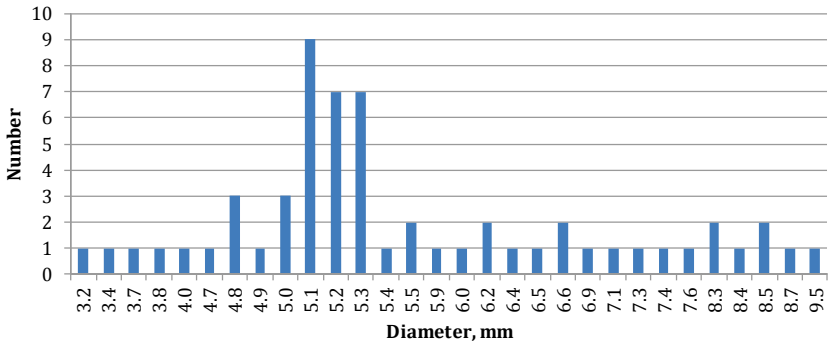


Figure 127. Distribution of shot sizes in Colonial Midden 1.

Table 42.
Gunflints Recovered in Colonial Midden 1

Provinence	Type	Shape	Origin	Material	Width, mm (heel to edge)	Length, mm (side to side)	Thickness	Comments
175L05, Level 2	Flake	Square	English	Light Gray Chert	16.60	15.30	6.66	Broken on right side
175R10, Level 1	Spall	D-shaped	French	Honey Chert	21.37	31.84	9.55	Broken across edge
175R10, Level 2	Flake	Square	French	Honey Chert	20.19	18.32	6.55	Broken across edge and right side
175R10, Level 2	Spall	Square	English	Light Gray Chert	22.10	30.60	9.33	Broken across edge
175R10, Level 2	Flake	Square	English	Light Gray Chert	18.16	16.15	5.96	Broken across edge and right side
175R20, Level 2	Flake	Square	English	Black Chert	22.83	20.28	8.18	Broken across edge
175R20, Level 2	Flake	Square	English	Black Chert	21.34	22.53	8.36	Broken across edge
175R20, Level 2	Spall	D-shaped	French	Honey Chert	19.19	20.85	6.26	Edge shows extensive use
175R20, Level 2	Flake	Square	English	Gray Chert	21.72	23.96	10.16	Broken across edge May not be commercial
175R20, Level 2	Flake	Square	English	Gray Chert	18.73	18.83	8.54	broken across edge and left side
175R20, Level 2	NA	NA	English	Gray Chert	11.83	19.33	6.26	Both edge and heel broken
180R00, Level 1	Flake	D-shaped	French	Honey Chert	27.84	17.83	4.92	Broken across left side
180R00, Level 1	NA	NA	English	Light Gray Chert	17.90	17.88	8.55	Broken across edge and right side

thought not to have produced spall gunflints.

If the sizes are examined, three distinct groupings are noted, seven of the 13 (54%) are of a size typically associated with pistols or tradeguns. Four (31%) are of a size suitable for tradeguns. The remaining two flints are larger and might have been used in carbines or flowing guns. It seems unlikely that the occupants at Kendal would have need for a great many pistols, although trade guns, lighter weight versions of muskets and fowlers, might have been very common.

Fifteen flakes were recovered from these units that are assumed to be from gunflints. Seven are English gray or black flint and seven are honey-colored French flints. The final flake is a rust color and cannot be attributed.

Of the 14 identifiable to origin, nine (64%) are tertiary flakes, nearly equally divided between English (n=4) and French (n=5).. Four of the flakes are secondary (3 English and 1 French), and a single primary flake was found of honey-colored flint. These flakes suggest that the gunflints may have been reworked by site occupants or that possibly some effort was made to create flints using ballast materials.

A single percussion cap was also recovered from the midden area. This item, like the English flake gunflints may provide evidence of deposition in the midden during the first half of the nineteenth century.

Tobacco Artifacts

Colonial Midden 1 produced 935 ball clay tobacco pipe stem and bowl fragments. The most common item, comprising nearly 43% of the collection (n=398) are 5/64-inch bore pipe stems, although 4/64 and 6/64-inch bore diameter stems are also present. Pipe bowl fragments are nearly as common, consisting of 387 specimens. Most of these (92.3%) are plain and fit Noël Hume‘s (1978:303) Type 16, dated between 1730 and 1790.

Six of those pipe bowls with decorations had the Royal Coat of Arms facing the smoker. Noël Hume (1970) reports these pipes being found in 1750 to 1800 contexts. Both at Williamsburg and in London they apparently are found in tavern contexts (Atkinson and Oswald 1980:390). While Atkinson and Oswald provide a key, the fragments found at Kendal are too small to be more precisely dated.

One pipe bowl has the initials “T” and “D” stamped on opposite sides of the foot. This has been dated from 1755 to 1760 at the King's Bastion, Fortress of Louisbourg (Walker 1971a:Figure 16). The same bowl is also impressed with “WOOD” facing the smoker. Atkin (1986:34-36) has found identical marks on English pipes associated with early to mid-eighteenth century ceramics (such as salt glazed stonewares, delfts, and Chinese porcelains), although her examples have different heel stamps. Atkinson and Oswald (1980:369) have identified

many pipes with Wood marked on the back of the bowl, suggesting a date range of 1780 to as late as 1820.

Other decorations include indistinct or partial marks and three bowls with ribs.

Clothing Artifacts

The most common clothing items from Colonial Midden 1 are buttons (N=20, 52.6%). These are identified by South's Type and size in Table 43. Ten of the identifiable buttons likely pre-date 1775. The remaining seven buttons may be nineteenth century specimens.

Table 43.
Buttons from Colonial Midden 1

South's Type	Description	Number	Measurements (in mm)
1	Cast brass face, spun back	1	14
6	Cast face, cast back, flux joined	1	13
7	Spun brass/white metal with eye cast in place	5	15, 16, 2-18, 24
8	Molded white metal with eye boss	2	16, 17
12	One-piece cast metal	1	10
19	Bone disc, 5-hole	1	11
21	Iron with fiber center	1	14
23	Porcelain, convex	2	2-11
25	Plain brass face, iron back and eye	2	25, 26
28	Stamped brass, concave back	1	21
-	Glass, black, "self-eye"	1	15
-	UID brass fragments	2	-

Thirteen of the buttons are a size that Luscomb (1971:121) associates with coats, while all of the remaining intact examples are of a size more suitable to shirts and pants. White (2005:57), using different size divisions, would evenly divide the sizes between waistcoats, coats, and sleeve buttons, not accounting for those specimens 11mm and below.

In spite of the differences, it appears that most of the buttons were associated with coats, with buttons perhaps being lost as they were taken off and put back on entering and leaving the kitchen.

Nearly as common as buttons are buckles recovered from the kitchen midden. Three buckles (two brass and one ferrous) are too fragmentary for their function to be determined. Two, one white metal with a floral pattern and one plain brass, are likely shoe buckles (both are fragmentary frames). One ferrous shoe buckle chape (similar to Figure 116D) is present. The last specimen is a fragmentary knee buckle.

A single brass eye was found in the assemblage. Made of rounded metal, it suggests a pre-1815 date.

Two of the five pins were heavily corroded and not suitable for measurement. Of those suitable for measurement two measure 26mm in length and one 28mm. All of these are classified as "short whites.," or common sewing pins.

One half pair of iron scissors were found in the assemblage. The maximum blade width was ⅝-inch and the length was 3¾-inches. The interior eye dimensions were 1⅛ by ¾-inches. They appear to be utilitarian, perhaps associated with sewing needs..

The final objects were four beads. As previously explained, some may prefer to consider these personal items.

Two of the beads are Kidd and Kidd Type Ic, black opaque glass beads, square in shape. They measure 7.6 and 7.9mm in length and 5.9 by 6.7mm and 6.2 by 6.9mm on a side.

A third bead is identified as Kidd and Kidd TypeIa19, ultramarine translucent tube bead measuring 6.5mm in length with an exterior diameter of 3.7mm. The final specimen is a Kidd and Kidd Type W1d, clear translucent wound bead with a diameter of 10mm.

All of these beads were found in Level 2 deposits and, although only one was blue, were likely associated with African Americans at the site.

Personal Artifacts

Relatively few personal artifacts were recovered from the midden. Identified specimens include two fragmentary clasp or pocket knives, one relatively complete and the other represented by only a blade fragment 2¼-inches in length.

The more complete example has brass bolster plates with perhaps insets missing and a single iron blade. The overall length was 2-inches with a maximum width of ⅝-inch.

Figure 128. Fragmentary brass plate with inscriptions.

A fragment of writing slate with several scored lines was collected from the midden. These are often called "counting slates" with the assumption they were used to maintain tallies. A slate pencil was also recovered.

The three "other" items include a small brass hinge such as might be found on a book or perhaps a snuff box. The one leaf recovered measures 10.3mm in depth and was attached by folding over the object. The other leaf and pin were not recovered. Another item was a small split brass ring, likely associated with jewelry.

The final personal item is of special interest. It consists of a fragmentary brass plate about 38 by 43mm in size with hand engraving on the front and reverse. One side is inscribed, "Nancy Moore/JeAdore/always Slighted? /Love Admitted." On the reverse is, "Mifs Ann/[w]ith Lady S." It is impossible to determine if these were practice engravings or were intended as gifts. Nevertheless, the artifact is of special interest since it mentions Miss Ann, one of Roger Moore's daughters. The reference to "Nancy Moore" is more puzzling since there is no Nancy Moore known, at least until the etymology is understood. Since about the eighteenth century "Nancy" has been a diminutive of Ann. Consequently, both sides of the fragment make reference to Anne (or Ann) Moore who was born in 1732 and thought to have married Peter Taylor and subsequently John Swann. It suggests that Anne Moore lived at Kendal prior to her marriage.

Activities Artifacts

This assemblage includes 73 artifacts identified as construction tools, farm tools, storage items, stable and barn items, miscellaneous hardware, and "other." The "other" category is the largest, comprising 59% of the collection.

The category of construction tools includes five items. Two are hones, one a brick and the other a whetstone. The remaining three items are wood working tools, including a gouge, wedge, and chisel.

The single farm tool is likely intrusive, since it is a broken plow blade. The break may have occurred hitting some of the brick

foundations in the immediate site vicinity.

Storage items are dominated by strap iron, ranging in widths from ½-inch to 1⅜-inch. Also included in the assemblage is a fragmentary lead seal stamped with "_DLAN_." It is 9mm in width with a remnant length of 52mm.

The final item, also likely intrusive, is a padlock similar to those illustrated by a 1897 Sears, Roebuck & Co. catalog and identified as "wrought iron tumbler chain padlock." The chain refers to the chain attached to the lock, allowing it to be permanently associated with a hasp or building. Clearly not colonial in origin, this is far more likely to have been lost in the last quarter of the nineteenth century.

Nine items comprise the stable and barn category. Three are iron harness buckles. Two are brass harness decorations. Also present is a harness ring. These are suggestive of tack being maintained in the vicinity. A horseshoe and horseshoe nail were also recovered. The horseshoe measures 5¾-inches in length, with incurvate arms and a maximum width of 5¼-inches. No caulkins, toe clip, or reinforcing bars are present. There are three holes on each branch. Overall appearance suggests a late eighteenth century shoe (Chappell 1973).

Also in the stable and barn group is a fragmentary iron spur consisting of the neck, rowel, and partial arms. Missing are the temporally diagnostic terminals. Nevertheless, the style likely dates from about 1765 to perhaps as late as 1820 (Rivers-Cofield 2011). We know that Roger Moore, when he wrote his will prior to 1751, specifically mentioned his "Stock of Horses." So it is likely these spurs were not simply accessories, but were functional (Rivers-Cofield 2011:54-55). Their iron construction, rather than brass for example) also suggests that they were functional, perhaps intended for hunting.

There are five items in miscellaneous hardware and none have been identified as a major contributor to site analysis. One length of wrought chain, one wrought iron ring, two iron rod fragments, and one fragmentary flat headed screw.

The final category of "other" includes 43 items, few of which offer much interpretative value. The most common items are 18 fragments of a white metal. These may represent heavily deteriorated pewter fragments, but are not diagnostic and so are included here, rather than in kitchenware.

There are six fragments of brass scrap of unknown origin or function. There are four fragments of unidentifiable iron and four fragments of brass wire. The latter are of a diameter that they may represent wire closures used to retain corks.

The two brass rings are too small and light weight to be tack, but might be industrial or mechanical. Also recovered was a brass loop made of heavy brass wire. There is also a small piece of brass wool.

There are two objects that, while clearly having some function, cannot be identified at this time. One is brass and the other is worked bone. The worked bone, we believe, is a fragmentary bone tuner similar to that illustrated by Deagan 2002:304). She notes that both tuners and string pegs, representing stringed instruments, are found occasionally in eighteenth century Spanish collections. It isn't much of a stretch to assume that they might also be found in English collections.

Dating

Table 44 shows South's mean ceramic dates for the units comprising Colonial Midden 1 as well as all of the units combined. The dates range from 1737 to 1761, with a combined date of 1740. The two most recent dates, 1756 and 1761 derive from level 1 and incorporate more recent ceramics.

In fact, if we examine South's bracket date for the midden we find a range from about 1735 to

Table 44.
Mean Ceramic Dates for Colonial Midden 1

Ceramic	Date Range	Mean Date (xi)	175L5, Lv 1 (fi)	fi x xi	175L5, Lv 2 (fi)	fi x xi	175R0, Lv 1 (fi)	fi x xi	175R10, Lv 1 (fi)	fi x xi	175R10. Lv 2 (fi)	fi x xi	175R20, Lv 1 (fi)	fi x xi	175R20, Lv 2 (fi)	fi x xi	180R0, Lv 1 (fi)	fi x xi	180R0, Lv 2 (fi)	fi x xi	(fi)
Overglazed enameled porc	1660-1800	1730	2	3460	9	15570	8	13840	2	3460	26	44980	0	0	13	22490	0	0	6	10380	66
Underglazed blue porc	1660-1800	1730	2	3460	40	69200	29	50170	9	15570	118	204140	2	3460	104	179920	8	13840	24	41520	336
English porc	1745-1795	1770	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1770	1
Nottingham stoneware	1700-1810	1755	1	1755	9	15795	3	5265	0	0	22	38610	1	1755	7	12285	1	1755	0	0	44
Westerwald	1700-1775	1738	0	0	6	10428	3	5214	3	5214	14	24332	1	1738	18	31284	1	1738	1	1738	47
White salt glazed stoneware	1740-1775	1758	7	12306	13	22854	7	12306	3	5274	19	33402	1	1758	43	75594	1	1758	5	8790	99
White sg sw, slip dipped	1715-1775	1745	0	0	46	80270	34	59330	12	20940	140	244300	0	0	73	127385	2	3490	7	12215	314
White sg sw, scratch blue	1744-1775	1760	0	0	0	0	1	1760	0	0	0	0	0	0	0	0	0	0	0	0	1
Black basalt	1750-1820	1785	0	0	0	0	0	0	1	1785	0	0	0	0	0	0	0	0	0	0	1
Rhenish stoneware	1650-1750	1700	0	0	0	0	0	0	0	0	1	1700	0	0	1	1700	1	1700	0	0	3
Eler's ware	1690-1715	1702	0	0	1	1702	0	0	0	0	0	0	0	0	1	1702	0	0	0	0	2
Lead glazed slipware	1670-1795	1733	2	3466	52	90116	35	60655	9	15597	140	242620	8	13864	74	128242	7	12131	17	29461	344
Jackfield	1740-1780	1760	0	0	0	0	0	0	0	0	0	0	0	0	4	7040	0	0	0	0	4
Refined agate ware	1740-1775	1757	0	0	1	1757	0	0	1	1757	9	15813	0	0	13	22841	0	0	0	0	24
Green glazed, cream body	1759-1775	1767	0	0	0	0	0	0	0	0	0	0	1	1767	0	0	0	0	0	0	1
Clouded wares	1740-1770	1755	0	0	1	1755	1	1755	1	1755	1	1755	0	0	2	3510	0	0	0	0	6
Astbury ware	1725-1750	1737	0	0	0	0	0	0	0	0	14	24318	0	0	5	8685	0	0	0	0	19
Decorated delft	1600-1802	1750	0	0	12	21000	16	28000	3	5250	35	61250	0	0	34	59500	1	1750	8	14000	109
Plain delft	1640-1800	1720	3	5160	4	6880	29	49880	4	6880	87	149640	0	0	77	132440	2	3440	20	34400	226
North Devon	1650-1775	1713	0	0	0	0	0	0	0	0	4	6852	0	0	4	6852	0	0	0	0	8
Buckley ware	1720-1775	1748	1	1748	18	31464	11	19228	0	0	24	41952	0	0	11	19228	1	1748	18	31464	84
Creamware, undecorated	1762-1820	1791	0	0	0	0	0	0	0	0	4	7164	1	1791	4	7164	0	0	0	0	9
Pearlware, blue hand painted	1780-1820	1800	0	0	1	1800	0	0	1	1800	0	0	0	0	0	0	1	1800	0	0	3
Pearlware, blue trans printed	1795-1840	1818	0	0	1	1818	0	0	2	3636	0	0	0	0	5	9090	0	0	0	0	8
Pearlware, annular/cable	1790-1820	1805	0	0	1	1805	0	0	0	0	0	0	0	0	1	1805	0	0	0	0	2
Pearlware, undecorated	1780-1830	1805	0	0	0	0	0	0	0	0	1	1805	2	3610	4	7220	1	1805	0	0	8
Whiteware, poly hand painted	1826-1870	1848	0	0	0	0	0	0	0	0	0	0	1	1848	0	0	0	0	0	0	1
Whiteware, annular	1831-1900	1866	0	0	0	0	0	0	0	0	0	0	0	0	2	3732	0	0	0	0	2
Whiteware, undecorated	1813-1900	1860	1	1860	1	1860	0	0	6	11160	0	0	1	1860	10	18600	0	0	1	1860	20
Total			19	33215	216	376074	177	307403	57	100078	659	1E+06	19	33451	510	888309	27	46955	108	187598	1792
Mean Ceramic Date By Provenience				1748.2		1741.1		1736.7		1755.8		1736.9		1760.6		1741.8		1739.1		1737	
Mean Ceramic Date for Block	1739.80																				
SD	26.5																				

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				1812	
English porcelain	1745-1795	50	1		0.000
Overglazed enameled porc	1660-1800	140	66		0.000
Underglazed blue porc	1660-1800	140	336		0.001
Nottingham stoneware	1700-1810	110	44		0.000
Westerwald	1700-1775	75	47		0.000
White salt glazed stoneware	1740-1775	35	99		0.002
White sg sw, scratch blue	1744-1775	31	1		0.000
White sg sw, slip dip	1715-1775	60	314		0.003
Rhenish stoneware	1650-1750	100	3		0.000
Black basalt	1750-1820	70	1		0.000
Eler's ware	1690-1715	25	19		0.000
Lead glazed slipware	1670-1795	125	344		0.002
Jackfield	1740-1780	40	4		0.000
Green glazed, cream body	1759-1775	16	1		0.000
Clouded wares	1740-1770	30	6		0.000
Agate wares	1740-1775	35	24		0.000
Astbury ware	1725-1750	25	19		0.000
Decorated delft	1600-1802	202	109		0.000
Plain delft	1640-1800	160	226		0.001
North Devon	1650-1775	125	8		0.000
Buckley ware	1720-1775	55	84		0.001
Creamware, undecorated	1762-1820	58	9		0.000
Pearlware, blue hand painted	1780-1820	40	3		0.000
Pearlware, blue trans printed	1795-1840	45	8		0.000
Pearlware, annular/cable	1790-1820	30	2		0.000
Pearlware, undecorated	1780-1830	40	8		0.000
Whiteware, poly hand painted	1826-1870	44	4		0.000
Whiteware, annular	1831-1900	69	2		0.000
Whiteware, undecorated	1813-1900	87	20		0.000
Yellow ware	1830-1940	110			0.000

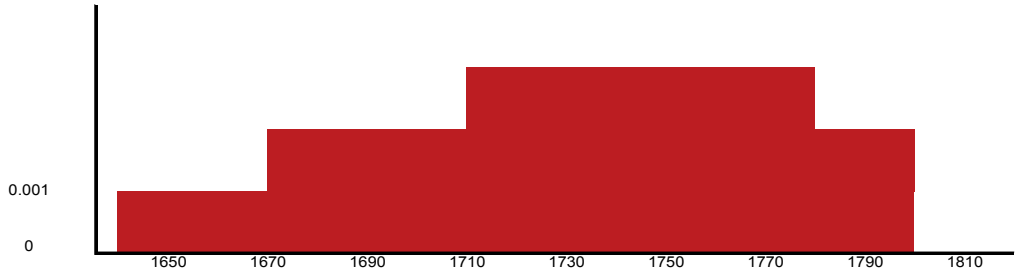


Figure 129. Salwen and Bridges dating for Colonial Midden 1 at Kendal Plantation.

Table 45.
Tobacco Stem Dating for Midden 1

Bore Diameter	#		
4/64	84	336	
5/64	407	2035	
6/64	36	216	
7/64	0	0	
8/64	0	0	
9/64	0	0	
	527	2587	
average bore diameter		4.908918	
Binford Date			1744
log of average bore diameter		0.690986	
		6.637194	
Heighton and Deagan Date			1746

1825, consistent with the mean ceramic dates. Of greater value, however, are the Salwen and Bridges dates shown in Figure 128. These indicate that the densest occupation began perhaps as early as 1710, but ended by the American Revolution, about 1780. Occupation, however, continued until perhaps as late as about 1800.

Turning to tobacco stem dating, Table 45 reveals that the two chosen methods are in close agreement, providing dates of 1744 and 1746.

All of the dates suggest an occupation focused on the first half of the eighteenth century, with mean dates ranging from about 1740 to 1746.

Roger Moore acquired the property in 1726 and by 1731 was moving his family to the Cape Fear area. This move was essentially complete by June 1731 when a visitor reported on his brick house at Kendal. Moore died in 1751, although George Moore held Kendal until 1765 when it passed to the Davis family. Unfortunately, history provides no real terminal date for Kendal, although a house was still present during the American Revolution. Thus, assuming an origin of about 1726 and a terminal date of about 1800, a mean historic date might be 1763.

Of course, we are not examining the Kendal structures, but rather a midden, containing large amounts of animal bones, structural remains, and domestic trash. The presence of so many domestic remains may suggest that the midden was at least partially the result of Kendal being cleaned after the death of Roger Moore in 1751. Such a date would fit nicely with the range in mean dates present in the assemblage.

Colonial Midden 2

A total of 3,961 artifacts, not including faunal and ethnobotanical remains, were removed from the three units comprising the 100 square foot (80 cubic foot) excavation area. Although only a third of the artifacts found in Colonial Midden 1 were recovered from this second midden area, artifact density is actually the same or slightly higher, with 40 artifacts per square feet or 49 artifacts per cubic foot (Table 46). This midden, however, did not produce the dense faunal remains found further away from the kitchen structure.

Table 47 compares the artifact pattern from this midden with not only other patterns, but also Colonial Midden 1. This midden is certainly similar to Colonial Midden 1. Not unexpectedly, the largest difference is found in the Kitchen Group. Colonial Midden 2 has significantly more kitchen remains than Midden 1, perhaps because Midden 2 is situated just behind the kitchen and reflects rear door trash deposition.

When Colonial Midden 2 is compared to other patterns, there are a variety of divergences, most especially in terms of the kitchen, personal, and activities groups. Overall, however, there may be a slightly better match to the Revised Carolina Artifact Pattern. As suggested above, this may reflect the midden's origin in trash deposited directly from daily kitchen activities. Fowler notes that, "colonial households were centers of production, and the surrounding yards reflected their use as a workplace" (Fowler 1982:41). The result was that yards were typically devoid of vegetation, but "cluttered with trash."

The greatest deviation from the Revised Carolina Artifact Pattern is that the proportion of kitchen artifacts is greater than expected while activities artifacts form a smaller proportion of the assemblage than expected. Nevertheless, these differences seem minor.

Kitchen Artifacts

Ceramics

The proportion of ceramics recovered from this area is similar to Midden 1. In both cases the most common ceramic is white salt glazed stoneware, followed by Chinese porcelain, lead glazed slipware, delft, and coarse red earthenwares. Together these five ceramic groups account for three-quarters of the kitchen ceramics, nearly the same proportion as they form in Midden 1. This suggests that Middens 1 and 2 were formed from similar activities and are likely coeval.

As with Midden 1, the two most common ceramics are typically considered very high status, expensive wares used by planters and the elite. The lead glazed slipware would have been far more prevalent on the tables of commoners or slaves. Delft might have been used by either. The coarse red earthenwares are typically storage or preparation wares. Consequently, both middens suggest the mingling of owners and enslaved in the kitchen area, or at least that their refuse was comingled.

The coarse red earthenwares exhibit a variety of interior and exterior glazes. Most are lead glazes in clear, brown, or black. A few exhibit a green lead glaze on both the interior and exterior. A small number, while having a clear lead glaze on the exterior, exhibit a white or mottled slip on the interior. A few are similar to the Border Wares found in Maryland, although the paste is not chalky white.

The analysis reveals the presence of 171 minimum number of vessels at Midden 2 (Table

Table 46.
Artifacts Recovered from Colonial Midden 2

	160R50, Lv 1	160R55, Lv 1	165R55, Lv 1	Trowel		
Kitchen Group					2656	67.0
Chinese porcelain, undecorated	66	37	54	1		
Chinese porcelain, blue hand painted	38	37	87			
Chinese porcelain, poly HPOG	34	22	35	1		
Chinese porcelain, Batavia	1		2			
White SG SW	60	38	72	4		
White SG SW, scratch blue	5	5	18			
White SG SW, slip dipped	81	78	176	5		
White SGSW, brown rim			1			
Delft, undecorated	34	23	75	2		
Delft, polychrome hand painted		4	4			
Delft, blue hand painted	22	18	52			
Lead glazed slipware	54	60	203	3		
Creamware, undecorated	18	24	40			
Pearlware, undecorated			3			
Pearlware, blue hand painted	1		2			
Pearlware, annular	4		8			
Pearlware, blue transfer printed		4	3			
Whiteware, undecorated		8	1			
Whiteware, annular		1				
Whiteware, blue transfer printed			1			
Astbury ware		3	8			
Jackfield	5	8	18	3		
Clouded ware	20	20	36	2		
Elers ware	2		1	1		
Refined earthenware, UID	30	13	44			
Tortoiseshell		19	7			
Agate ware		4	11			
Nottingham	8	12	11	1		
Westerwald	8	6	12			
Gray SG SW	4	8	15			
Brown SG SW	21	10	8			
Bristol slip SW	4	1	11			
Coarse Red earthenware	30	44	58	1		
Buckley	1	1	15			
Burnt refined earthenware	12		6	1		
Glass, black	46	50	145	6		
Glass, aqua	1	5	17			
Glass, green		9				
Glass, light green	9	9	17			
Glass, brown	3	2	3			
Glass, clear	22	19	39	1		
Glass, milk	1	2	2			
Glass, manganese		4	4			
Glass, melted		1				
Tableware	2	1	2			
Colono ware	7	30	2	1		
Architecture Group					1064	26.8
Window glass	134	137	219	4		
Hinge fragments		1				
Door lock			1			
Delft tile			1			
Paver			2			
Nails, wrought	56	48	86			
Nails, machine cut		1	8			
Nails, UID	54	73	229	8		
Spikes, wrought	2					
Furniture Group					8	0.2
Brass tacks	2		2			
Iron tacks	1	1	2			
Arms Group					4	0.1
Gunflint		2				
Gunflint flakes		1				
Melted lead		1				
Tobacco Group					220	5.5
Pipe stems, 4/64-inch	16	12	29	2		
Pipe stems, 5/64-inch	12	20	47	2		
Pipe stems, 6/64-inch	1	3	2			
Pipe stems, fragments	2		4			
Pipe bowl fragments	9		59			
Clothing Group					8	0.2
Buttons	1	1	2			
Cuff buttons		1				
Buckles	1		2			
Personal Group					0	0.0
Activities Group					4	0.1
Toys				1		
Storage items		1				
Other			2			
TOTAL	945	943	2026	50	3,964	

Table 47.
Comparison of Colonial Midden 2 to Various Artifact Patterns

	Kendal Colonial Midden 1	Kendal Colonial Midden 2	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	59.1	67.1	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	31.0	26.8	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.3	0.2	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.9	0.1	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	7.7	5.6	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.3	0.2	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.1	0.0	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.6	0.1	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1]Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4]Singlton 1980

48). While the total number is lower (171 compared to 245), the density per cubic foot at Midden 2 is 2.1 per cubic foot, compared to 0.7 ceramics were cubic foot. This again seems consistent with trash deposited outside doors or windows associated with the kitchen. In particular, it appears that a greater number of small broken bits were subject to being discarded in the immediate area of Midden 2.

As explained with Midden 1, it makes more sense to include cups and saucers with tea ware than to divide them between hollow ware and flat ware. Recombined in this fashion, tablewares comprise about 93% of the Midden 2 collection, compared to about 89% of the Midden 1 assemblage. A slightly lower proportion of the vessels in Midden 2 are utilitarian – about 7%. Tea wares account for nearly 20% of the collection, again emphasizing the high status of the colonial assemblage.

Creamwares, pearlware, and whitewares are over twice as common in Midden 2 as in Midden 1, although they only account for about 5.4%. Since the units had not distinct levels, it isn't possible to identify them as later intrusions, except of course to note that they are all late eighteenth or early nineteenth century ceramics. Regardless, they still comprise only a very small proportion of the assemblage.

The five creamware vessels are all plain, likely representing the acquisition of this ware when it was very high status. In contrast, the pearlwares, consisting of only two vessels, include both transfer print, considered an expensive and high status ware, and annular ware, an inexpensive design frequently used among enslaved African Americans. Whiteware, which is represented by only one vessel, is also annular ware. Thus, these later ceramics, while poorly represented, appear to include primarily less expensive ceramics that were likely used by African Americans.

The most common ceramics in the remaining quarter of the collection are refined red earthenwares (n=87, 4%). These usually have a clear lead glaze, although 18 specimens were recovered with a clear lead glaze on the exterior with a cloudy brown slipped interior.

The last ceramics to be briefly considered are the Colono wares, consisting of only 40 sherds. The collection is dominated by burnished wares (n=37, 97.5%). There are four flattened and four rounded rims. Vessel diameters could be determined for seven of the eight rims and range from 4 to 9½-inches with a mean of 6.4-inches and a standard deviation of 1.4-inches. This size is suggestive of individual serving bowls and these may have been used by the African American

Table 48.
Form of Vessels at Colonial Midden 2

	Hollow Ware		Flat Ware		Serving					Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, undecorated	2	2	6	5								
Chinese porcelain, poly HPOG	1			3								
Subtotals	5		14				0				0	
Delft, undecorated	1	6		8		1						
Delft blue hand painted				1								
Subtotals	7		9				1				0	
White SGSW	4	4		7						1		
White SGSW, slip dipped	9	11		19								
Subtotals	28		26				0				1	
Lead Glazed Slipware	5	22		7								
Subtotals	27		7				0				0	
Nottingham	1			1								
Subtotals	1		1				0				0	
Westerwald						1				1		
Subtotals	0		0				1				1	
Coarse Red Earthenware		2		1		3						4
Subtotals	2		1				3				4	
Creamware, undecorated		2		3								
Subtotals	2		3				0				0	
Pearlware, annular		1										
Pearlware, transfer printed				1								
Subtotals	1		1				0				0	
Whiteware, annular		1										
Subtotals	1		0				0				0	
Other ceramics	2	6		6		1		2	1	6		
Subtotals	8		6				4				6	
Totals by Function	82		68				9				12	
%	47.95		39.77				5.26				7.02	

	Totals	%
Flat Ware	62	39.0
Hollow Ware	57	35.8
Tea Ware	31	19.5
Serving Wares	9	5.7
Total Table Wares	159	93.0
Utilitarian Wares	12	7.0
Total	171	

slaves in the kitchen for taking their own meals.

Glass

Black glass is far less common in this midden than it was in Midden 1. At Midden 2 it comprises only 9.3% of the kitchen collection (n=247). Not only is there less black glass associated with wine bottles, but this midden failed to yield any of the Roger Moore bottle seals, suggesting perhaps not so subtly different depositional histories for the two middens.

The black glass is dominated by case bottle fragments, although unlike Midden 1, none of 14 minimum number of vessels could be measured. Only one cylindrical wine bottle was recovered and its basal measurement was 127mm. This bottle likely dates from the 1730s to the 1770s.

Other glass was less common and the fragments were small, precluding significant interpretations.

Glass tableware includes three footed glasses, although only feet were identifiable. Also recovered were two tumblers, one 2½-inches in

diameter and etched. The other was 3-inches in diameter.

Architectural Artifacts

Nails were the most common architectural object (n=563), although window glass was nearly as common (n=494). Other architectural remains are uncommon, consisting of a pintle and a portion of a door lock.

The door lock fragment is a lock bolt for a rim lock. Garvin (2002:83) notes that colonial rim locks, metal boxes installed on the face of the door, were individually made, largely in England by craftsmen who forged individual parts and then filed them to create the close tolerances necessary for proper operation.

Table 49.
Nails from Colonial Midden 2

		Wrought		Machine Cut		
Penny Wt.	SAE	Rose	T	Hand	Machine	Total
2d	1"	4	3			
3d	1¼"	7	2			
4d	1½"	5	0			
5d	1¾"	5	7			
Small timbers, shingles		**21**	**12**	**0**	**0**	**33**
6d	2"	6	4	1		
7d	2¼"	4	4			
8d	2½"	3	7			
Sheathing, siding		**13**	**15**	**1**	**0**	**29**
9d	2¾"	4	7	1		
10d	3"	4	7			
12d	3¼"	1	0			
Framing		**9**	**14**	**1**	**0**	**24**
16d	3½"	1	2			
Heavy framing		**1**	**2**	**0**	**0**	**3**
Total		**44**	**43**	**2**	**0**	**89**

A small fragment of a delft tile was recovered in the assemblage. Too small to allow any meaningful comments on design, it does suggest that the kitchen had delft decorative tiles surrounding the fire place. Two fragments of what appear to be flagstone pavers, perhaps used at entranceways or as hearth material, were recovered.

There is very little that can be said about the window glass except that it has a uniform very light green cast. None of the fragments are large enough to allow estimation of the pane sizes. The large quantity of glass, however, suggests repairs taking place over a number of years.

The nails (Table 49), however, provide far more information. Although 563 nails were recovered, only 89 (15.8%) were suitable for identification and measurement. Wrought nails were the most common (n=87, 97.7%) and only two machine cut nails were found, both with hand applied heads.

While the total numbers of rose head and T-head wrought nails were nearly identical, most of the smaller sizes, intended for shingles or lathe, were rose head nails; otherwise their distribution by size was similar.

Overall distribution at Middens 1 and 2 is very similar. While far less architectural debris was deposited adjacent to the kitchen (in Midden 2), the source of the debris in both middens seems very similar.

Furniture Artifacts

Furniture artifacts consist entirely of either iron or brass tacks, suggestive of small losses from various furnishings, such as chairs or trunks.

Arms Artifacts

Absent from this assemblage are the very large quantities of arms items found in Midden 1. The absence of lead shot may be explained by the significantly reduced bone content, assuming that much lead shot came from meat butchered on-site. However, even gun flints and associated flakes are far less common.

Only one gun flint was identified in Colonial Midden 2. The specimen, of gray English flint, was D-shaped spall measuring 24.97mm in

width, 25.28mm in length, and 6.86mm in thickness. The one flint flake is a honey-colored French primary flake.

Tobacco Artifacts

Colonial Midden 2 produced 220 ball clay tobacco pipe stem and bowl fragments. The most common item, comprising nearly 36.8% of the collection (n=81) are 5/64-inch bore pipe stems, although 4/64 and 6/64-inch bore diameter stems are also present. Pipe bowl fragments are nearly as common, consisting of 68 specimens. Most of these (95.6%) are plain and fit Noël Hume's (1978:303) Type 16, dated between 1730 and 1790.

Only three pipe bowls are decorated. One has "TD" in a circle, another has "—M" in a circle, and the third has a thistle design.

The "TD" pipes have been discussed by Hopkins (1937), Humphrey (1969), and Walker (1966). Walker (1971:31) suggests that the type was first manufactured about 1755 by a maker, Thomas Dormer, whose initials were T.D. The style was so popular that it was quickly copied or plagiarized. Whatever the origin of this mark might be, by the mid-nineteenth century several makers were using it as a style and the D. McDougall and Co. of Glasgow were advertising them as "Plain T. D. . . . 1. 10 per gross" in ca. 1875 (Sudbury 1980:45-46).

The "—M" pipe is more difficult to date since there are likely multiple possibilities. However, a somewhat similar mark has been identified from Mount Vernon, where it was attributed to Richard Manby, Jr., a London pipe maker from 1729-1763. This is certainly in the right time period for Colonial Midden 2.

The thistle is often used on pipes in combination with the harp or the White Horse of Hanover. There is too little of this pipe bowl to know the complete design or to provide dating information.

Clothing Artifacts

Clothing artifacts include four buttons, one pair of cuff buttons, and three buckle fragments.

Two examples of South's Type 3 buttons were recovered, measuring 14 and 26mm. One Type 4 button was recovered, measuring 22mm in diameter. The final example was a 16mm Type 6 button. All of these buttons are of a size that Luscomb (1971) associates with coats, similar to the findings in Colonial Midden 1. All of the buttons are also typical of eighteenth century examples.

The cuff link consists of two concave stamped brass discs measuring 13.7mm in diameter. They have a geometric design and are joined by a brass link 13.5mm in length and 0.6mm in diameter. They are classified as Type C VI, SA, T1 by Stone (1974:74) from Fort Michilimackinac.

One of the buckle fragments is a brass shoe buckle with a geometric design and a pin terminal. A second example is a fragmentary ferrous shoe buckle chape. The final example, also brass, is curved like a shoe buckle, but is small. It measures 31mm in length, so it may represent a child's buckle. It, too, includes a pin terminal.

Activities Artifacts

This assemblage includes only four specimens: one toy, one storage item, and two specimens placed in the "other" category.

The one toy is a clay marble, measuring 16.1mm in diameter. It is worn flat on one side, although the source of the wear is not known.

Marbles were produced at least as early as the fifteenth century, with clay marbles hitting a peak in the eighteenth century and continuing in production to about 1928. Their popularity, however, declined as glass became more common and affordable. Baumann (1991:138-147) briefly reviews the various games of chance which used

marbles. Although we commonly think of marbles as a child's game, it is important to realize that they were just as often used by adults in gaming. Games such as "ringer" and "spanner" were likely played for cash wagers and formed the nucleus of urban backlot gaming. In rural contexts, their function may have been more benign, but there is little information. For example, Noël Hume (1978:329) barely mentions marbles, saying nothing about their use. Farnsworth (2003) explores several marble games, played by both the genteel and commoner during the eighteenth century.

The single storage item is a fragment of strap metal, ¾-inch in width.

The two items placed in the "other" category are fragments of a white metal. These may represent heavily deteriorated pewter fragments, but are not diagnostic and so are included here, rather than in kitchenware. Similar materials were found in Colonial Midden 1.

Dating

Table 50 shows South's mean ceramic dates for the units comprising Colonial Midden 2 as well as all of the units combined. The dates cluster tightly over the five years from 1742 to 1747, with a combined mean date of 1746. The mean date for Colonial Midden 1 is 1740, so the two are very similar.

The standard deviation for the mean dates in Colonial Midden 2 encompasses 60 years. If we exclude the creamwares, pearlwares, and whitewares, the standard deviation is reduced to 22 years, which seems more reasonable (1724-1768). We have previously suggested an origin of about 1726 and a terminal date of about 1800, with a mean historic date of 1763. This fits within the 1σ standard deviation calculation.

Using South's bracket date for the midden, we obtain the same dates that were derived for Midden 1, about1735 to 1825.

The Salwen and Bridges dates are shown in Figure 130. These indicate a core occupation from 1715 to 1775, again essentially identical to that derived for Colonial Midden 1.

A final dating technique used for the assemblage incorporates two tobacco pipe stem techniques shown in Table 51. These provide dates of 1754 and 1756, about a decade later than

Table 50.
Mean Ceramic Dates for Colonial Midden 2

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi	(fi)	fi x xi	(fi)	fi x xi	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	34	58820	22	38060	35	60550	91	157430
Underglazed blue porc	1660-1800	1730	104	179920	74	128020	141	243930	319	551870
Nottingham stoneware	1700-1810	1755	8	14040	12	21060	11	19305	31	54405
Westerwald	1700-1775	1738	8	13904	6	10428	12	20856	26	45188
White salt glazed stoneware	1740-1775	1758	60	105480	38	66804	72	126576	170	298860
White sg sw, slip dipped	1715-1775	1745	81	141345	78	136110	176	307120	335	584575
White sg sw, scratch blue	1744-1775	1760	5	8800	5	8800	18	31680	335	589600
Eler's ware	1690-1715	1702	2	3404	0	0	1	1702	3	5106
Lead glazed slipware	1670-1795	1733	54	93582	60	103980	203	351799	317	549361
Jackfield	1740-1780	1760	5	8800	8	14080	18	31680	31	54560
Refined agate ware	1740-1775	1757	0	0	4	7028	11	19327	15	26355
Clouded wares	1740-1770	1755	20	35100	20	35100	36	63180	76	133380
Astbury ware	1725-1750	1737	0	0	3	5211	8	13896	11	19107
Decorated delft	1600-1802	1750	22	38500	22	38500	56	98000	100	175000
Plain delft	1640-1800	1720	34	58480	23	39560	75	129000	132	227040
Creamware, undecorated	1762-1820	1791	18	32238	24	42984	40	71640	82	146862
Pearlware, blue hand painted	1780-1820	1800	1	1800	0	0	2	3600	3	5400
Pearlware, blue trans printed	1795-1840	1818	0	0	4	7272	3	5454	7	12726
Pearlware, annular/cable	1790-1820	1805	4	7220	0	0	8	14440	12	21660
Pearlware, undecorated	1780-1830	1805	0	0	0	0	3	5415	3	5415
Whiteware, blue trans printed	1831-1865	1848	0	0	0	0	1	1848	1	1848
Whiteware, annular	1831-1900	1866	0	0	1	1866	0	0	1	1866
Whiteware, undecorated	1813-1900	1860	0	0	8	14880	1	1860	9	16740
Total			460	801433	412	719743	931	2E+06	2110	4E+06
Mean Ceramic Date by Provenience				1742.2		1746.9		1743.1		1746.1
Mean Ceramic Date for Block	1746.14									
SD	60.22									

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				1825	
Overglazed enameled porc	1660-1800	140	92		0.000
Underglazed blue porc	1660-1800	140	320		0.001
Nottingham stoneware	1700-1810	110	32		0.000
Westerwald	1700-1775	75	26		0.000
White salt glazed stoneware	1740-1775	35	174		0.003
White sg sw, scratch blue	1744-1775	31	28		0.000
White sg sw, slip dip	1715-1775	60	340		0.003
Eler's ware	1690-1715	25	4		0.000
Lead glazed slipware	1670-1795	125	320		0.001
Jackfield	1740-1780	40	34		0.000
Clouded wares	1740-1770	30	78		0.001
Agate wares	1740-1775	35	15		0.000
Astbury ware	1725-1750	25	11		0.000
Decorated delft	1600-1802	202	100		0.000
Plain delft	1640-1800	160	134		0.000
Creamware, undecorated	1762-1820	58	82		0.001
Pearlware, blue hand painted	1780-1820	40	3		0.000
Pearlware, blue trans printed	1795-1840	45	7		0.000
Pearlware, annular/cable	1790-1820	30	12		0.000
Pearlware, undecorated	1780-1830	40	3		0.000
Whiteware, annular	1831-1900	69	1		0.000
Whiteware, undecorated	1813-1900	87	9		0.000

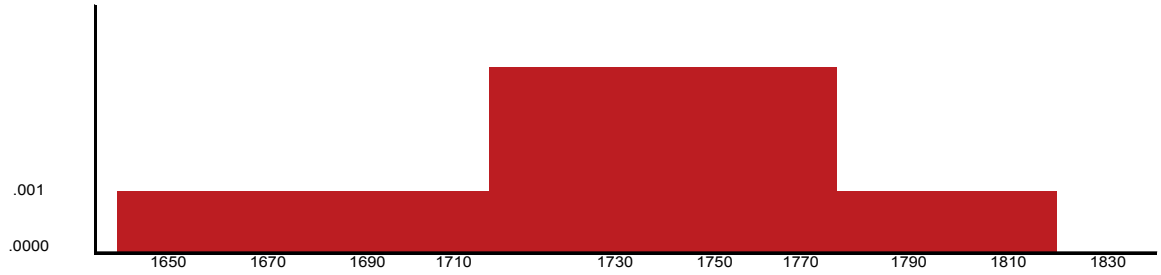


Figure 130. Salwen and Bridges dating for Colonial Midden 2 at Kendal Plantation.

determined for Midden 1, but within the range of the dates determined for both middens and well within the 1σ standard deviation.

All of the dates suggest an occupation focused on the first half of the eighteenth century, with mean dates ranging from about 1742 to perhaps as late as 1756. As previously cautioned, these dates are not associated with the colonial kitchen, only the trash deposits that we believe originated in the kitchen. While Colonial Midden 1 might represent an episode cleaning the kitchen and making repairs between owners or occupants, Midden 2 more reasonably represents trash

Table 51.
Tobacco Stem Dating for Midden 2

Bore Diameter	#		
4/64	59	236	
5/64	81	405	
6/64	6	36	
7/64	0	0	
8/64	0	0	
9/64	0	0	
	146	677	
average bore diameter		4.636986	
Binford Date			1754
log of average bore diameter		0.666236	
		7.10207	
Heighton and Deagan Date			1756

generated in the kitchen and thrown out a rear door or window. Regardless, the remains are almost certainly associated with the plantation's formation and ownership by Roger Moore and continued use by his son, George Moore.

Colonial Kitchen Front Yard

A single 10-foot unit was excavated to explore the area south of the colonial kitchen. The topography suggests the unit was placed at the edge of Kendal plantation's road access to what was known as River Road to the west, connecting Wilmington and Smithville (now Southport). The unit, excavated in a single level, produced 2,489 artifacts (Table 49). The unit's artifact density

Table 52.
Artifacts Recovered from the Colonial Kitchen Front Yard

	80R60, Lv 1	Trowel		
Kitchen Group			1489	59.8
Chinese porcelain, undecorated	42	2		
Chinese porcelain, blue hand painted	59	2		
Chinese porcelain, poly HPOG	19			
English porcelain, undecorated	15			
White SG SW	89	1		
White SG SW, scratch blue	6			
White SG SW, slip dipped	61	4		
Delft, undecorated	49	4		
Delft, polychrome hand painted	5			
Delft, blue hand painted	79			
Lead glazed slipware	74			
Creamware, undecorated	182	3		
Creamware, transfer printed	1			
Pearlware, undecorated	25			
Pearlware, blue hand painted	17			
Pearlware, poly hand pained	2			
Pearlware, annular	1			
Pearlware, blue edged	2			
Whiteware, undecorated	42			
Whiteware, poly hand painted	1			
Whiteware, blue hand painted	1			
Whiteware, annular	8			
Whiteware, blue edged	1			
Whiteware, blue transfer printed	8			
Whiteware, green transfer printed	3	1		
Whiteware, brown transfer printed	3			
Whiteware, purple transfer printed	3			
Whiteware, black transfer printed	2			
Whiteware, sponge decorated	2			
Yellow ware, undecorated	3			
Astbury ware		1		
Jackfield	18	1		
Clouded ware	27	2		
Elers ware	1			
Refined earthenware, UID	42	6		
Tortoiseshell	2			
Nottingham	14			
Westerwald	4			
Gray SG SW	11			
Brown SG SW	11			
Coarse Red earthenware	54	1		
Buckley	2			
North Devon gravel tempered	7			
Burnt refined earthenware	34			
Glass, black	194	4		
Glass, aqua	23			
Glass, green	9			
Glass, light green	17	1		
Glass, brown	11			
Glass, other	1			
Glass, clear	99	6		
Glass, milk	2			
Glass, manganese	6			
Glass, melted	17			
Utensil	4	1		
Tableware	12	1		
Kitchenware	1			
Colono ware	19	1		
Architecture Group			865	34.8
Window glass	193	7		
Nails, wrought	235	7		
Nails, machine cut	192	5		
Nails, wire	2			
Nails, UID	217	7		
Furniture Group			2	0.1
Brass tacks	1			
Iron tacks	1			
Arms Group			4	0.2
Gunflint flakes	1			
Melted lead	2			
Shotgun shell base, brass	1			
Tobacco Group			98	3.9
Pipe stems, 4/64-inch	29	4		
Pipe stems, 5/64-inch	33			
Pipe bowl fragments	30	2		
Clothing Group			13	0.5
Buttons	8			
Buckles	4			
Scissor	1			
Personal Group			2	0.1
Eyeglass lens	1			
Key	1			
Activities Group			16	0.6
Toys	1			
Storage items	3			
Stable and barn items	2	1		
Misc. hardware	3			
Other	6			
TOTAL	2414	75	2,489	

(about 25 artifacts per square foot or 29 per cubic foot) is considerably lower than the two nearby middens, suggesting that the front yard deposits are more characteristic of a sheet midden. This is what Wilson describes as sheet trash, "a low density scatter of secondary refuse" (Wilson 1994:43). As will become clear in these discussions, another feature that distinguishes this area from the rear middens is that the area was used for trash disposal for a longer period of time.

What is not so clear is how or why the roadway was being used for trash disposal. The unit is approximately 35 feet south of the kitchen, too far for trash to be deposited out of a door or window – the preferred disposal technique according to South's Brunswick Pattern of Refuse Disposal. Yet, as Honerkamp (1980:39) and others have warned, those areas investigated by South constitute a sample limited to structural foundations and the immediately adjacent areas (South 1977:48).

While focused on an urban setting, Honerkamp (1980:235) points out that the "garbage formation processes" may focus on spatial constraints and in the absence of spatial constraints, "the need to maximize the disposal potential of a limited area will be reduced."

For at least the next decade archaeologists focused on plantation disposal practices. Zierden and her colleagues observed that, "extensive sheet midden deposits corresponding with a lack of subsurface refuse deposits, and the use of adjacent low-lying areas for refuse disposal" characterize Carolina low country plantations (Zierden et al 1986:7-2). Even where pits were present at the Daniel's Island plantations, they were small and exhibited little lensing, suggesting opportunistic, short-term use rather than intentionally dug pits specific for refuse disposal (Zierden et al. 1986:7-3).

While it is difficult for us today to conceive of trash being scattered across the entrance to a wealthy individual's property, Larkin quotes an Englishman traveling on Long Island in 1818 who commented on the, "out-of-door slovenliness bits of wood, timber, boards, chips, lying about, here and there, and pigs tramping about in a sort of confusion" (Larkin 1988:128). Fowler comments that, "to the English taste there is a great want of neatness observable" in the farmhouses they visited.

Table 53 compares the artifact pattern from this midden with other patterns, revealing an almost perfect match with the Carolina Elite Pattern proposed by Beaman (2001). Only the Clothing Group exhibits a higher than anticipated percentage. In contrast, the front yard collection deviates from the Revised Carolina Artifact Pattern in five different groups: architecture, furniture, clothing, personal, and activities.

If the front yard pattern is compared to the patterns found in the two middens, we see that it rests midway between the proportions of kitchen, architecture, and arms. In other words, although there are differences in the three areas, there is also considerable similarity.

Table 53.
Comparison of the Kitchen Yard to Various Artifact Patterns

	Kendal Kitchen Front Yard	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	59.8	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	34.8	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.1	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.2	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	3.9	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.5	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.1	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.6	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1] Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singlton 1980

Table 54.
Form of Vessels from the Front Yard Unit

	Hollow Ware		Flat Ware		Serving					Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, blue hand painted	2	2	1	6								
Chinese porcelain, poly HPOG		5		1								
White porcelain, undecorated		1		2								
Subtotals	10		10				0				0	
Delft, undecorated		5		7								
Delft, polychrome		1										
Delft blue hand painted		11		4								
Subtotals	17		11				0				0	
White SGSW				15								
White SGSW, slip dipped	4	2		2						2		
White SGSW, scratch blue	1									1		
Subtotals	7		17				0				3	
Lead Glazed Slipware		1		5								
Subtotals	1		5				0				0	
Nottingham										1		
Subtotals	0		0				0				1	
Coarse Red Earthenware	2					2						2
Subtotals	2		0				2				2	
Creamware, undecorated	2	7		3								
Subtotals	9		3				0				0	
Pearlware, edged				1								
Pearlware, hand painted	2	1	1						1			
Pearlware, transfer printed												
Subtotals	3		2				1				0	
Whiteware, undecorated		3		6						1		
Whiteware, blue hand painted		3		1								
Whiteware, annular		3		1								
Whiteware, edged				1								
Whiteware, sponged		1										
Whiteware, transfer printed				1	2					1		
Subtotals	10		10				2				2	
Other ceramics		5		3					3			
Subtotals	5		3				3				0	
Totals by Function	64		61				8				8	
%	45.39		43.26				5.67				5.67	

	Totals	%
Flat Ware	59	44.36
Hollow Ware	53	39.85
Tea Ware	14	10.53
Serving Wares	7	5.26
Total Table Wares	133	94.3
Utilitarian Wares	8	5.7
Total	141	

What we may be seeing in this variability is the manifestations of the Carolina Artifact Pattern when examined from non-structural areas. If so, they suggest good reason for archaeologists to explore non-structural areas in an effort to further refine the garbage formation processes, as Honerkamp called them, from eighteenth century plantation sites.

Kitchen Artifacts

Ceramics

This is the first assemblage around the kitchen where creamwares are the dominant ceramic (n=186, 17.5%), although earlier wares are still abundant. For example, white salt glazed stonewares (n=161) contribute 15.2%, delft (n=137) an additional 12.9%, and Chinese porcelains (n=124) comprise 11.7% of the ceramics collection. Early eighteenth century markers such as North Devon Gravel Tempered wares were also recovered from this unit. Reference to Table 49 reveals that even whitewares are present (n=75) and represent 14.1% of the assemblage. In other words, there appears to be a wide range of both eighteenth and nineteenth century ceramics in this area, suggesting that

trash was being scattered in the access road throughout the plantation's long history.

While a small assemblage, the analysis reveals the presence of at least 141 vessels in the yard unit south of the kitchen (Table 54). Because they were being trodden underfoot, almost all of the materials are heavily fragmented.

As with the previously discussed middens, tablewares dominate the front yard. The front yard, however, has a relatively low proportion of utilitarian wares compared to the middens. Flat wares are also more common, at the expense of tea wares – which reflect a lower proportion of the assemblage in the front yard than in either of the two middens (10.53% compared with 25.23% and 19.5%).

Two-thirds of the whiteware are composed of less expensive edged, sponged, and undecorated wares. Even the creamwares are primarily hollow ware forms such as bowls. The assemblage seems more consistent with a lower status occupation, especially during the nineteenth century, than those from the two middens.

Only 20 Colono wares were recovered from the unit and all of them were well burnished. Two rims were flattened; only one was rounded. Vessel diameters range from 5 to 9 inches, likely representing open bowl forms. As suggested previously, these seem consistent with forms used by the African American slaves in the kitchen for taking their own meals.

Glass

While the glass assemblage is dominated by black beer and wine bottle fragments, no bases to cylindrical wine bottles were recovered. Five gin bottles were identified based on bases. Two could not be measured; the remaining three measure 3¾, 4½, and 5¼-inches square.

Also present in the yard area were fragments of a light green panel bottle. Fike (1987:3-5) indicates that such bottles were first manufactured about 1850, consistent with some of the whitewares recovered from the excavations and further confirming the long occupation of the Kendal site.

Several additional aqua bottle fragments were also recovered. One was embossed "-R/-TO-" and the other "-O-." Neither is sufficient to provide information on contents or probable dating.

Glass tableware included the remains of two stemware vessels. One has a diameter of 2¼-inchs, the other 3-inches. More common were tumblers. Seven specimens could be identified, including two measuring 2¼-inches in diameter, one measuring 2½-inches, and four measuring 3-inches.

Other glass tableware items identified in the yard assemblage include a blown bottle stopper, perhaps from a decanter. A clear glass blown knob was recovered, perhaps broken from a glass cover. Also present was a molded glass handle.

Other Kitchenware and Tableware Items

The one kitchenware item recovered from this area is an iron kettle fragment with a 2-inch foot.

The tableware items include a bone handle fragment. Such fragments are generally associated with either iron forks or knives. Three pewter handle fragments, two of which mend, were recovered. These may have been associated with spoons or forks.

Architectural Artifacts

Nails were the most common architectural object (n=665), comprising three-quarters of the collection. Window glass was the only other architectural artifact recovered from this yard unit.

As elsewhere, there is little that can be said about the glass except that it has a uniform very light green cast. None of the fragments are large enough to allow estimation of the pane sizes.

Table 55.
Nails from the Colonial Kitchen Front Yard

Penny Wt.	SAE	Wrought Rose	Wrought T	Machine Cut Hand	Machine Cut Machine	Total
2d	1"	8	3			
3d	1¼"	8	2		1	
4d	1½"	4	5		3	
5d	1¾"	13	10		7	
Small timbers, shingles		**33**	**20**	**0**	**11**	**64**
6d	2"	7	8	1	13	
7d	2¼"	1	5		5	
8d	2½"	7	7		11	
Sheathing, siding		**15**	**20**	**1**	**29**	**65**
9d	2¾"	4	7		3	
10d	3"	3	4		5	
12d	3¼"	2	3		2	
Framing		**9**	**14**	**0**	**10**	**33**
16d	3½"	1	3			
20d	4"	1			1	
Heavy framing		**2**	**3**	**0**	**1**	**6**
Total		**59**	**57**	**1**	**51**	**168**

The two modern wire nails are likely intrusive, although the Kendal site was used even after the main house burned in 1919. Wrought nails are still the most common form (discounting those which are too corroded for identification or measurement), although nearly as many machine cut nails were recovered from the unit (Table 52).

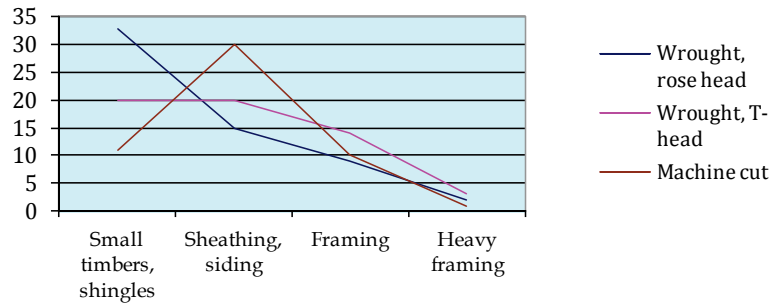


Figure 131. Distribution of nails and sizes in the Colonial Kitchen Yard.

The numbers of rose head and T-head wrought nails were nearly identical, even among the smaller sizes intended for shingles or lathe. This is unusual since the T-heads don't have the holding power of rose head nails and were therefore generally used for smaller work, trim, and detailing where it was important for the head not to show.

There is a near absence of machine cut nails with hand applied heads, suggesting a post-1815 date for the machine cut nails with machine formed heads. Most of these nails were of a size associated with sheathing and siding.

Furniture Artifacts

Furniture artifacts consist entirely of single examples of iron or brass tacks, suggestive of small losses from various furnishings, such as chairs or trunks.

Arms Artifacts

Arms-related artifacts are sparse in the yard area. Recovered were two fragments of melted lead, probably associated with the production of molded shot. A single tertiary flake of black flint was recovered, perhaps reflecting efforts to rework an English gun flint at the site.

The last item is a late shotgun shell with a remnant paper cartridge. The headstamp, "ELEY BROS/ No./ 12/ LONDON," indicates it was manufactured by the Eley Brothers of London, England. The firm began in 1828 and by 1918 had merged with a variety of ammunition makers. In 1920 the name was changed to Nobel Industries. Apparently around this time both Eley and Nobel appear on the headstamp. In 1928, Eley became a subsidiary of ICI Metals Division, and Eley shells include the ICI

logo. It is likely that the cartridge dates between about 1880 (when paper shells were introduced) and 1920 when the name change occurred.

Tobacco Artifacts

The yard unit produced 98 tobacco pipe stem and bowl fragments, all but one of which are white ball clay. The one exception is a red clay stem with a bore diameter of 5/64-inch.

Red clay pipes are rare in the colonies, but are found in large quantities from Port Royal, Jamaica, apparently dating from the late seventeenth and early eighteenth centuries. Since they were first found in Jamaica archaeologists have debated whether they were manufactured by Native Americans, African Americans, European colonists, European pipe-makers, or all four (for some of these discussions see South 2002 and Veit 2002).

It seems that relatively few archaeologists have explored the paste of these pipes in an effort to ascertain the locality of manufacture. An early effort examined a small sample of Jamaican pipes using neutron activation. The study found that clays of slightly different colors had nearly identical chemical composition, strongly suggesting that the variation was related to firing and not clay source. In addition, the examined samples appear very similar to a Jamaican clay sample (Heidtke 1992:56).

In another study x-ray diffraction and energy dispersive X-ray spectrometry were used to compare Virginia red clay pipe samples to local clays. The research identified clear elemental differences between white clay and red clay pipes, which the authors note was "undoubtedly due to the former probably being made from clay from Devon, England, whereas the latter was probably made from Virginia clays" (Key and Jones 2000:90-91).

While the studies do not determine who made the pipes, they do suggest local manufacture. Moreover, insofar as the data derived from different techniques can be compared, the Jamaica and Virginia clays do not seem similar – suggesting that the Virginia pipes did not originate in the Caribbean.

Turning to the far more common white clay pipes, pipe stems comprise about two-thirds of the collection (n=65) and they are evenly divided between 4/64 and 5/64-inch bore diameters.

There are 32 pipe bowl fragments. Thirty of these are plain. The remaining two are both stamped with "WOOD," identical to the specimen found in Colonial Kitchen Midden 1. Atkinson and Oswald (1980:369) report them being widely found in contexts from 1780 to 1820.

Clothing Artifacts

Clothing artifacts include eight buttons, four buckle fragments, and a fragmentary pair of scissors.

Table 56.
Buttons Recovered from the Colonial Kitchen Yard

South's Type	Description	Number	Measurements (in mm)
7	Spun brass/white metal with eye cast in place	1	18
18	Stamped brass or white metal	1	14
23	Porcelain, convex	3	2-11, 15
35	Glass inset in brass holder	1	13
-	UID material, oval, handmade, 2-hole	1	9x11
-	Conical brass	1	13

As Table 56 reveals, only one of the recovered buttons (South's Type 7) is colonial, the remainder of the identifiable types date from the nineteenth century. This, like the other artifacts present in the collection, documents the long period of deposition or loss on-site.

One of the buttons incorporates a glass or paste jewel. Deagan (2002:172) suggests that such buttons, at least on Spanish sites, date from about 1700 to as late as 1820 – suggesting an earlier date than South. The use of a relatively large clear

jewel suggests a date of perhaps 1785 to 1820.

While two of the buttons are of a size typically associated with coats, most are between 6 and 13mm in diameter and were more likely associated with pants (Luscomb 1971). White's (2005) reconstructions are less precise and many of the buttons might have been used on either sleeves or waistcoats. Regardless, it appears that the collection represents a wider range of losses than found in the two middens.

Two of the identified buckles are decorated shoe buckles, both brass. The other two are double loop buckles, one of brass and the other of white metal. The size of these specimens suggests knee buckles, although spur or boot buckles is possible. One specimen is trapezoidal. All of these buckles are likely colonial.

The fragmentary scissor part includes a partial eye ring, handle, and blade. The overall length would have been about 3½-inches, a size that is suggestive of sewing, rather than more utilitarian tasks.

Personal Artifacts

Only two Personal Group Artifacts were recovered. One is an eyeglass lens measuring about 33mm in diameter. The thickness at the center is approximately 1.64mm, tapering to about 1.05mm at the edges.

While the specimen cannot be dated, such eyeglass lenses were widely available during the eighteenth century. In the first quarter of the century Edward Scarlett of Soho advertised that he, "Grindeth all manner of Optick Glasses [and] makes spectacles after a new method, marking the Focus of the Glass upon the Frame, it being approv'd of by all the Learned in Opticks as [the] Exactest way of fitting different Eyes" (Calvert 1971). By the 1770s reading glasses might cost anywhere from 2s. 6d. to £2.2 (Rosenthal 1996:44).

The other personal artifact is a key which consists of the bit, shank, and a portion of the bow. Extant length is 83mm, although the original length might have been about 110mm.

Ideally the width of a key's lock is four times the height of the keyhole, while the length of the lock is six to seven times the height of the keyhole (Streeter 1974b). Consequently the lock associated with this key would have measured about 3½-inches in width and about 5¼ to 6⅛-inches in length, indicating a small door lock.

Activities Artifacts

This assemblage includes 16 specimens representing five different categories.

The single toy item is a molded white porcelain saucer measuring 2½-inches in diameter. This item is not datable, but such toys were present during the colonial period on. The Victoria and Albert Museum has in its collection a Lowestoft toy tea set dated to 1780 (Rackham 1916:160).

The fragments of ferrous strap comprise the storage items. These measure ⅞, 1, and 1¼-inches in width and were likely associated with barrels or boxes.

Three Stable and Barn items were recovered, including a one-loop ferrous harness buckle measuring 1⅜-inches square with a tongue, a rectangular harness buckle, also ferrous, measuring 2⅝ by 1¼-inches, and a snaffle bit fragment.

Snaffle bits allow reins to be attached to the bit in direct line with the mouth piece. This provides good communication from the rider to the horse. The specific type is often called a full cheek snaffle bit since there are upward and downward extensions.

Miscellaneous hardware included a ferrous nut, a hand wrought staple, and a brass nail. The staple is fragmentary, but measures over 4¼-inches in length and may be associated with door hardware (i.e., architectural), rather than the activities group. The brass nail is 7d in length. Nails such as this began to be used to affix hull

Table 57.
Mean Ceramic Date for the Colonial Kitchen Yard Unit

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	21	36330
Underglazed blue porc	1660-1800	1730	107	185110
English porc	1745-1795	1770	15	26550
Nottingham stoneware	1700-1810	1755	14	24570
Westerwald	1700-1775	1738	4	6952
White salt glazed stoneware	1740-1775	1758	90	158220
White sg sw, slip dipped	1715-1775	1745	65	113425
White sg sw, scratch blue	1744-1775	1760	6	10560
Eler's ware	1690-1715	1702	1	1702
Lead glazed slipware	1670-1795	1733	74	128242
Jackfield	1740-1780	1760	19	33440
Clouded wares	1740-1770	1755	29	50895
Astbury ware	1725-1750	1737	1	1737
Decorated delft	1600-1802	1750	84	147000
Plain delft	1640-1800	1720	53	91160
North Devon	1650-1775	1713	7	11991
Buckley ware	1720-1775	1748	2	3496
Creamware, undecorated	1762-1820	1791	185	331335
Pearlware, poly hand painted	1795-1815	1805	2	3610
Pearlware, blue hand painted	1780-1820	1800	17	30600
Pearlware, edged	1780-1830	1805	2	3610
Pearlware, annular/cable	1790-1820	1805	1	1805
Pearlware, undecorated	1780-1830	1805	25	45125
Whiteware, blue edged	1826-1880	1853	1	1853
Whiteware, poly hand painted	1826-1870	1848	2	3696
Whiteware, blue trans printed	1831-1865	1848	8	14784
Whiteware, non-blue trans printed	1826-1875	1851	12	22212
Whiteware, annular	1831-1900	1866	8	14928
Whiteware, sponge/splatter	1836-1870	1853	2	3706
Whiteware, undecorated	1813-1900	1860	42	78120
Yellow ware	1830-1940	1885	3	5655
Total			902	2E+06
Mean Ceramic Date				1765.4
standard dev.	60.035498			

coverings to ships in the last half of the eighteenth century (Erreguerena 2011:979). Staniforth (1985) documents that the earliest vessels to use this sheathing in the eighteenth century were almost exclusive involved in the East and West Indies trade, the African slave trade, and the trade with the Americas. By the early nineteenth century the use spread to a greater number of merchant ships and were being used by New England shipyards.

The nails used on ships were described by Staniforth,

> The copper nails were around 7 cm in length with an irregularly circular head of 1.5 cm diameter. The shank was square in cross section below the head and tapered to a wedge shaped point of width 0.5 cm. (Staniforth 1985:42).

This is a fairly good description of the nail from Kendal, although our example is only about 58mm in length.

In the final miscellaneous category were three unidentifiable iron fragments, one strip of copper plate, and two ferrous wire fragments.

Dating

Table 54 shows South's mean ceramic date for the single unit comprising this block. The 1765 date, however, has a relatively large standard deviation resulting from the fact that the assemblage incorporates materials from the early eighteenth century (such as the North Devon Gravel Tempered pottery) through the mid to late-nineteenth century (such as the whitewares). Thus, the mean date here should be reflective of a historic occupation span from about 1726 to at least 1882 (when the plantation was sold by W.G. Curtis to Frederic Kidder), or about 1804. The earlier than anticipated mean date suggests that activities leading to deposition in this site area may have ceased by the early nineteenth century.

Using South's bracket date for the midden, we obtain a range from about 1740 to 1830. While not precise, it does reflect the relatively long period of occupation anticipated by the range of ceramics and the known occupational history of Kendal.

The Salwen and Bridges dates are shown in Figure 132. These indicate a core occupation from 1760 to 1820, very similar to the dates obtained by South's Bracketing Technique. However, less intense occupation appears to have begun at least by 1740.

At other blocks we have used tobacco pipe stem dating to supplement ceramic dating. However, since the pipe stems, by definition, cannot provide a date later than 1800, and we know that refuse from the area dates into at least mid-century, the application of these techniques does not seem appropriate.

The dates support what we have supposed, that representing a yard area south of the kitchen, a sheet midden developed during the early eighteenth century, but refuse continued to be deposited in the area well into the nineteenth century.

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				887	
English porcelain	1745-1795	50	15		0.000
Overglazed enameled porc	1660-1800	140	21		0.000
Underglazed blue porc	1660-1800	140	107		0.001
Nottingham stoneware	1700-1810	110	14		0.000
Westerwald	1700-1775	75	4		0.000
White salt glazed stoneware	1740-1775	35	89		0.003
White sg sw, scratch blue	1744-1775	31	6		0.000
White sg sw, slip dip	1715-1775	60	61		0.001
Eler's ware	1690-1715	25	1		0.000
Lead glazed slipware	1670-1795	125	74		0.001
Jackfield	1740-1780	40	19		0.001
Clouded wares	1740-1770	30	29		0.001
Astbury ware	1725-1750	25	1		0.000
Decorated delft	1600-1802	202	84		0.000
Plain delft	1640-1800	160	53		0.000
North Devon	1650-1775	125	7		0.000
Buckley ware	1720-1775	55	2		0.000
Creamware, undecorated	1762-1820	58	185		0.004
Pearlware, poly hand painted	1795-1815	20	2		0.000
Pearlware, blue hand painted	1780-1820	40	7		0.000
Pearlware, edged	1780-1830	50	2		0.000
Pearlware, annular/cable	1790-1820	30	1		0.000
Pearlware, undecorated	1780-1830	40	25		0.001
Whiteware, blue edged	1826-1880	54	1		0.000
Whiteware, poly hand painted	1826-1870	44	2		0.000
Whiteware, blue trans printed	1831-1865	34	8		0.000
Whiteware, non-blue trans printed	1826-1875	49	12		0.000
Whiteware, annular	1831-1900	69	8		0.000
Whiteware, sponge/splatter	1836-1870	34	2		0.000
Whiteware, undecorated	1813-1900	87	42		0.001
Yellow ware	1830-1940	110	3		0.000

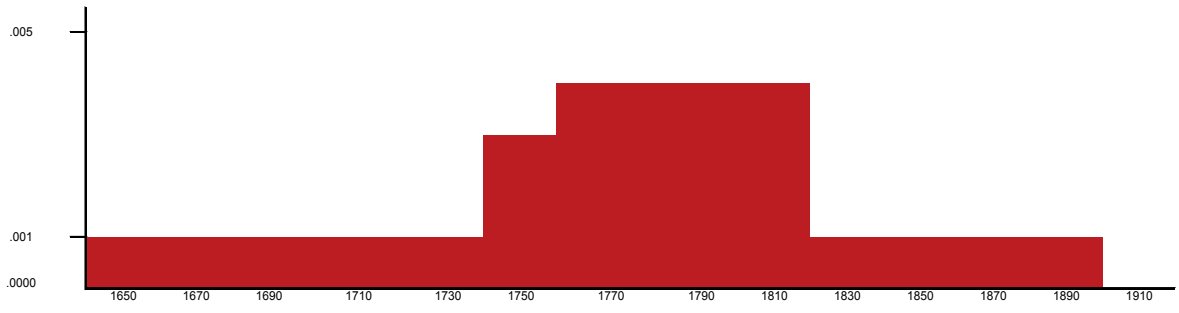


Figure 132. Salwen and Bridges dating for Colonial Kitchen Front Yard unit.

Colonial Kitchen

A series of 15 units, including six 5-foot units, three 5 by 10 foot units, and six 10-foot units, were combined to explore the colonial kitchen evidenced by an extensive brick foundation. The excavations included 900 square feet and 1,145 cubic feet and allowed the size of the kitchen building to be identified. Portions of the foundation were missing, apparently robbed out or perhaps removed to make plowing easier during the twentieth century.

The 15 colonial kitchen units produced 16,084 artifacts (Table 58) with the block producing mean artifact densities of 17.9 artifacts per square foot and 14 artifacts per cubic foot. Thus, in comparison with the middens and even the front yard area, artifact density in the kitchen structure is relatively low. Nevertheless, the density is still quite high; especially since so much of the excavated fill (15,893 pounds or nearly 8 tons) consisted of brick rubble.

While a few of these artifacts are likely intrusive, based on their very recent age, the bulk of them are thought to have been associated with the kitchen. Some of the smaller items were likely lost between floor boards in the basement area. Some were thrown out windows or doors and represent deposits immediately adjacent to the foundation. Many of the objects, however, were likely in the building when it was finally demolished and removed from the landscape. It is also worth recalling that the east end of the kitchen included two small rooms presumably used by African American slaves.

Table 59 compares the artifact pattern from this structure with other patterns. While there is a clear resemblance to South's Brunswick Pattern, today identified as the Revised Carolina Artifact Pattern, the match is far closer with the Carolina Elite Pattern proposed by Beaman (2001). Every group fits Beaman's proposed range, further identifying the colonial kitchen as the remains of a very high status occupation. The pattern is also very similar to that identified from the front yard of the kitchen. Given the proximity this is not surprising. What is more interesting is that even with several slaves living in the kitchen building there is no demonstrable deviation from Beaman's elite pattern, suggesting that either the slaves' contribution was very minimal or that perhaps they, too, lived differently than their colleagues elsewhere on the plantation.

Kitchen Artifacts

Ceramics

Like the previously discussed front yard, the kitchen is dominated by creamwares, which account for 20.5% (n=1085) of the assemblage. Nearly as abundant are white salt glazed stonewares (n=827, 15.6%) and Chinese porcelains (n=804, 15.2%). Earlier wares, such as delft and lead glazed slipware account for a much smaller proportion of the assemblage (7.3% and 6.6% respectively). Very early eighteenth century wares, such as North Devon Gravel Tempered, are absent.

Likewise, later ceramics such as pearlwares and whitewares are also less well represented (6.1% and 6.8% respectively). As will be discussed in greater detail at the conclusions of these discussions, these suggest dense occupation during the late eighteenth century, but continuing into the early nineteenth century.

The lower frequencies of early materials may suggest that the kitchen was cleaned at a change of ownership, perhaps with the death of Roger Moore or the sale of the property by George Moore.

Table 58.
Artifacts Recovered from the Colonial Kitchen

	115R50, Lv 1	115R50, Lv 2	115R60, Lv 1	115R80, Lv 1	120R40, Lv 1	120R40, Lv 2	125R40, Lv 1	125R40, Lv 2	125R50, Lv 1	125R60, Lv 1	125R80, Lv 1	125R80, Lv 2	130R70, Lv 1	135R40, Lv 1	135R40, Lv 2	140R55, Lv 1	140R70, Lv 1	140R75, Lv 1	140R80, Lv 1	140R85, Lv 1	Trowel		
Kitchen Group																						7934	49.3
Chinese porcelain, undecorated	18	43	19	73	2	12	5		5	5	15	5	16	3		3		2	4	6	7		
Chinese porcelain, blue hand painted	23	76	51	137	3	19	10	1	17	2	9	33	6	2	7	12	1	4	1	11	25		
Chinese porcelain, poly HPOG	10	11	24	22		5			4	4	11		1	1	3	2		1	3	3	4		
Chinese porcelain, Batavia			1	1																			
English porcelain, undecorated	1	10	8	5			1		1	3	1		4	2	3	1					1		
English porcelain, blue hand painted		11	11																				
English porcelain, poly HPOG															1								
White SG SW	24	108	57	125	6	17	11		24	11	19	4	11	7	5	3	2	3	4	16	9		
White SGSW, splatter																			1				
White SG SW, scratch blue	3	6		5		2			1		4		1						2	1			
White SG SW, slip dipped	17	75	57	71	3	25	4	1		4	15	6	3	3	3	4	2	3	1	15	20		
White SGSW, slip dipped, HPOG																1							
White SGSW, Littler's Blue	1																			1			
Delft, undecorated	17	40	15	42	1	17	6		5	2	2	3	2		7	6	2		5	5	10		
Delft, polychrome hand painted		5	2	4		1								3						1			
Delft, blue hand painted	19	37	10	21	1	18	9		15	1	2	1	3	4	2		1	1	2	4	6		
Delft, sponged		9	3	5		6		1				1		1							1		
Lead glazed slipware	15	82	49	80	4	30	5	1	1	5	13	6	4	5	11	5	3	1	5	8	19		
Creamware, undecorated	109	216	130	233	17	94	18	2	55	25	25	5	15	11	11	16	6	2	4	15	22		
Creamware, blue hand painted	1	8				18	12	8															
Creamware, poly hand painted	1					1													1				
Creamware, HPOG		1		3																			
Pearlware, undecorated	7	10	11	14		3	1	1	6	11	23	1	3	2			2	5	8	6			
Pearlware, blue hand painted	10	15	8	14	2	7	4		4	5	2	1	5	2	1	2				1	1		
Pearlware, poly hand pained																1				1			
Pearlware, cable			3							1													
Pearlware, annular	13	21	15	2	1	3	1		2	2	3												
Pearlware, green edged	1		3	5			1																
Pearlware, blue edged			3						1	1	2							1	5				
Pearlware, blue transfer printed	5		7	2			1		2		1		2	4		1	1	2	3	1	1		
Whiteware, undecorated	26		41	54			10		21	21	17		17	8		4	4	8	4	8	1		
Whiteware, blue hand painted									2		1								4				
Whiteware, poly hand painted	2		5	6					6	5	2		7				1		1	1			
Whiteware, splatter	1												1										
Whiteware, annular	7		2	1			1		1	3			5				2						
Whiteware, blue edged	3										1			2									
Whiteware, blue transfer printed	3		2	2			5		3	8						1	1	2					
Whiteware, red transfer printed				1							1		1										
Whiteware, brown transfer printed					1		3		2														
Whiteware, purple transfer printed				1																			
Whiteware, black transfer printed				1	1													1		1			
Yellow ware, undecorated	1		11	1			1		1								2						
Black basalt			1	1																			
Astbury ware	10	4	8	6				1			1	7				1							
Jackfield	4	2	12	20	1	4	4		3	1	3	2	1	2	3		1	1	1	1	2		
Clouded ware	8	35	11	28	1	3		3		2	1	1			3	1		2	1	3	3			
Elers ware																1							
Refined earthenware, UID														3	1	1					1		
Tortoiseshell	1	19	1				1	1	12		2	7		1		1				2	2		
Agate ware			1	3			2		3	1				1									
Nottingham	3	5	4	4		1				2	2		6						1	3	1		
Westerwald	1	13	3	4		4			1		6	1	1		1		1				1		
Gray SG SW	3	4	8	9	1					3	5		2			1				1	3		
Brown SG SW	4	14	9	20		6	1		3	2	2	2		2	6			1	2		4		
Albany slip SW	2	2		2					1		2												
Bristol slip SW									2					1							1		
Alkaline glazed stoneware											7					1							
Coarse Red earthenware	42	132	35	63	3	29	5		5	8	8	2	8	3	8	10	2	8	16	12	11		
Buckley	1	8	1	6		1									2				1		2		
Metropolitan ware							1																
Red earthenware	6	10		8	2	11	1				8						2	3	3	2	4		
Moravian ware							1																
Burnt refined earthenware	18	15	16	12	4	4	6		11	3	3	1					1				4		
Glass, black	40	111	77	672	10	41	14	2	18	15	156	339	64	17	21	9	24	23	18	39	77		
Glass, aqua	4	20	1	15	1	7	4		7	5	3	1		4	4		4	2	8	12	10		
Glass, green	1		2	9			2				1								1				
Glass, light green	5	5	11	22		5	3		2	6	41	59	17		2	3	4	3	5	15	5		
Glass, brown	3		19	5			1		1	4	2		2						1	3			
Glass, other						3																	
Glass, clear	19	16	20	50	1		6		26	11	17	4	19	3	2	4	2	2	5		4		
Glass, milk										1	3								1				
Glass, manganese	2		1	4					2		1				1	2	1						
Glass, melted			2	6				2					2					3			1		
Utensil	1	4	2	5			1		1	2	1		3	2						3			
Glass Tableware	3	5	6	5		1	4		2		6	7	3	5		1	4			2			
Container handle					1																		
Kitchenware	3	7	14	11			11		9	2	8			2	1	4			1				
Colono ware	3	14	6	12			1		4	2	5	1	3	2		3	1	1			5		
Architecture Group																						7310	45.5
Window glass	74	125	109	391	9	23	29		45	22	53	25	51	57	31	13	11	16	12	55	58		
Doorknob fragment			1																		1		
Pintle		1		1			1		1	1													
Drive hook												1											
Deadbolt fragment	1																						
Hinge fragments	2			2																1	1		
Shutter dog										2													
Delft tile		3		2		2		1		1	2												
Paver				2		1			1	1													
Nails, wrought	118	239	783	331	11	60	22	3	153	490	59	30	91	30	46	56	24	11	13	36	40		
Nails, machine cut	31	129	44	117	4	13	15		33	29	18		29	12	8	26	2	17	12	13	25		
Nails, UID	88	669	546	521	14	152	49	8	153	175	65	32	87	18	36	62	11	4	5	14	133		
Spikes		1	1								1												
Furniture Group																						49	0.3
Brass tacks	2		1	4		1			1	1				1	1						1		
Iron tacks	6	5	4	7	1	1														1	1		
Escutcheon				1										1				1					
Decorative item			1																				
Hinge fragments			1																				
Drawer pull				1																			
Fireplace tongs												1											
Picture glass															3								
Arms Group																						71	0.4
Lead shot			1																		1		
Lead sprue				1																			
Gunflint				6			1		2		1		1				1						
Gunflint flakes	4	7	6	6			1		1		2	1	4						1	1	1		
Melted lead	1	1	2	3						2	1		1		1	2					2		
Percussion cap											1												
.22 shell, rimfire										1				1									
Shotgun shell base, brass			2																				
Tobacco Group																						540	3.4
Pipe stems, 4/64-inch	13	31	20	45		13	2	1	4	4	5	1	1	5	4	3		1	4	1	10		
Pipe stems, 5/64-inch	14	44	28	56	2	17	13	4	12	4	7	3	3	3	1	3				7	9		
Pipe stems, 6/64-inch	2	1	1	1					1														
Pipe stems, fragments	1	3	1	3					1								2						
Pipe bowl fragments	8	15	11	28	4	7	5	3	2	5	2	1	5	2	1	1			3	10	9		
Stub stem pipe frag			1	1					1														
Clothing Group																						53	0.3
Buttons	1	4	3	3		1			2	2	1		2	1		1		1	1	2			
Buckles			4	4		1	1		2	3	1					1							
Cuff buttons			1																				
Suspender clasp				1																			
Pins			1						2														
Thimble													1										
Flat iron									1														
Scissor				2					1			1											
Personal Group																						18	0.1
Knife blade/pocket knife				1																			
Writing slate												3											
Coin						1	1		1														
Jewelry	1	2		1									1										
Key			1				1																
Mirror fragments			1																				
Umbrella strut fragments											1												
Comb											2												
Activities Group																						108	0.7
Construction tools									1	1										1			
Farm tools											1	1											
Toys													3								1		
Fishing gear														1									
Storage items		4	5	6	1	4	1	2	4	4				1						1			
Stable and barn items			1	3		1							3	1									
Misc. hardware		2	2	2		1				2			1			1		1				
Other	8	3	9	4	1	1			15		1				1		1						
TOTAL	900	2518	2411	3490	114	698	320	46	732	939	687	600	522	242	242	274	130	137	174	346	561	16,083	

Table 59.
Comparison of the Kitchen to Various Artifact Patterns

	Kendal Colonial Kitchen	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[5]
Kitchen	49.3	51.8-65.0	42.1-64.2	70.9-84.2	20.0-25.8
Architecture	45.4	25.2-31.4	26.5-55.8	11.8-24.8	67.9-73.2
Furniture	0.3	0.2-0.6	0.1-0.8	0.1	0.0-0.1
Arms	0.4	0.1-0.3	0.1-1.0	0.1-0.3	0.0-0.2
Tobacco	3.4	1.9-13.9	0.2-4.7	2.4-5.4	0.3-9.7
Clothing	0.3	0.6-5.4	0.1-0.3	0.3-0.8	0.3-1.7
Personal	0.1	0.2-0.5	0.1-1.1	0.1	0.1-0.2
Activities	0.7	0.9-1.7	0.2-1.6	0.2-0.9	0.2-0.4

[1]Garrow 1982
[2] Beaman 2001
[3]Trinkley et al. 2003
[4]Trinkley et al. 2005
[5]Singleton 1980

Several of the ceramics are worthy of at least some brief discussion, including the single sherds of Metropolitan and Moravian wares, and the small collection of alkaline glazed stoneswares.

Metropolitan Ware consists of a cream colored slip trailed onto a dark terra cotta body to create patterns and text which was then lead glazed. It appears that the main market for this ware was London, thus the name "metropolitan" (Grigsby 1993:20).

Moravian slip decorated wares date from the late eighteenth through early nineteenth centuries (Bivins 1972) and research has shown that the Moravians sent not only their missionaries, but also their pottery to a variety of foreign ports (see, for example, Lenik and Heindl 2014). South (2010:110-111) briefly recounts the failed effort by Governor Tryon to stimulate trade from the interior Moravian towns of Bethania, Bethabara, and Salem and even illustrates a tobacco pipe which he suggests may have brought in during that 1767 effort (South 2010:216). While only one sherd is present in the assemblage, it too may document Tryon's efforts to promote trade with the Unity of Brethren.

The alkaline glazed stonewares are discussed by Burrison (1975) and Greer (1977, 1981). This glaze, distinctively Southern, was developed about 1810 in Edgefield District, South Carolina and it spread into North Carolina, Georgia, Florida, Alabama, and Texas. The glaze consists of an alkaline flux (such as wood ashes or slaked lime) combined with silica (such as clay, sand, or glass) and water. The colors range from cream to browns in oxidized pots and from pale yellow-greens to deep olive in the pots fired in a reducing atmosphere. The glaze, which is hard and durable, exhibits a variety of textures depending on f1ring conditions, temperature, and preparation techniques.

Whether the Kendal specimens derive from Salem (North Carolina), Camden (South Carolina), or the western piedmont of North Carolina (South 1971; Zug 1980) is unknown. However, their presence certainly indicates the movement of this "distinctly Southern" ceramic tradition into the Cape Fear region.

The assemblage produced a minimum of 446 ceramic vessels, more than any of the areas already discussed. The largest number of vessels are of white salt glazed stonewares (nearly 30%, n=100), closely followed by creamware (27%, n=93). Porcelains are represented by 68 vessels, followed by 41 vessels of lead glazed slipware.

While 6.1% of the assemblage consisted of pearlware sherds, 25 vessels are represented. This may provide some indication of the very small size of many of the ceramics recovered from the kitchen area. As with the yard area, it seems likely that most of these ceramics were being fragmented by pedestrian traffic.

The flat wares in the collection (plates and saucers) account for 50% of the assemblage, with hollow wares contributing 40.6%. This is suggestive of a fairly high status collection. Moreover, it is opposite the proportions found in the front yard area, where the bulk of the materials were hollow wares. Serving dishes constitute an additional 3.6% of the collection.

Table 60.
Form of Vessels at the Colonial Kitchen

	Hollow Ware		Flat Ware		Serving					Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, undecorated	4		3	14								
Chinese porcelain, blue hand painted		12		3	1							
Chinese porcelain, poly HPOG	9	5	4	2	1			1				
Chinese porcelain, Batavia		2	1									
White porcelain, undecorated		1		4		1						
Subtotals	33		31				4				0	
Delft, undecorated	1	1		9						1		
Delft, polychrome		1		5								
Delft blue hand painted		2		9								
Subtotals	5		23				0				1	
White SGSW	9	5	3	37						1		
White SGSW, slip dipped	10	13	1	14	1					3		
White SGSW, scratch blue	2									1		
Subtotals	39		55				1				5	
Lead Glazed Slipware	2	20		17		1						1
Subtotals	22		17				1				1	
Nottingham	1									1		
Subtotals	1		0				0				1	
Westerwald	2									2		
Subtotals	2		0				0				2	
Tortoiseshell	1									1		
Subtotals	1		0				0				1	
Creamware, undecorated	10	13	2	35		1	2		1	3		
Creamware, edged				14								
Creamware, hand painted	3	5		3				1				
Subtotals	31		54				5				3	
Pearlware, undecorated		1										
Pearlware, annular		5										
Pearlware, edged				13								
Pearlware, transfer printed	1	2		3								
Subtotals	9		16				0				0	
Whiteware, undecorated	2	3		14								
Whiteware, annular	1	4										
Whiteware, edged				4								
Whiteware, hand painted	1	1		1		1						
Whiteware, transfer printed	1			3								
Subtotals	13		22				1				0	
Other ceramics	5	20		6		1		1	2	7		4
Subtotals	25		6				4				11	
Totals by Function	181		224				16				25	
%	40.58		50.22				3.59				5.61	

	Totals	%
Flat Ware	210	49.88
Hollow Ware	120	28.50
Tea Ware	81	19.24
Serving Wares	10	2.38
Total Table Wares	421	94.39
Utilitarian Wares	25	5.61
Total	446	

Flat wares tend to dominate most of the larger collections. The hollow ware to flat ware ratio is most pronounced in the delft collection where it is 1:4.6. Creamware, pearlware, and whiteware ratios are 1:1.7, 1:1.8, and 1:1.7 respectively. The ratio is reversed (or nearly equal) for porcelains, at 1:0.9 and 1:0.8 for the lead glazed slipwares. Hollow wares also dominate the assemblage of "other" ceramics, where the ratio is 1:0.2.

Utilitarian wares, primarily storage containers or jars, account for 5.6% of the collection. While several pan forms were found, no evidence of chamber pots was found in the kitchen assemblage (which may be viewed with relief by some readers).

Nearly 20% of the assemblage consists of tea wares, specifically tea cups, saucers, teapots, and lids. This represents the largest assemblage of tea-related ceramics found in the various colonial deposits.

Around three-quarters of the creamwares, pearlwares, and whitewares are undecorated. While in a later collection this might be viewed as suggesting inexpensive wares purchased for the use of the enslaved African Americans, here we believe it is more likely suggestive of purchases of new ceramic styles as they appeared on the market. In each case the undecorated wares were among the first introduced and, representing the "new style" were the most expensive. Only over time did undecorated ceramics decline in value.

Sixty-three colono ware ceramics were recovered from the kitchen area. Most of these (93.6%, n=59) were identified as nicely burnished. About a third of these were rim sherds. Flattened rims account for 82% (n=14) of the rim collection. Only three rounded rims were identified.

The colono vessels ranged in size from about 4-inches to 11-inches in diameter. The mean of the assemblage is 6.5-inches, with a standard deviation of 1.7-inches. These vessels seem to primarily represent small bowls, probably for the use of African Americans working and taking their meals in the kitchen. It is also possible that these vessels were being used in a fashion similar to the various redware bowls found in the kitchen assemblage.

Container Glass

Container glass accounts for 2,418 specimens from the kitchen, with nearly three-quarters of the assemblage (73.9%, n=1,787) consisting of black glass.

This black glass represents a minimum of 13 wine bottles, ranging in basal diameter from 95 to 152mm. Nearly half of these likely represent eighteenth century styles. An equal number may span the last half of the eighteenth century through the first few decades of the nineteenth, while one perhaps dates from about 1790 to 1850 (Jones 1986).

Three additional wine bottle seals marked "R. Moore" were recovered in the kitchen deposits, linking the kitchen to Kitchen Midden 1 where a number of identical seals were found.

Also present are 14 case bottles. Two are 102mm square at the base, one is 108mm, two are 115mm, six are 127mm and three measure 153mm. Jones and Smith (1985:24) illustrate a similar range in sizes, having capacities from a quart and larger.

A final rectangular bottle of black glass was identified. Having measurements of 76 by 120mm, this bottle is similar to those discussed by Jones and Smith (1985) as being used for wet or dry condiments, snuff, sauces, or preserves.

Because of extensive fragmentation, most of the other containers could not be identified. The exception, we believe are six examples of pharmaceutical containers, four of clear glass, one of light green, and one brown (likely used for medicine that was light sensitive). Basal dimensions ranged from 19mm to as large as 44mm (found in three specimens, one brown and two clear).

Jones and Smith warn that these vials could have been used for a variety of things other than medicine, such as "powdered colours for paints and inks, spices and possibly some toiletry preparations" (Jones and Smith 1985:90). Given the context, their use for spices is certainly possible. However, if they were intended for medicines, Jones and Smith suggest that the smaller sizes (of which we have only one example) likely held a medicine taken by the drop. In contrast, "draughts were put into vials holding 1½-3 ounces" (Jones and Smith 1985:90). In either event the medicine would have been added to something such as flavored water or alcohol.

Also present is a fragmentary light green panel bottle. Embossing is present, but not enough remains to identify the word or words.

Kitchen and Tablewares

Since the excavation was in the kitchen, the quantity and variety of kitchen and tableware items is not surprising. Reference to Table 58 reveals that 25 utensil fragments, one container handle, and 73 kitchenware items were recovered.

The 25 utensil fragments included two brass utensil handle fragments, two brass spoon bowls, one pewter spoon bowl, six pewter utensil handles, eight bone utensil handle fragments, three iron knife blade fragments, and two 2-tine forks.

One of the brass utensil stems is a style often called "slip-stem," "slip-end," or "Puritan." Bigelow (1917:262; see also Hudson 1980:11, 37) notes that this style made its appearance in England during the 1650s and 1660s (the Commonwealth period). The other item is a fiddleback style, suggesting a nineteenth century date. It is likely that both of these were at one time silvered.

Also present are two brass spoon bowls. One is a style that may be a fruit spoon. It has a teaspoon sized, but elongated bowl that has a terminal point. These were also likely silvered.

Pewter is represented by one spoon bowl and six handles. Three of the identifiable terminals are rounded; one is a style known as "dog nose," the successor to the trefid at the end of the seventeenth century. One of the fragments has a distinct rat tail, as well as a carefully scratched "X" on the handle. This bears some resemblance to ritual marks found on colono ware pottery (see, for example, Ferguson 1992:110-116) and Ferguson illustrates a similar mark on a spoon bowl from Kingsmill near Williamsburg (Ferguson 1992:Figure 78).

Other utensil items include bone handle fragments representing eight handles, two 2-tine forks, and three iron knife blades. One of these blades is identical to a specimen illustrated by Hudson (1980:37) from Jamestown deposits.

The single container handle is a riveted iron handle for a small pot or cup.

The 73 kitchenware items include a fragment of a brass spigot cock. Spigots such as this were essential to the use of liquids stored in kegs or barrels. Its presence at Kendal indicates that liquids in barrels were being purchased and then decanted into bottles for table use.

Such items are common in tavern settings (see, for example, the Wetherburn's Tavern report by Noël Hume 1971), but the recovery of the item from Kendal suggests that the Moores were acquiring barrels of wine that were then decanted into bottles, perhaps those bearing Roger Moore's seals.

Twelve kettle fragments were recovered including walls and numerous stubby feet. Only two rims, yielding diameters of 10 and 12-inches, were found. Heite and Bloom (2008) note that such pots were essential where virtually all cooking was conducted over an open fire, commenting that, "a three-legged pot with a bale handle could be hung over a fire or stood on the hearth" (Heite and Bloom 2008:227). In spite of the importance of such utensils, they were relatively inexpensive, representing less than 1% of a household's value. While the yeoman might have one pot, planters such as Roger Moore would

almost certainly have had a variety.

The two rim fragments suggest rather small pots. The 10-inch diameter pot likely held only 1 or 2 gallons, while the larger might have held 2 or 3 gallons. It seems certain that much larger pots were present in the kitchen, but cannot be identified based on the items recovered.

In addition to the kettles, the remains of a small handled pot were also recovered, as well as a spout from an iron tea kettle. A fragment of a probable copper pot or vessel was also recovered. Work such as that by Hise (2010) reveal the abundance of both iron and copper tea kettles found in colonial inventories.

Three small fragments of lead foil were also recovered from the kitchen excavations. These specimens were too thin to have been used as flint wraps. They are also likely thinner than the lead used in some tea chests. Many archaeological reports identify such findings, generally suggesting that they were used to seal wine bottles, similar to the lead foil used today on champagne bottles. Although most lead capsules seem to date from the nineteenth century, there are reports, such as Smith et al. 2007 and Trinkley et al. 1995:110, where the foil has been found in secure eighteenth century contexts.

Nevertheless, there is evidence of nineteenth century materials, such as the multiple metal can fragments. Remnants of cans measuring 4-inches and 6-inches in diameter were recovered. One base was found, measuring 3¼-inches, that post-dates 1847 based on its machine stamping (Rock 1984:102).

A diverse assemblage of glass tableware items was also recovered from the kitchen, including 26 specimens of clear glass stemware (Table 61). At least two of the specimens exhibit air-twist stems which became popular between the 1740s and 1760s (Jones and Smith 1985:38). Also present in the collection are examples of "half-pint" glasses with capacious bowls and short stems, with thick round or square feet that were introduced during the 1770s (Jones and Smith 1985:39). These are often called rummers.

Twelve specimens of tumblers were recovered in collections, representing diameters ranging from 1¾ inches to 3 inches.

In addition to the drinking glass forms, the kitchen also produced the remnants of two decanters or carafes, one with cut stars and other with cut oval panels. Jones and Smith (1985:25-26) that so-called decanters were used for both alcohol, usually wine, and water, and that most of the time they came in pairs for use on the table.

Table 61.
Tableware Glass from the Colonial Kitchen

Clear Glass Stemware	rim	#
	2¼	1
	3	2
	4½	2
	4¾	1
	5	8
	5¼	1
	5½	3
	6	4
	UID	4
		26
Clear Glass Tumbler	**rim**	**#**
	1¾	1
	2	3
	2¼	1
	2½	3
	2¾	1
	3	3
		12

There are also six clear glass bowls, all ranging between 4½ and 4¾-inches in diameter and one with a similar diameter, but having a jar-like form. The size is suggestive of containers such as a cooler or finger glass (Jones and Smith 1985:57). These were available by at least 1770 in both bowl and straight-sided forms, and were used for various functions according to Jones and Smith (1985:55). Wine glasses were upended in them for both cleaning and cooling, fingers were cleaned in them after eating, and the mouth could be rinsed out between courses.

Distinct from these relatively small forms is the remnant of a green glass bowl with a diameter of about 8-inches. Jones and Smith observe that such glass bowls were available during the colonial period, but their function was only occasionally specified, for example as perhaps a "punch bowl" or "salad bowl" (Jones and Smith 1985:82-83). Regardless, the recovered specimen was likely a "serving vessel."

The final item is a clear glass handle. The handled varieties documented by Jones and Smith (1985:79-80) are all dessert glasses such as syllabubs and custards. In the case of this Kendal example, so little survives that its precise function cannot be determined.

Table 62.
Nails from the Colonial Kitchen

Penny Wt.	SAE	Wrought		Machine Cut		Total
		Rose	T	Hand	Machine	
2d	1"	197	4		2	
3d	1¼"	294	27	16	2	
4d	1½"	229	61	27	2	
5d	1¾"	165	137	40	8	
Small timbers, shingles		**885**	**229**	**83**	**14**	**1211**
6d	2"	120	111	24	15	
7d	2¼"	76	44	24	4	
8d	2½"	63	54	23	3	
Sheathing, siding		**259**	**209**	**71**	**22**	**561**
9d	2¾"	58	30	8	5	
10d	3"	45	25	8	4	
12d	3¼"	12	18	1	1	
Framing		**115**	**73**	**17**	**10**	**215**
16d	3½"	9	6		1	
20d	4"	3			1	
30d	4½"	3			2	
40d	5"	1				
Heavy framing		**16**	**6**	**0**	**4**	**26**
Total		**1275**	**517**	**171**	**50**	**2013**

Architectural Artifacts

The architectural category is dominated by nails, which account for 83% of the assemblage (n=6,065). However, of this collection just over half (53%, n=3,223) were sufficiently intact to allow identification and measurements. Most of these (2,646 or 82%) are hand wrought nails, suggesting an eighteenth century date, although they continued in use into the nineteenth century. Although a relatively small collection of machine cut nails are present in the kitchen, most of these exhibit hand-applied heads, suggesting their use occurred prior to the second decade of the nineteenth century.

More information concerning the size and form distribution of nails is found in Table 62 and Figure 133.

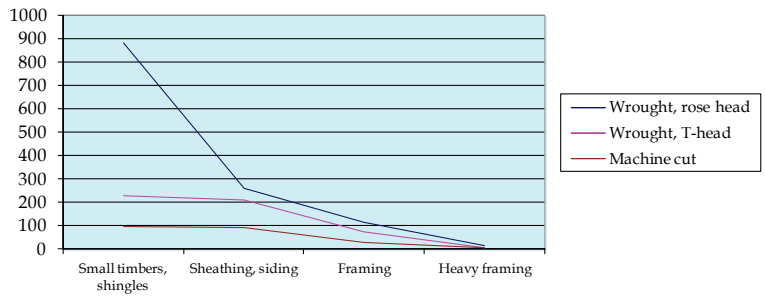


Figure 133. Distribution of nails and sizes in the Colonial Kitchen.

The most common size range, in all types except for machine cut with machine applied heads, are those nails intended for small timbers and shingles, suggesting that the kitchen had a wood shingle roof, although late in its history relatively few roof repairs were made.

T-headed wrought nails approach the density of rose-headed nails in the size range used for sheathing and siding, although these numbers are dramatically lower than for the assemblage of small nails. This is likely the result of the building being brick, with little sheathing present. These nails were likely used for lathe (primarily rose headed) and flooring (T-headed).

Nails that might be used for framing are even less common, almost certainly because the kitchen was built using craft traditions that emphasized mortise, tenons, and treenails. Such techniques were used in wall framing, roof framing, and bracing. Such structures were generally built using what was known as the "scribe rule:"

> Carpenters laid out the entire frame on the ground, scribing each joint with dividers and a sharp awl or knife and then carefully cutting the mortises and tenons with a variety of augers and chisels. Because a hewn timber might not be perfectly square along its length, carpenters also frequently had to true up the faces of timbers at points were the tenon of an intersection member joined, thus ensuring that members would meet at right angles. Using a chisel or a tool called a race knife, carpenters then marked the adjacent ends of intersection members of the frame with identical numerals, similar to Roman numerals. These marks gave a unique number to each joint, allowing the frame to be reassembled on the building site exactly as it had been laid out and cut in the carpenter's building yard (Garvin 2001:20).

The window glass collection consists of 1,209 fragments of a light green glass. All are small and none allow any further observations to be made regarding size of the panes or glass manufacture.

A variety of other architectural items were found in the kitchen excavations, all providing clues concerning the appearance of the building. For example, 11 small fragments of delft tile were recovered, providing additional evidence (combined with the fragments found elsewhere in the vicinity) that one or more fireplace surrounds were tiled.

Beaman (1997) has discussed the delft tiles recovered from Russellborough, Prospect Hall, and a structure in Brunswick Town. Of the three, the greatest quantity were found at Russellborough, the home of North Carolina's colonial governors. However, of the 2,803 fragments, nearly 72% could not have a pattern clearly defined. So it should come as no surprise that relatively few of the Kendal kitchen tile fragments have identifiable designs. Five of the 11 fragments (45%) are undecorated, or from undecorated portions of the tile. One corner design is similar to, but more complex than, Beaman's bug or spider head (1997:Figure 1d). In fact, it more closely resembles Horne's (1989) Figure 536, identified as a probable London manufacturer from the late seventeenth century. It fails to conform to any of the typical corner designs defined by van Dam and Tichelaar (1984:175-176). It is likely that larger fragments will need to be recovered to fully appreciate the designs present at Kendal.

Also recovered were five paver fragments. These were likely used to create wearable hearths in front of fireplaces in the structure. The five pintles and two shutter dogs indicate that the building, in addition to its glazed windows, also possessed shutters or exterior window blinds. These tended to become more common toward the end of the eighteenth century and were generally louvered. Their function was to promote interior shade, while still allowing for ventilation (Garvin 2001:152, 154). Garvin even claims that such blinds excluded flies.

Both of the shutter dogs are "S"-shaped with a central pivot hole. The intact example is 4½-inches in length and ⅝-inch in width in the center. The other example, while fragmentary, seems to be somewhat larger, perhaps with an original length of 5-inches.

Six hinge fragments were recovered from the kitchen, two wrought H or HL hinges and four wrought strap hinge fragments. One of the H hinges was sufficiently intact to be measured and was 9¼-inches in length. The other would have been larger, although only 8¾-inches survive. One of the strap hinge fragments has a welded eye made by the blacksmith by folding over the metal to form the loop that would fit over a pintle.

The H or HL hinges might have been used on interior doors or interior shutters, if present.

The generally larger strap hinges were likely associated with heavier, exterior doors (Garvin 2001:78-80). Only two screw fragments were recovered (discussed with Activities Artifacts), so it seems likely that the hinges were set using nails, with or without botching (the use of leather pads under the nail heads to keep them tight).

A single drive hook was recovered. With a length of only 3⅞-inches it is fairly small, but suitable for functions ranging from the attachment of gutters to hanging herbs for drying. Since only one hook was found, it seems more likely that the device was used inside the kitchen.

The final three items are door lock items, including a deadbolt fragment and two agate ware door knob fragments. While more humble colonial structures made do with hand-forged thumb-latches, but wealthier owners used knob latches, which Garvin (2001:83) characterizes as "more elegant." The Kendal kitchen clearly had such locks, based on the recovery of these items. The lock was likely a rim lock. As previously discussed, these locks have their mechanisms enclosed by a hand fabricated metal box that was attached to the interior face of the door. Most were imported from England.

Furniture Artifacts

Ferrous and brass tacks account for nearly four-fifths (79.6% n=39) of the furniture artifacts. They may have been lost from furnishings such as chairs or trunks.

The remaining 10 items suggest that the kitchen was not entirely functional or utilitarian. The presence of items such as three escutcheon fragments, a small furniture hinge fragment, and drawer pull indicate that some "nicer" furnishings were present, although they might represent storage for table settings.

A fragmentary fireplace tong documents the more utilitarian nature of the building, and its recovery from unit 125R80 associates it with the slave space within the kitchen.

Also recovered were three very thin fragments of flat glass which we have identified as glass over a framed object. While most colonial pictures would have portraits that would not have had glazing, Stanard (1917:314) notes that prints were common possessions and those might have been covered with glass.

Arms Artifacts

Arms-related artifacts comprise 0.4% of the kitchen assemblage (n=71) and are dominated by 35 flakes of flint that we believe are associated with gunflints found at Kendal. These flakes may represent attempts to produce serviceable gunflints from ballast, although the tertiary flakes may simply reflect efforts to resharpen gunflints to extend their life. Fifteen (43%) flakes are tertiary, suggesting that gunflints were scarce enough to warrant some effort at extending their lives. Only eight flakes (23%) are primary.

Table 63.
Gunflint Flakes from the Colonial Kitchen

Black flint, primary	3
Black flint, secondary	6
Black flint, tertiary	6
Gray flint, secondary	2
Gray flint, tertiary	3
Honey flint, primary	3
Honey flint, secondary	4
Honey flint, tertiary	5
UID, primary	2
UID, tertiary	1

Twenty of the flakes represent English black or gray flints, while only 12 are French honey-colored flakes. The three flakes listed as unidentifiable are not immediately recognized. Consequently, both English and French sourced flint appears in the kitchen setting.

Twelve finished gunflints are present in the kitchen collection, although as Table 61 reveals, many are in very poor condition. Seven are English, the remaining five are French. Looking at the size of the gunflints, four are of a

size that would have likely been used in tradeguns, while three are somewhat larger and might be more appropriate for a fowler or carbine. Both gun types would be typical on a colonial plantation and would have been suitable for hunting.

Table 64.
Gun Flints from the Colonial Kitchen

Provinence	Type	Shape	Origin	Material	Width, mm (heel to edge)	Length, mm (side to side)	Thickness	Comments
115R80, level 1	Spall	D-shaped	English	Gray Chert	24.47	23.56	6.59	Edge is broken along right side Extensively damaged unable to determine
115R80, level 1	NA	NA	French	Honey Chert	NA	NA	NA	type, shape and measurements accurately Extensively damaged unable to determine
115R80, level 1	NA	NA	French	Honey Chert	NA	NA	NA	type, shape and measurements accurately Extensively damaged unable to determine
115R80, level 1	NA	NA	French	Brown Chert	NA	NA	NA	type, shape and measurements accurately Extensively damaged unable to determine
115R80, level 1	NA	NA	English	Light Gray Chert	NA	NA	NA	type, shape and measurements accurately Extensively damaged unable to determine
115R80, level 1	NA	NA	English	Black Chert	NA	NA	NA	type, shape and measurements accurately
125R40, Level 1	Flake	Square	French	Honey Chert	25.21	23.65	6.98	Right edge and side broken
125R50, Level 1	Spall	Square	French	Brown Chert	19.45	29.18	7.50	Broken across edge
125R50, Flat shovel	Spall	D-shaped	English	Light Gray Chert	25.12	26.85	6.17	Potlid on both face and back
125R80, Level 1	Spall	D-shaped	English	Light Gray Chert	28.71	32.67	9.43	Left side of heel broken Retouch on edge
130R70, Level 1	Spall	D-shaped	English	Gray Chert	23.37	29.26	6.56	Retouch on edge
140R70, Troweling	Spall	Square	English	Gray Chert	23.96	23.98	5.62	Edge is damaged

Sixteen fragments of lumps of melted lead were recovered, along with one lead sprue, and two lead shot. The sprue had a single 6.3mm shot still attached. The loose lead shot, measuring 6.2 and 6.7mm, are both within the range of buck shot, likely intended for larger game (as was the shot on the sprue).

The single percussion cap recovered from the excavations dates no earlier than the first quarter of the nineteenth century, but the use of these devices continued into the early twentieth century. The item from the kitchen is a "top hat" type that is most commonly associated with the military.

Both of the .22 caliber shells were rim fires and marked with a "U." This headstamp is associated with the Union Metallic Cartridge Company of Bridgeport, Connecticut, which was formed in 1867. The headstamp appears to have been used very early, appearing on pine fire cartridges. Union was purchased by Remington Arms Company in 1911 and the headstamp continued to be used (Ball 1977a). Both were recovered from Level 1, so it is likely that these represent items intrusive from the late nineteenth or early twentieth centuries.

The final two arms items, two shotgun shell bases, are also likely intrusive. Both were found in Level 1 of a single unit. The head stamp on one is "Peters No. 12 Target," thought to date from 1902-1910 (http://www.headstamps.x10.mx/peters.html). The other is "U.M.C. No. 10 Club," an earlier headstamp, thought to date between 1885 and 1891 (http://www.headstamps.x10.mx/umcco.html). Both of these date from the time when Frederic Kidder owned Kendal.

Tobacco Artifacts

The kitchen produced a fairly large tobacco assemblage. The most common items are tobacco pipe stems, accounting for over three-quarters of the total assemblage (76.9%, n=415). The majority of these (55.4%, n=230) measure 5/64-inch.

Only one stem is marked with manufacturer information. That specimen is marked "C. Kent on [bowtie] LI_." We have been unable to identify the mark in other archaeological literature. Walker, however, suggests that the marking of a pipe with the manufacturer's name and location started about 1800 (Walker 1983:3).

Pipe bowls were also numerous, accounting for 122 specimens. The bulk of these (91%, n=111) were plain. There were, however, four "TD" pipes, previously discussed in Colonial Midden 2 as likely first produced about 1755 by Thomas Dormer, but were widely copied well into the nineteenth century.

Two pipe bowls were decorated with leaves to camoflauge the mold seams.

A single bowl was marked "I O." Walker (1977:1470) attributes this mark to John Okely I between 1732 and 1739, although it appears that John Okely II, who began production about 1768 used the same cartouche (Hill and Schroedl 2003:24; Jackson and Price 1974: 126).

One pipe bowl exhibits a crowned 16 stamp that has been found at Fort Michilimackinac (Stone 1974), Fort Moultrie (South 1974:324), and Brimstone Hill (Hill and Schroedl 2003:25-26). All of these sources report that crowned numeral marks are characteristically Dutch based on the work of Walker (1971a). Careful reference to Walker, however, reveals a far more ambiguous statement, "the use of crowns, though a typically Dutch form of marking, is common in association with initials on either side of the heel on pipes found in London covering the period from about 1690 to 1760 (Atkinson 1965:254; 253, Fig. 6; 255, Fig. 7)" (Walker 1971a:65). There are no letters in association with this pipe, only numbers, so a Dutch association may be reasonable.

Other markings include "G W" and "- W," which we have not identified.

One bowl was found with a greenish-brown glaze. Pfeiffer (2006:114) identifies pipes with yellow/brown and green glazes from early 1800 contexts in the Northwest, although it is unclear if the glaze is on ball clay pipes, as at Kendal, stub stem pipes, or on stem tips (a nineteenth century practice).

The Kendal kitchen also produced three stub stem pipe fragments. One was red clay, another buff clay, and the third was ball clay with ribs on the stem (a very common design motif). These may reflect mid-eighteenth through nineteenth century dates and none of the fragments were complete enough to provide greater detail. It is worth noting that Handler (2009:8) mentions the use of such pipes in the slave trade and the possibility that Africans in the trade preferred the pipes since the form resembled that of native West African pipes.

Clothing Artifacts

A relatively large and diverse clothing assemblage is present in the kitchen, suggesting that a variety of daily activities took place in the building. These activities likely include the discard of domestic refuse associated with the slave space in the building, but may also have been associated with the laundering of clothes in the building.

The largest assemblage consists of 25 buttons, representing 47.2% of the clothing collection from this block (Table 65). Seventeen of the 25 buttons likely predate the Revolution; the remaining eight buttons include specimens ranging into the nineteenth century.

Table 65.
Buttons From the Colonial Kitchen

South's Type	Description	Number	Measurements (in mm)
1	Cast brass face, spun back	1	16
3	Embossed brass face, bone back with holes	2	18, 27
4	Embossed brass face, bone back, brass wire eye	2	18, 24
7	Spun brass/white metal with eye cast in place	8	14, 15, 3-17, 18, 24, 26
8	Molded white metal with eye boss	2	18, 25
12	One-piece cast metal	1	20
16	Brass face, crimped on flat back, soldered eye	1	23
18	Stamped brass or white metal	2	14, 18
23	Porcelain, convex	3	9, 2-11
27	Brass, domed, machine embossed	1	14
28	Stamped brass, concave back	1	15
-	Brass	1	25

Most of the buttons are fairly utilitarian, although several are more ornate, one evidences

gilt and two are marked "PLATED," with one still having remnant silvering. The only back mark, found on the silvered Type 18 button, is a left-facing eagle, clutching arrows in its talons, and marked "PLATED." This back mark seems to date from the early nineteenth century, with some suggesting it was a way to document American manufacture during and after the War of 1812.

Twenty-one of the measurable buttons are over 14mm in diameter and were likely associated with outer coats. Only three are of a size (between 6 and 13mm in diameter) thought to be associated with pants (Luscomb 1971). Following White's (2005) assessment, 13 of the buttons are of a size appropriate for coats, with some overlap with waistcoats.

In addition, there is one cuff-link (or sleeve-link) button, including one button with a decorative linking shank. Its counterpart is missing. The button remaining is brass, South's Type 10, measuring 16 by 12mm.

The 17 buckles represent 32% of the clothing assemblage. Eleven of the buckle fragments represent shoe buckles, including two brass chape tongues, two iron chape tongues, six brass buckle frames (two of which mend), and one iron shoe buckle frame. These represent a minimum of at least six shoe buckles. Five of these shoe buckles were decorative brass, while one was far more utilitarian.

A single stock buckle chape was recovered.

In addition, the kitchen produced five boot or spur buckles, three brass with silver gilt and one brass with no evidence of gilt.

One nineteenth century brass suspender clasp tongue was recovered.

Although three pins were recovered, only one could be measured and it was 29mm in length, falling within the range of what were known as "short whites." These were pins commonly used in sewing. Another sewing item was a fragmentary brass thimble. One flat or sad iron was recovered from Colonial Kitchen. Such irons, dating from at least the seventeenth century, were solid, cast iron devices for de-wrinkling fabrics. Weighing between 5 and 9 pounds they would be heated, being replaced by a newly heated iron as the first cooled. The specimen recovered measured 6½-inches in length and 4½-inches at its base.

The final items in the Clothing Artifact Group are four scissor fragments, including one fragmentary bow or loop measuring about 1-inch, and two blade fragments. These are all of a size that might have been used in sewing. The fourth item is one-half of a scissor measuring 8-inch in length, although the bow is nearly 3-inches. This item seems more utilitarian and less likely to be used in sewing.

Personal Artifacts

Jewelry is the most common personal artifact present in the kitchen assemblage, consisting of five items (about 28% of the Personal Group). Two of these are similar, consisting of twisted strands of fine copper wire forming rings, one ¾-inch in diameter, the other ⅞-inch in diameter. Deagan identifies and illustrates somewhat similar items, which she identifies as rings. They are described as "twisted copper wires shaped into a floral or spiral form at the bezel area," while other consist only of "simple bands made of twisted and spiraled wires" (Deagan 2002:126). In these Florida examples, the items were associated with eighteenth century criollo populations.

Neither Ogen (1999) nor Evans (1921) illustrate anything such as these items from English contexts, although there was certainly much gold and silver cannetille work during the seventeenth and eighteenth centuries.

Lima and her colleagues illustrate almost identical rings made from *Attalea funifera* (piassava), recovered at the Valongo Wharf site in Rio de Janeiro, Brazil. They persuasively argue that these artifacts are amulets intended to

protect the body of the African slave, a view further reinforced by Professor Elisee Soumonni, an African researcher from Benin, during his field visit to the Valongo site (Lima et al. 2014:119). The Kendal examples may be analogous, even though they are made of copper wire, not woven plant fiber. If so, it seems more likely that these items were worn by African Americans working in the Kendal kitchen.

Also recovered from the kitchen is a brass earring loop measuring about 24mm in diameter. Deagan documents a variety of Spanish examples, although most are of "glass, glass beads, damascene work [metalwork of inlay or etching], jet, mother-of-pearl, and glass 'pearls'" (Deagan 2002:127). She cites nothing as plain as the Kendal example.

In contrast, Foster notes that African Americans – both men and women – wore brass or copper earring hoops, usually for protection or for improving eyesight (Foster 1997:175). Lima and her colleagues also suggest such artifacts provide "evidence of the continuation of a multi-secular African tradition of using copper to protect the body" (Lima et al. 2014:121).

Another jewelry item that is almost certainly associated with African Americans at Kendal is a well-polished, pierced bear's canine. It is worth quoting Lima and her colleagues at length,

> Mammal teeth, especially those from swine, canines, and felines, are frequently described in the archaeological literature at sites linked to slavery, having been utilized as pendants by slaves . . . . a practice maintained even today among practitioners of some African-based religions . . . . Among the BaKongo . . . wild boar teeth were used in symbolic compositions, such as Vititi Mpaka Menso . . . or Ngombo, where boar teeth painted red and covered with wax signified a treatment to be followed by the person seeking advice. Some of these compositions were believed to protect against poisoning, a common practice in some regions of Africa and Brazil during the eighteenth and nineteenth centuries. Dozens of canine teeth from *Sus scrofus*, the domestic pig, were found at the Valongo site. In Angola these animals are wrongly designated as wild boars and the same designation occurs in Brazil. According to some African based religions, wild boar teeth could be used as amulets to protect the body, the animal's strength being transmitted to the wearer. Judging by the quantity in which they appear at the Valongo site, they were certainly highly revered amulets (Lima et al. 2014:129).

The final jewelry item is a small fragment of an iron safety pin or clasp. If a fragmentary safety pin it post-dates about 1849 (when the safety pin was invented and patented).

Three writing slate fragments were also recovered from the Kendal kitchen. Counting slates typically have rows of scribed counts in batches of fives and are thought to represent a simple means of keeping track of counts. Such devices were probably thrown away after use since there was no way to eliminate the scratches into the soft slate. In contrast, writing slates were intended for use with another softer piece of slate (usually in the form of a slate pencil) and were erasable (and reusable).

Writing slates were used in gaming, gambling, and even contacting "spirits," giving slates the early twentieth century name of "spirit slate" (Swords 2008:53). Most commonly, however, they were used in education from at least the middle eighteenth century on. Whether they were used exclusively for white children,

however, is not clear. Bly, for example, notes that between 1736 and 1776 about a thousand runaway notices appeared in the *Virginia Gazette*, with at least 55 of the runaways being described as literate (Bly 2008:289).

The slates from the Kendal kitchen include two varieties. One simply exhibits doodles; the other two, however, are lined in anticipation of being used to practice handwriting.

Three coins were also recovered from the kitchen. Two of these are British halfpennies, not surprising since Newman observes that they were the most circulated coin in the Colonies during the colonial period and continued in circulation for a quarter century after American independence (Newman 1976:134). One dates 1749, the other 1771.

The earlier date is especially common since in that year the English Parliament agreed to reimburse Massachusetts over £183,649 for French and Indian War expenses. A very large part of this sum was paid not in silver, but in 10 tons of English copper coinage having a face value of £2,111.4.8 (Newman 1976:145-146). It is assumed that this coinage was rapidly put into circulation given how desperate the colonies were for coinage. This George II coinage was suspended in 1754. The second coin, dating 1771, began production bearing the image of George III from 1770 to 1775.

Thus, these coins almost certainly were lost by individuals in the Kendal kitchen, with the second providing clear evidence that the structure was occupied at least as late as 1771 (historical accounts indicate an occupation later than this).

The third coin is far more recent, being what is known as an "Indian Head" penny, dating from 1881. These pennies were minted from 1859 until 1909, with 39,208,000 minted in Philadelphia. This coin is intrusive, being deposited by a much later site occupant.

The kitchen yielded two keys. One is broken, consisting of the bow and shaft, and measures only 1¾-inches. This is a size consistent with furniture or a padlock. The other is 3⅞-inches and intact. It likely was used in a rim lock.

We have often wondered at the loss of keys on colonial sites during the period that locks were made for keys, not keys for locks. Consequentially, the loss of a key was not a minor issue, easily rectified by calling a locksmith. It would require the discard and replacement of the lock. Thus, it seems that the loss of a key would be an uncommon event.

Lima and her colleagues observe that keys may have a different function among African Americans,

> Keys serve to open or close, provide or prevent access, properties which can make them symbolically appropriate as protective amulets designed to "close the body" against evil. . . . It is impossible to establish for certain that those recovered at the archaeological site had been used as amulets, since they comprise objects of everyday use, but the possibility has to be mentioned given the significance of such symbolic meanings (Lima et al. 2014:131).

Two bone comb fragments (which mend) were found in the kitchen deposits. These are the common eighteenth century double sided comb. One side had 36 teeth to the inch and was probably intended for parasite removal. The other side had 12 teeth to the inch and would have been used for hair grooming.

A beveled mirror fragment, with remnant silvering, was also recovered from the kitchen excavations. Since this was the only fragment recovered, we have elected to include it as a personal item rather than as a furnishing. In particular, it seems consistent with Wilkie's (1997) suggestion that ordinary objects might

indicate something of the magical-religious practices of slaves (see also Trinkley and Hacker 1999:177-178).

A fragment of a clasp knife (or pocketknife) was recovered from the kitchen. All that remains is a portion of the blade and blade walk. Side scales and cover are missing, making it impossible to determine the pattern or even the overall length. Nevertheless, Stone (1974:268) illustrates several similar specimens from Fort Michilimackinac.

The final specimen included with personal group artifacts is a fragment of umbrella strut or stretcher which extends from the runner to the umbrella rib. Samuel Fox invented the steel-ribbed umbrella in 1852; however, the *Encyclopédie Méthodique* mentions metal ribs at the end of the eighteenth century, and they were also on sale in London during the 1780s.

Activities Artifacts

The kitchen produced a relatively large assemblage of 108 Activities Artifacts.

Construction tools include two broken saw blade fragments and one triangular file. Both saw blades had 4 teeth per inch and may represent fragments from the same tool. Peter Nicholson's book *The Mechanic's Companion*, published in 1845 indicates that this number of teeth is consistent with period hand saws intended for both ripping and cross-cutting. The triangular file is 4-inches in length. Such files are often used in sharpening the teeth of saws.

Farm tools include a sickle and a plow blade. The sickle is distinct from a scythe in that the former has a short handle, a semicircular blade, and is used one-handed. In contrast a scythe has a long handle (called a snath), a larger blade, and is used standing up with two hands. Both, however, can be used for cutting grain and the sickle is well known on the rice coast as the tool used by African Americans to cut rice.

The specimen from Kendal has a 7-inch blade, with a tang that would have been inserted in a handle perhaps 4-inches or longer. By the nineteenth century these were often called "grass hooks" (Russell and Erwin 1980:298). At least four sizes were available, although they are designated only by single digit numbers. By the late nineteenth century three sizes were offered of the English "Grass Hooks or Sickles" in the B.K. Bliss & Sons catalog (Barlow 2003:30). As late as 1931 five designs of "grass hooks" were offered by a Pittsburg hardware house, ranging in size, manufacturer, and price from $6 to $24 per dozen (Logan-Green Hardware Co. 1931:128-129).

The plow part is a fragmentary plow share, measuring about 10½-inches.

Four toys were recovered, three of which were clay marbles. These measured 12, 14, and 15mm in diameter. As previously discussed, marbles were used by both children (for entertainment) and adults (for gambling). Found in a kitchen context they could have served either function.

The fourth item is a fragment of brown salt glazed stoneware that had been carefully broken and worked into a 1¼-inch square. The corners were also removed. South illustrates two "pottery discs with ground edges (probably used as gaming pieces)" explaining that he thought they were used to play checkers (South 2010:217-218). Alternatively, the ceramics may have served as a jettons or counting pieces for accounting purposes. We know that metal jettons were used as counters with a grid representing ones, tens, hundreds, etc., as a type of abacus.

The kitchen also produced an iron fish hook with a total length of 1½-inches. The open gape is about 1-inch and the front length is 1-inch. It has what is known as a non-looped eye that would require special snelling techniques for attaching the leader to the hook. The hook is a large size, almost certainly intended for saltwater fish such as rays or larger.

South illustrates a similarly large hook, but views fishing as entertainment for colonial

boys (South 2010:217-218).

One fish that historically was sought by planters is the black drum (*Pogonias cromis*). William Elliott wrote extensively about this fish in the antebellum, who reports the average size was about 3-feet and 30 to 40 pounds. He noted that, "the small-sized fish are excellent for table use – their roes, especially, are a great delicacy; the larger are only valuable when salted and cured like cod-fish, from which when dressed they are scarcely distinguishable in flavor" (Rosengarten 1994:111-112; see also Goldstein 2000). In the Beaufort, South Carolina area he reported 12,000 being taken in a single year with most being distributed among African American slaves. The typical method of catching the drum was by hooks – such as the one recovered from Kendal.

A similar fish taken during the historic period was called bass, spotted bass, or spot-tailed bass, although it best known today as the red drum (*Sciaenops ocellatus*).

While the drums were typically "dressed in steaks, cut crosswise, and fried" (Rosengarten 1994:129), the sheepshead (*Archosargus probatocephalus*) were best broiled or boiled.

The 33 storage items are all strap metal, ranging in width from ⅞-inch to 1½-inch. The most common width was 1-inch (n=14 or 42.4%).

Curiously, the kitchen building includes a variety of harness and tack in the stable and barn items, including a fragmentary horseshoe, a hame or harness hook, three hardness buckles, two brass harness decorations, and one half of a curb bit which originally had a jointed mouthpiece. Curb bits are harsher than snaffle bits since it exerts a combination of a nutcracker effect on the jaw and leverage from the shanks.

The only item not directly related to horses is an hand wrought iron bell measuring about 2½-inches in height. Its clapper is a hand wrought nail, suggesting that the original had been lost and was replaced by something readily at hand.

Russell and Erwin advertise not only cow bells (either cast or wrought), but also sheep bells. The wrought cow bells include the "common pattern" in sizes from 0 to 12, "Western or Yaw's Pattern" in sizes 1 through 5, "Kentucky or Dodge's Pattern" in sizes 1 through 7, the "Mountain Forest Pattern" in sizes 0 to 7, and the "Improved Pattern in sizes 22 through 31 (Russell and Erwin 1980:329). Consequently, there were a wide variety of both designs and sizes available in the nineteenth century.

In the miscellaneous hardware category are a wide range of common items, including bolts, hand wrought staples, screw fragments, several chain fragments, and a pulley wheel measuring 1½-inches in diameter.

The single largest Activities Group category is that of "Other." This includes 16 iron fragments, 13 brass fragments, three pieces of iron wire, and one piece of lead wire. Also in this category are four unidentifiable iron objects and seven unidentifiable brass objects. These latter two groups represent parts of what were certainly some definite artifacts, but too little remains today to allow identification with a reasonable degree of certainty.

Dating

These discussions have revealed that the kitchen has a relatively long occupation span with the artifact assemblage suggesting construction in the early eighteenth century and occupation perhaps continuing into the early nineteenth century. More careful examination of different dating methods may be able to refine these impressions.

Table 66 shows South's mean ceramic date for the block excavation. The 1768 date, however, has a relatively large standard deviation of 56 years, suggesting a date between 1702 and 1824. This of course is the result of the assemblage incorporating materials from the early eighteenth century (such as the Eler's Ware) through the mid to late-nineteenth century (such as the whitewares). Thus, the mean date tends

Table 66.
Mean Ceramic Date for the Colonial Kitchen Block

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	109	188570
Underglazed blue porc	1660-1800	1730	695	1202350
English porc	1745-1795	1770	64	113280
Nottingham stoneware	1700-1810	1755	32	56160
Westerwald	1700-1775	1738	37	64306
White salt glazed stoneware	1740-1775	1758	466	819228
White sg sw, slip dipped	1715-1775	1745	332	579340
White sg sw, scratch blue	1744-1775	1760	25	44000
Black basalt	1750-1820	1785	2	3570
Eler's ware	1690-1715	1702	1	1702
Lead glazed slipware	1670-1795	1733	352	610016
Jackfield	1740-1780	1760	68	119680
Refined agate ware	1740-1775	1757	11	19327
Clouded wares	1740-1770	1755	106	186030
Asbury wares	1725-1750	1737	38	66006
Decorated delft	1600-1802	1750	200	350000
Plain delft	1640-1800	1720	187	321640
Buckley ware	1720-1775	1748	22	38456
Creamware, hand painted	1790-1820	1805	54	97470
Creamware, undecorated	1762-1820	1791	1031	1846521
Pearlware, poly hand painted	1795-1815	1805	2	3610
Pearlware, blue hand painted	1780-1820	1800	84	151200
Pearlware, blue trans printed	1795-1840	1818	33	59994
Pearlware, edged	1780-1830	1805	23	41515
Pearlware, annular/cable	1790-1820	1805	67	120935
Pearlware, undecorated	1780-1830	1805	114	205770
Whiteware, blue edged	1826-1880	1853	6	11118
Whiteware, poly hand painted	1826-1870	1848	43	79464
Whiteware, blue trans printed	1831-1865	1848	27	49896
Whiteware, non-blue trans printed	1826-1875	1851	14	25914
Whiteware, annular	1831-1900	1866	22	41052
Whiteware, sponge/splatter	1836-1870	1853	2	3706
Whiteware, undecorated	1813-1900	1860	244	453840
Yellow ware	1830-1940	1885	17	32045
Total			4530	8007711
Mean Ceramic Date				1767.7066
SD				55.9

only to confirm the overall impression derived from the artifact discussions – that the kitchen was occupied for around 100 years, from Roger Moore until about the time the property was acquired from Benjamin Smith by Gabriel Holmes, Jr. in 1823.

South's bracket date for the kitchen suggests a range from 1745 to 1830. It really only takes the earlier dates out of consideration and this may be the result of the kitchen being "cleaned" of earlier materials as suggested by the two kitchen middens.

In one of those seemingly rare convergences, the Salwen and Bridges dates, shown in Figure 134, show a very strong similarity to these other dating techniques, suggesting a broad date of 1740 to 1820, with a peak from about 1760 to 1820 or about 60 years. Again, we believe the absence of more evidence from the Moore occupation is the result of those remains being cleaned up and removed from around the kitchen as it passed out of the Moore family, initially to the Davis family in 1760.

At other blocks we have used tobacco pipe stem dating to supplement ceramic dating. However, since the pipe stems, by definition, cannot provide a date later than 1800, and we know that refuse from the area dates into at least the first third of nineteenth century, the application of these techniques is not entirely appropriate. Nevertheless, for those readers interested, we provide the Binford date of 1757 and Heighton and Deagan date of 1759 in Table 67.

Regardless of the dating method we use (excepting the tobacco stem dates which are least appropriate), each seems to correlate with the historical events, focusing on transfers of the property from one owner to another. It seems certain that the kitchen was constructed and first used by Roger Moore, cleaned after his death or perhaps the sale by his son George Moore to the Davis family, resulting in the colonial middens to

Table 67.
Tobacco Stem Dating for the Colonial Kitchen

Bore Diameter	#		
4/64	174	696	
5/64	221	1105	
6/64	5	30	
7/64	0	0	
8/64	0	0	
9/64	0	0	
	400	1831	
average bore diameter		4.5775	
Binford Date			1757
log of average bore diameter		0.660628	
		7.207394	
Heighton and Deagan Date			1759

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				4527	
English porcelain	1745-1795	50	64		0.000
Overglazed enameled porc	1660-1800	140	109		0.000
Underglazed blue porc	1660-1800	140	695		0.001
Nottingham stoneware	1700-1810	110	32		0.000
Westerwald	1700-1775	75	37		0.000
White salt glazed stoneware	1740-1775	35	466		0.003
White sg sw, scratch blue	1744-1775	31	25		0.000
White sg sw, slip dip	1715-1775	60	332		0.001
Black basalt	1750-1820	70	2		0.000
Eler's ware	1690-1715	25	1		0.000
Lead glazed slipware	1670-1795	125	352		0.001
Jackfield	1740-1780	40	68		0.000
Clouded wares	1740-1770	30	106		0.001
Agate wares	1740-1775	35	11		0.000
Astbury ware	1725-1750	25	38		0.000
Decorated delft	1600-1802	202	200		0.000
Plain delft	1640-1800	160	187		0.000
Buckley ware	1720-1775	55	22		0.000
Creamware, hand painted	1790-1820	30	51		0.000
Creamware, undecorated	1762-1820	58	1031		0.004
Pearlware, poly hand painted	1795-1815	20	2		0.000
Pearlware, blue hand painted	1780-1820	40	84		0.000
Pearlware, blue trans printed	1795-1840	45	33		0.000
Pearlware, edged	1780-1830	50	23		0.000
Pearlware, annular/cable	1790-1820	30	67		0.000
Pearlware, undecorated	1780-1830	40	114		0.001
Whiteware, blue edged	1826-1880	54	6		0.000
Whiteware, poly hand painted	1826-1870	44	43		0.000
Whiteware, blue trans printed	1831-1865	34	27		0.000
Whiteware, non-blue trans printed	1826-1875	49	14		0.000
Whiteware, annular	1831-1900	69	22		0.000
Whiteware, sponge/splatter	1836-1870	34	2		0.000
Whiteware, undecorated	1813-1900	87	244		0.001
Yellow ware	1830-1940	110	17		0.000

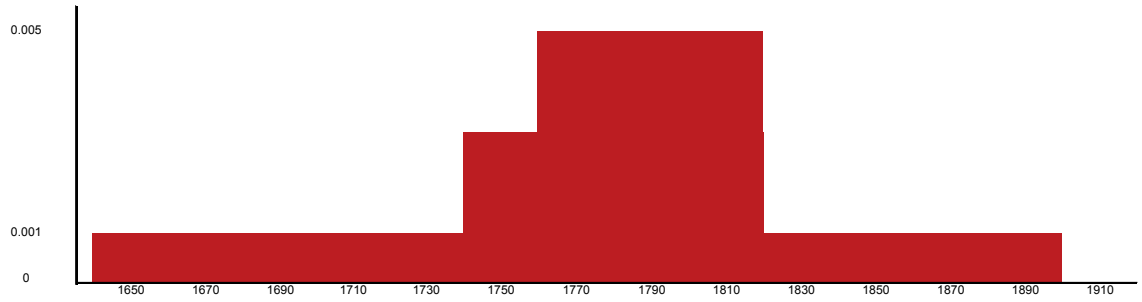


Figure 134. Salwen and Bridges dating for the Colonial Kitchen at Kendal Plantation.

the north and northwest of the kitchen structure.

The kitchen appears to have been used by the following owners up to the transfer of the property from Benjamin Smith to Gabriel Holmes, Jr., at which time it may be that the kitchen was largely abandoned or perhaps even torn down.

Colonial House

A series of 13 units, including four 5 by 10 foot units, and nine 10-foot units, were combined to expose an extensive brick foundation associated with a late colonial house. The excavations included 1,100 square feet and 1,012 cubic feet and allowed the size of the main house to be approximated. Portions of the foundation were missing, apparently robbed out or perhaps removed to make plowing easier during the twentieth century. Other portions of the foundations were intruded into by the nineteenth century wood frame Kendal house. Finally, there were also portions of the colonial house that were not fully exposed and which therefore remain impossible to interpret.

The 13 colonial house units produced 32,429 artifacts (Table 68) with the block producing mean artifact densities of 29.5 artifacts per square foot and 32.0 artifacts per cubic foot. Thus, the density of remains is far higher in the Colonial house than in the kitchen, although the house density is still lower than both of the middens. However, as was the case with the Colonial kitchen, the artifact density is still significant given that 18,798 pounds (or over 9 tons) of brick were recovered during unit excavations.

Some of these artifacts, such as the whitewares and many of the architectural items, are almost certainly intrusive from the Kendal frame structure. Sorting these from the colonial Kendal assemblage is difficult and during the analysis we provide alternative interpretations, for example, removing the whitewares from the mean ceramic dating. In some cases these changes appear to make very little overall difference because of the large artifact assemblage.

In addition, the excavations focus almost exclusively on the structure itself, providing few clues from nearby yard areas. This was not only the result of limited time, but also the abundant distribution of the antebellum and postbellum Kendal house remains which would have made excavations searching for colonial activities difficult.

Table 69 compares the artifact pattern from this structure with other recognized artifact patterns. Like elsewhere on the site, we find the closest match in the Carolina Elite Pattern proposed by Beaman (2001), based on households of higher status than South's Carolina Artifact Pattern. In the house assemblage, the artifact pattern exhibits more numerous architectural items than expected in the Carolina Artifact Pattern, but lower than anticipated kitchen, furniture, tobacco, clothing, personal, and activities items.

Kitchen Artifacts

Ceramics

Like the other colonial blocks, ceramics in the Colonial House are dominated by creamwares, which comprise nearly 38% of the ceramic assemblage. This is significantly greater than found in the kitchen (20.5%). Chinese porcelains also decline, from 15.2% in the kitchen to only 6.3% in the house block. White salt glazed stonewares decline from 15.6% in the kitchen to only 2.9% in the house. Both delft and the lead glazed slipwares are also less common. In addition, pearlwares, which contributed only 6.1% of the kitchen assemblage, comprise nearly 30% of the ceramics in the house block. Nevertheless, the proportion of whitewares remains fairly stable at 6.8% in the kitchen and 6.3% in the house (Figure 135).

While it may be tempting to attribute

Table 68.
Artifacts Recovered from the Colonial House

	145R120, Lv 1	145R130, Lv 1	150R130, Lv 1	140R140, Lv 1 int	140R140, Lv 1 ext	150R140, Lv 1	160R140, Lv 1	145R150, Lv 1	150R150, Lv 1	160R150, Lv 1	160R160, Lv 1	140R170, Lv 1	150R170, Lv 1	160R170, Lv 1	Troweling	
Kitchen Group																47.2
Chinese porcelain, undecorated	20	15	8	1	2	15	23	3	12	12	15	4	5		4	
Chinese porcelain, blue hand painted	34	17	27	5	12	19	37		18	34	33	31	17	20	13	
Chinese porcelain, poly HPOG	10	15	8	1	5	24	30	4	19	28	35	4	8	16		
English porcelain, undecorated	3		2		2	9		5	3	1	4	5	3	3		
English porcelain, blue hand painted	2					1		1		7		2	1			
White SG SW	20	15	13	5	13	11	10	3	16	15	12	12	10	5	5	
White SG SW, scratch blue						6	15		4	4	4	1	1	2		
White SG SW, slip dipped	5	7	8		7	8	13		7	13	6	2	9	13	1	
White SGSW, slip dipped, brown rim						1										
Delft, undecorated	7	3	5	2	1	10	8	2	8	11	11		12	11		
Delft, polychrome hand painted			5		1	11				3			1			
Delft, blue hand painted		5	4	3	4	14	2	4	10	9	6	2	8	2	5	
Delft, sponged			1			2	2					1	2	1	4	
Portobello ware	1															
Canary ware	1												1			
Lead glazed slipware	7	9	12	4	3	20	5	7	15	15	29	24	5	1	2	
Creamware, undecorated	140	114	255	96	125	799	267	77	599	333	351	68	210	177	38	
Creamware, molded	1					1			12	6			1			
Creamware, annular/mocha				2		9	10	1	4	5	8				1	
Creamware, blue/green edged						3	8			1			3			
Creamware, blue/poly hand painted		1	12	2	16	4		12	5	27	3	1	1	3	1	
Creamware, black transfer printed						2		2								
Creamware, brown strip						74			61		27	6		3		
Creamware, HPOG					1		2	1				1	1			
Pearlware, undecorated	20	55	120	34	49	413	93	64	115	19	134	16	78	78	20	
Pearlware, molded									1							
Pearlware, blue hand painted	1	9	15	7	4	43	17	42	8	25	10	2	14	8	4	
Pearlware, poly hand pained		2	7			17	13	1	12	7	7	1	29	7	1	
Pearlware, mocha			1								6	1		2		
Pearlware, cable					1	3	7	1			6	1	4			
Pearlware, annular			7	1	1	19	6	3	7	15	6	2		7		
Pearlware, green edged	1	2	6	7	3	37	7	13	24	9	5	5	8	5		
Pearlware, blue edged	2	8	12	6	4	20	7	3	9	14	7	2	8	9	1	
Pearlware, blue transfer printed	19	25	97	20	39	104	116	31	186	154	151	29	77	86	10	
Pearlware, non-blue transfer printed						7								1		
Whiteware, undecorated	7	35	25	14	33	20	23	31	21	24	31	15	31	38	6	
Whiteware, blue hand painted		5	9			2		35	4	1						
Whiteware, poly hand painted	4	2	10		3		6	3	2	4	3			4	1	
Whiteware, annular/mocha	1				3		2	5		3	1		6	4		
Whiteware, cable							1							1		
Whiteware, blue edged					1		5							2		
Whiteware, green edged														2		
Whiteware, blue transfer printed	3	8	9	1	4	5	10	21	14	8	4	7	5	3		
Whiteware, non-blue transfer printed	1	2	3	2	3	5	2	13	13	10	10	3	1	8	1	
Whiteware, splatter						2									1	
Yellow ware, undecorated		1		1	2				1				2			
Yellow ware, annular		1	6			3			2							
Green glazed, cream body										2	2					
Black basalt						5		1	2	1	2					
Jackfield		2	1			2	11	2			4			3	1	
Clouded ware	4	4	5				2		8	6	8	1			2	
Rhenish stoneware						1										
Elers ware	1					1			1	4						
Tortoiseshell		2	3		2	18				1		1	1	2		
Agate ware														1		
Nottingham	1	1					1			3		1	2			
Westerwald		1	2		1	15			4		7					
Gray SG SW	12	9	5	8	2	50	4	4	22	22	11	1	4	5		
Brown SG SW	2	4	7	6	4	7	2	6	12	11	23	1	6	9		
Albany slip SW	4				2	1		3	2							
Bristol slip SW	1					1	2	10	1	1						
Alkaline glazed stoneware			3													
Coarse Red earthenware	18	26	16	3	1	58	9	15	62	24	25		2	13	7	
Buckley	2	2	3			2		2	2	1	1	2	5	3		
Red earthenware	1	3					2		1		17	5	3	1	1	
Burnt refined earthenware	5	10	30	8	9	155	34	20	60	54	105	23	45	36	11	
Glass, black	37	194	189	168	579	403	143	165	223	162	351	53	132	134	102	
Glass, aqua	5	20	21	23	106	23	5	8	12	12	66	2	4	10	3	
Glass, green	9	6	10	13		5	10	36	7	8	19	3	3	9	3	
Glass, light green	2	4	8	2	6	28	5	8	26	10	33	6	1	2	19	
Glass, brown		3	1	2	1	6	3			2		1	1			
Glass, other		6			2	2			1							
Glass, clear	13	35	68	43	27	158	39	22	37	49	69	18	42	9	9	
Glass, milk		2									1	2	1			
Glass, manganese	1	1	3			7	3			4	3		2			
Glass, melted					10	38			28	6	6			4	6	
Glass, tableware	12	13	9	11	8	48	10	10	9	16	14	10	16	15	13	
Utensil	1		1	1	5	2	1	1	2		1				1	
Kitchenware			3		2	1	3	1		4	1	7				
Colono ware						1	4		1	5	2				1	
Architecture Group																51.1
Window glass	326	534	508	80	503	512	278	250	91	617	839	107	449	259	200	
Turn button												1				
Sash pully with chain												1				
Shutter fasteners												4				
Shutter knob												1				
Pipe hangers												4				
Bolt frag						1					2		1			
Lock box fragment		1								2	1	3				
Staple frag				1		1				1		2				
Hook									1			1		1		
Hardware cloth												1				
Hinge fragments					1	2	1	3	3			7	1			
Pintle							1				1	1				
Glass conductor							2									
Roof lead												5				
Paver			1		3	6				2		1				
Delft tile		1			1						2					
Soapstone counter frag					1			5								
Spikes						11	1		1	2						
Nails, wrought	51	106	538	48	277	935	332	169	503	363	469	161	174	275	73	
Nails, machine cut	26	47	141	34	207	342	232	188	258	180	162	1043	203	125	35	
Nails, wire	2	1	7	4	14	8		8	6	3		483	21	2		
Nails, UID	60	121	241	56	289	690	163	167	163		202	347	58	63	34	
Furniture Group																0.1
Brass tacks	1					1	3			2	2					
Iron tacks					1											
Escutcheon		2			2					1						
Decorative item		1		1	2	1	2	1	1	1	1					
Lock												1				
Lamp part												1				
Hinge fragments						1	2									
Statuette, slip dip white salt glazed SW													1			
Arms Group																0.3
Lead sprue					1	1					1		1	1		
Gunflint	1	1	1	1		1	5	2	1	5	1		1	1		
Gunflint flakes	1		5	1		7	1	1	5	7	10	2	3	7	2	
Shell casing					1					1				1		
Shotgun shell base, brass						1	1						1			
Tobacco Group																0.7
Pipe stems, 4/64-inch	3	4	6			8	4		3	16	7	4	1	10	3	
Pipe stems, 5/64-inch	6	2	8	1	5	22	7	3	6	7	10	6	2	3		
Pipe stems, 6/64-inch		1	1		1			1			5			1		
Pipe stems, fragments	1		1		2				1							
Pipe bowl fragments		1		2	4	9	4	1	7	10	5		3		2	
Stub stem pipe frag			1			6	3		2					1		
Clothing Group																0.1
Buttons			2		1	3	5	1	1	3	2	2	2	3	2	
Buckles			1		1				2		2				2	
Aglet								1								
Gromet													1			
Thimble									1							
Cut glass gem												1				
Scissor									1			1				
Sad iron/heater					4											
Beads						1										
Personal Group																0.1
Writing slate						7	1									
Umbrella struts						2	1									
Toothbrush							2									
Other	1	1			1				4	1	1	4	4		1	
Activities Group																0.4
Construction tools													1			
Farm tools				1		2	1									
Toys												1		2	1	
Fishing gear				1				1								
Storage items		1	4		2	1	1	1						1		
Stable and barn items			1		2	3		1			1	1	1			
Misc. hardware			7		7	3	1	8				58	4			
Other	2			2	3	6	2					4	1			
TOTAL	922	1529	2549	735	2445	5375	2096	1514	2796	2449	3422	2644	1766	1534	653	32429

Table 69.
Comparison of the Colonial House to Various Artifact Patterns

	Kendal Colonial Kitchen	Kendal Colonial House	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	49.3	47.2	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	45.4	51.1	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.3	0.1	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.4	0.3	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	3.4	0.7	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.3	0.1	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.1	0.1	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.7	0.4	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1]Garrow 1982
[2]Beaman 2001
[3]Zierden et al. 1988
[4]Singleton 1980

these changes to differences in social standing or display, we believe they are more likely explained by the more recent age of the house, as discussed later in this section. In addition, we cannot discount what may have been lost by the structure being cleaned between owners – which were numerous in the late colonial and early antebellum periods.

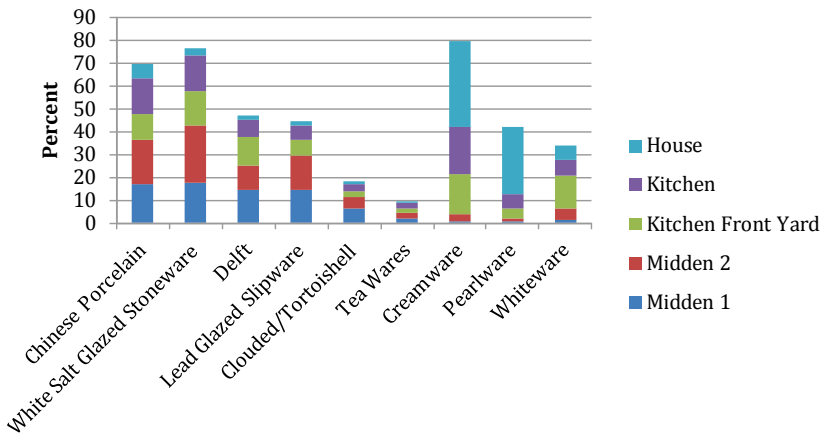


Figure 135. Major ceramics by location.

The main house excavations produced a count of 701 minimum vessels (Table 70). Looking at classifications of only flat ware, hollow ware, serving ware, and utilitarian vessels, 58% of the assemblage is represented by flat wares (n=407), followed by hollow wares (29.8%, n=209). Serving vessels, such as platters, bowls, pitchers, and tea pots, account for 8.9% of the collection (n=63). Utilitarian vessels, such as pans, storage containers, and chamber pots, contribute an additional 22 vessels for just over 3% of the assemblage.

While flat wares dominate the assemblage, they are less common than in the kitchen. For example, the hollow ware to flat ware ratio for porcelain is 1:1.2, while in the kitchen it was 1:4. Delft in the main house has a ratio of 1:1.5, while in the kitchen it was 1:6. These differences may be the contribution of tea wares to the hollow ware assemblage. In contrast, the ratio for creamwares in the house is about 1:4, while in the kitchen it was 1:2. Here we believe the ratio was reversed because house servants were using a greater number of hollow wares in the kitchen.

As previously discussed, it seems more useful to examine the assemblage taking into account the presence of tea wares, rather than just flat and hollow wares. If examined in this manner, over a quarter of the collection represents tea wares (cups, saucers, tea pots; excluding mugs). This likely fails to accurately pick up all of the serving items associated with tea drinking, such as slop bowls, creamers, etc.

In comparison, the Colonial Kitchen produced only 60 tea ware items, representing only 19% of the assemblage. Thus, tea wares are noticeably more common in the main house collection. Serving vessels are also more common at the main house. Hollow wares are more common in the kitchen, perhaps as a result of both food

Table 70.
Form of Vessels at the Colonial House

	Hollow Ware		Flat Ware		Serving					Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, undecorated	5		5	3								
Chinese porcelain, blue hand painted	16	6	13	11			1					
Chinese porcelain, poly HPOG	10	9	18	3				1	2			
Chinese porcelain, Batavia ware	2		1									
White porcelain, decorated	1		2	1								
White porcelain, undecorated	2		1	1								
Subtotals	51		59				4				0	
Delft, undecorated		4		4								
Delft, polychrome		3		1								
Delft, sponged												
Delft, blue hand painted		2		7		1						
Subtotals	9		12				1				0	
White SGSW	3	4		15		1			3			
White SGSW, slip dipped	9	2	1	2		1					1	
White SGSW, scratch blue	2		4									
Subtotals	20		22				5				1	
Lead Glazed Slipware		6		5		2						
Subtotals	6		5				2				0	
Buckley ware						1					1	2
Subtotals			0				1				3	
Nottingham						1						
Subtotals	0		0				1				0	
SGSW, brown										1		
Subtotals	0		0				0				1	
Westerwald		1								3		
Subtotals	1		0				0				3	
Coarse Red Earthenware	2	3				4			1	3		3
Subtotals	5		0				5				6	
Tortoiseshell		2										
Subtotals	2		0				0				0	
Creamware, undecorated	17	12		87	4	12	1		1		1	
Creamware, annular/cable/mocha	1	3										
Creamware, edged				5								
Creamware, hand painted	2	3	3	55	1	1	2	1			1	
Creamware, cauliflower												
Subtotals	38		150				23				2	
Pearlware, undecorated	4			7				1				
Pearlware, annular												
Pearlware, edged			2	52								
Pearlware, hand painted	5	4	8	3		1						
Pearlware, transfer printed	13	13	15	31	1	1	4		3			
Subtotals	39		118				11				0	
Whiteware, undecorated	4	4	2	12	1	1				1		
Whiteware, annular		8										
Whiteware, edged			1	8								
Whiteware, hand painted	1	3		3	1							
Whiteware, transfer printed	2	4	4	8			1	1				
Subtotals	26		38				5				1	
Other ceramics	2	10		3		2		2	1	3		2
Subtotals	12		3				5				5	
Totals by Function	209		407				63				22	
%	29.81		58.06				8.99				3.14	

	Totals	%
Flat Ware	327	48.2
Hollow Ware	108	15.9
Tea Ware	181	26.7
Serving Wares	63	9.3
Total Table Wares	679	96.86
Utilitarian Wares	22	3.14
Total	701	

preparation and also the slave quarters in the basement.

Another difference between the two structures is the form of vessel decoration. Over 60% of the pearlwares exhibit "expensive" or high status decorations, such as hand painting or transfer printing. In comparison, all of the kitchen pearlwares were undecorated. In addition, nearly 97% of the Colonial House vessels are tablewares, compared to 93% in the Colonial Kitchen. Utilitarian vessels are somewhat less common in the main house. While the kitchen produced no chamber pots, at least four were identified in the main house.

Colono ware ceramics are almost non-existent with only 14 sherds being recovered from the main house excavations. Thirteen of these were well burnished; one was more roughly smoothed. Five, all burnished, were rim sherds. Three of these rims were flattened, two were rounded. Vessel diameters range from 6 to 9-inches and all were open bowl forms. The average diameter is 8-inches, with a standard deviation of 1.2-inches. These tend to be larger than those found in the kitchen and may represent serving vessels used on the table of the main house.

Container Glass

Container glass accounts for 4,453 specimens from the Colonial House, with over two-thirds of the collection (68.1% n=3,035) consisting of black glass.

This black glass includes a minimum of 45 wine bottles, ranging in basal diameter from 65 to 140 mm. These sizes represent likely early beer sizes, as well as wine containers (Jones 1986:83). Over a third of the collection (37.8%, n=17) are between 115-128 mm in diameter at the base. The larger diameters were likely wine bottles from the early to mid-eighteenth century (Noël Hume 1969:64-67). Many of the lips, however, are characteristic of those dating from about 1790 to 1820 (Jones and Smith 1985:21), suggesting a fairly long period of deposition.

Included in the collection is a single "R. Moore" bottle seal identical to those recovered from the Colonial Kitchen. The context suggests that the house was in use prior to the death of Roger Moore about 1751.

There are an additional 26 square or rectangular black glass bottles. Most of these remains are so fragmented that their original shape and dimensions could not be calculated. However, at least one of the bottles is 90mm square (Jones and Smith 1985:14-15).

There are, in addition, rectangular bottles with chamfered corners or octagonal bottles of dark green or "black" glass. Two measurable examples are 76 by 83 mm and 77 by 115 mm. Jones and Smith (1985:67-68) suggest similar bottles were likely used during the colonial period for both dry and wet condiments, and pourable sauces, although alcohol cannot be ruled out.

At least four green blown bottles were identified in the collection, ranging in diameter from 13mm to 64mm. Two light green blown bottles were identified with diameters of 35 and 38 mm. A brown glass blown bottle with a basal diameter of 33mm was also found. Two aqua blown glass vials with diameters of 23 and 50 mm were also identified. The smaller examples almost certainly represent pharmaceutical vials (Jones and Smith 1985:92). While the larger example is unusual, such bottles were apparently found associated with medical kits (Jones and Smith 1985:93). We have previously cautioned that these vials might also have held powdered colors for paints and inks, as well as some toiletries.

Four aqua bottles were also identified, one with lettering for "London." Jones and Smith (1985:97) identify similar bottles as "appropriate for scented waters," with one embossed "Warren Perfumer Marybonn Street London."

One aqua jar form, 70mm in basal diameter, was identified.

At least three clear glass containers could be discerned, including one small, fancy blown in mold bottle with a diameter of 38mm. This bottle indicates a post-1821 date (Jones 1983).

At least some of the glass is intrusive from the Kendal frame house to the east. For example, the 24 fragments of manganese glass are suggestive of an 1880 date (Miller and Pacey 1985:44). The vast majority of the melted glass is also most likely associated with the Kendal house, which burned in 1919.

Kitchen and Tablewares

This collection includes 214 glass tableware items, 16 utensil fragments, and 22 kitchenware items (Table 68).

The glassware items include 19 stemware items (generically called "wine glasses") and 43 tumblers (Table 71). The wine glasses varied in diameter from 2-inches to 4-inches, although over half measured 2½-inches. The forms from the house are more limited than those recovered in the kitchen.

One knobbed baluster was recovered, likely dating the specimen to the early eighteenth century. Two specimens of air-twist stems (one with a double turn and another with 10 turns) were recovered, and these more likely date from the 1740s through 1760s. The remainder are either incomplete or represent plain drawn stems that were popular throughout the eighteenth century.

Glass tumblers were far more common in the Colonial House than in the kitchen, representing 43 identifiable specimens ranging in size from 1¾-inches to 3½-inches. Clearly the most common tumbler diameter was 3-inches, representing 37% of the total. This increases to three quarters if we assume a size range of 3±½-inch.

Jones and Smith (1985:35) document the presence of tumblers as small as ½ gill (2.1 fluid ounces using the Old English Wine measurement or about 2.5 fluid ounces using the Old English Ale measurement),[1] accounting for the very small rim diameters shown in Table 71. These small tumblers might be used for "shot" glasses or taking medicines. In contrast, the larger sizes, such as those with a 3-inch rim, were likely pint sized and might be used for water or alcohol.

Table 71.
Tableware Glass from the Colonial Kitchen

Clear Glass Stemware	rim	#
	2	1
	2¼	2
	2½	10
	3	3
	3¼	1
	4	2
		19

Clear Glass Tumbler	rim	#
	1¾	1
	2	1
	2¼	5
	2½	8
	2¾	2
	3	16
	3½	7
	UID	3
		43

Several examples of engraving were identified on tumbler rims. Jones and Sullivan (1985:35) suggest that this design technique pre-dates the American Revolution, being replaced in the late eighteenth century by cutting, which was not found in this collection. There are, however, several examples of pattern molded tumblers with diamonds and flutes, which are typical eighteenth century motifs.

Also identified were 13 glass bowls. Six of these have a rim diameter of 3½-inches and another two have a diameter of 4-inches. These are

[1] The Old English Ale gallon was defined in a 1700 act as containing about 162 fluid ounces or 282 cubic inches (4,621 ml). The Old English Wine gallon was defined in a 1706 act as containing about 133 fluid ounces or 231 cubic inches (3,785 ml).

Figure 136. Kitchen Group Artifacts from the Colonial House. A, Chinese porcelain underglazed blue saucer; B, Chinese porcelain polychrome handpainted overglaze; C, Chinese porcelain polychrome handpainted overglaze; D, delft, manganese splatter; E, white salt glazed stoneware, polychrome handpainted; F, creamware, hand-painted brown band; G, creamware, black transfer printed; H, blue transfer printed pearlware cup; I, 7 blue transfer printed pearlware plate; J, polychrome hand painted pearlware saucer; K, blue hand painted pearlware cup; L, brown transfer printed pearlware cup; M, brown hand painted pearlware serving vessel; N, blue transfer printed pearlware tea spout.

Figure 137. Kitchen Group Artifacts from the Colonial House. A-B, lead glass tumbler bases; C, engraved flowers around tumbler rim; D, clear glass decorated with pattern-molded diamonds (compare to Jones and Smith 1985:Figure 30); E, air twist stemware; F, faceted stemware; G, plain stemware; H, bottle, rectangular body with concave chamfered corners ; I, bottle, rectangular body with flat chamfered corners and embossed "[LON]DON."

of a size typical of wine glass coolers or finger glasses. One of the vessels is decorated with a pressed diamond pattern. Jones and Smith (1985:55) note that these containers were used for rinsing or cooling wine glasses, cleaning fingers, or rinsing out the mouth between meals. They date at least as early 1770.

Three of the bowls have rim diameters of 5-inches and one measures about 5½-inches. These are slightly small for a punch bowl (the smallest of which illustrated by Jones and Smith [1985:55] is about 6⅝-inches). They may, however, represent serving dishes, perhaps for condiments.

A final example is only 2½-inches in diameter and its function is uncertain. It is a size suitable for use as a salt or even as a custard cup.

The collection produced 16 fragmentary utensils, including five iron utensils with bone handles, one brass utensil with a bone handle, five two-tine iron forks, two iron spoon fragments, and three iron knife fragments.

There were 22 kitchenware items recovered from the Colonial House excavations. Seven of these were tin can fragments – all likely scattered from the burned Kendal house immediately to the east. Items that are likely associated with the colonial deposits include 12 kettle fragments, four of which were rims. These rims indicate kettles 6, 8, 9, and 10-inches in diameter. The 1865 Russell and Erwin (1980) catalog identifies 15 different sizes, ranging from ½-gallon to 30 gallons, but those recovered here range from about a pint to 1¼ gallons.

Other items include an iron pan handle, a fragment of an iron pot lid with a diameter of about 5-inches, and a rolled copper handle, perhaps from a teapot or similar kitchenware item.

Architectural Artifacts

The architectural category is larger than even that of kitchen items, consisting of 16,560 items. Not surprising, most of these (69.9%, n=10,910) are nails and about three quarters of the nails can be identified by type. Most of the identifiable nails (54.2%, n=4,474) are hand wrought. The wire nails (which comprise about 6.8% of the identifiable specimens) date from the last quarter of the nineteenth century and are certainly scattered from the frame Kendal house, as may be at least some of the machine cut nails (which contribute 39%, n=3,223). Most of the machine cut nails have machine applied heads (71.6%, n=2,256), indicating a post-1814 date. The machine cut nails with hand applied heads date from about 1790 through1820.

Table 72.
Nails from the Colonial House

		Wrought		Machine Cut		Wire		
Penny Wt.	SAE	Rose	T	Hand	Machine	Flat	Finishing	Total
2d	1"	275	38	33	77	45	15	
3d	1¼"	580	53	78	73	23	19	
4d	1½"	306	80	59	198	12	26	
5d	1¾"	316	157	155	384	32	59	
Small timbers, shingles		**1477**	**328**	**325**	**732**	**112**	**119**	**3093**
6d	2"	185	173	75	205	89	58	
7d	2¼"	156	104	52	64	15	8	
8d	2½"	144	70	55	195	8	26	
Sheathing, siding		**485**	**347**	**182**	**464**	**112**	**92**	**1682**
9d	2¾"	96	62	48	144	2	15	
10d	3"	47	60	60	210	1	21	
12d	3¼"	15	56	19	51	2		
Framing		**158**	**178**	**127**	**405**	**5**	**36**	**909**
16d	3½"	7	18	6	9	1		
20d	4"	2	1		6			
Heavy framing		**9**	**19**	**6**	**15**	**1**	**0**	**50**
Total		**2129**	**872**	**640**	**1616**	**230**	**247**	**5734**

More information concerning the size and form distribution of nails is found in Table 72 and Figure 138.

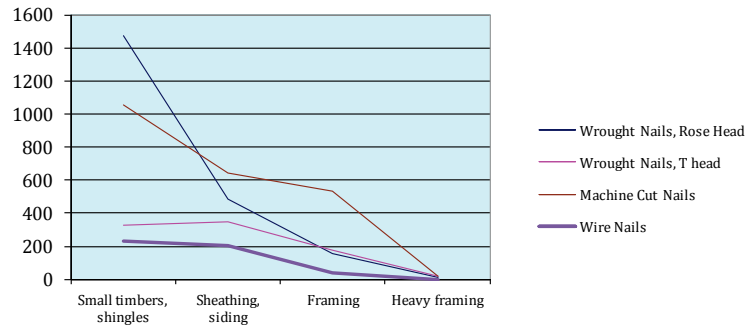


Figure 138. Distribution of nails and sizes in the Colonial House.

The abundant wrought nails with rose heads document the attachment of lath, while the T-headed wrought nails were likely used for flooring.

The machine cut nails have a somewhat similar distribution as the wrought specimens, suggesting their use on the Kendal frame house, rather than simply the repair of accessible elements in the Colonial House.

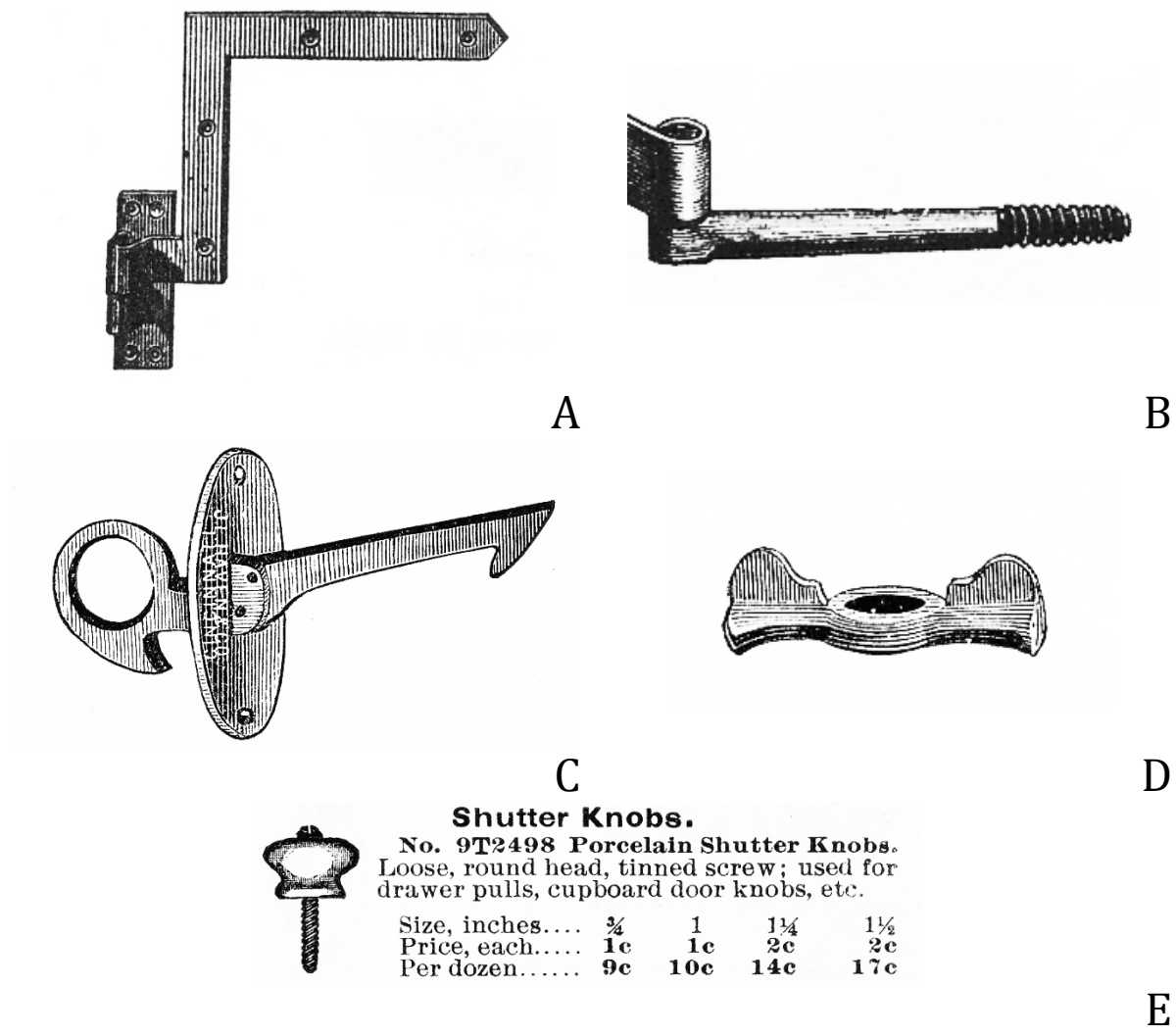
The next most abundant architectural item from the Colonial House excavations is window glass, with 5,553 specimens recovered (representing about a third of the architectural artifacts). It is not, however, possible to separate with certainty the glass from the Colonial House from that of the Kendal frame house, although the earlier colonial glass tends to exhibit more patina. Nevertheless, the largest fragment with cut edges measures only about 3-inches on a side. Consequently, nothing can be said about the size of the lights present in the Colonial House.

There are an additional 82 architectural items, many of which can be associated with the burned Kendal house based on design. Those items, however, which are most likely to be associated with the Colonial House include 13 paver fragments and four delft tile fragments. Both groups are similar to items recovered from the Colonial Kitchen. Also two strap hinges, one HL hinge, two drive pintles, a hook, three rim lock box fragments (representing two distinct lock boxes), a small range of lock parts (including a dead bolt, a tumbler fragment, two unidentifiable rim lock parts, and a bolt spring), a staple for a square sliding bolt, four escutcheon fragments, and a hasp lock bolt. Most of these are high-end architectural hardware consistent with a colonial structure.

Other items that are almost certainly associated with the Kendal frame house include three offset strap hinges, 11 shutter hinge fragments (called "rolled blind hinges" in Russell and Erwin 1980), a shutter hinge pintle, a turn button, two staples, a fragment of hardware cloth (6 squares to the inch), a sash pulley and chain, two shutter fasteners, four pipe hangers, a white porcelain shutter knob, two latch plates (probably associated with shutters), a butt hinge, six soapstone counter fragments (associated with the Kendal kitchen), and a screw hook (likely used with shutters). Many of these specimens match identical items recovered during excavations at the Kendal house and others are consistent with late nineteenth century catalog illustrations (Figure 139).

Plaster

While many historic plantation sites evidence plaster in the excavations, the remains are often small fragments of wall or ceiling plaster and often are given scant attention. For example, South does not mention plaster at Colonial Brunswick, not even at Russellborough (South 2010). At Tryon Place, the only mention is that the original plaster "revealed only plain struck molding" with no further detail (Beaman 2000:17; see also Barnes 2005:105). Nevertheless, archaeologists occasionally will comment on the importance of plasterwork. For example, Zierden



A

B

C

D

Shutter Knobs.

No. 9T2498 Porcelain Shutter Knobs.
Loose, round head, tinned screw; used for drawer pulls, cupboard door knobs, etc.

Size, inches....	¾	1	1¼	1½
Price, each.....	1c	1c	2c	2c
Per dozen.....	9c	10c	14c	17c

E

Figure 139. Architectural items from the Colonial House excavations, but identified in nineteenth century catalogs and probably associated with the burned Kendal House. A. Rolled blind hinge, NY Pattern (Russell and Erwin 1980 [1865]:114); B. Screw hook (Russell and Erwin 1980 [1865]:124); C. Shutter fastener, Mackrell's Pattern (James L. Haven and Co. 1872:39); D. Door button or turn button (James L. Haven and Co. 1872:21); E. Porcelain shutter knob (Sears, Roebuck and Company 1903:739).

and her colleagues comment that the presence of plaster at Willtown on the South Edisto River in Charleston County, South Carolina indicates "refined finishes" (Zierden et al. 1999:310).

At Kendal we are in an exceptional position since we are able to document the plaster cornice moldings in Roger Moore's main house.

Plaster may be classified as either lime-based (calcium hydroxide, $Ca(OH_2)_2$) or gypsum-based (plaster of Paris, $CaSO_4.H_20$), although Ashurst (1983:26) notes that at times lime plaster might be gauged with plaster of Paris (in order to speed the set). The specimens from Kendal give every indication of consisting entirely of high lime plaster and generally gypsum plaster doesn't occur in the United States until the nineteenth century or later.

While plaster can be used over masonry, the specimens from Kendal reveal they were applied over riven or split wood lath, typically about 1½-inches in width. The Scottish Lime Centre (2002:6) reports that plasterers not only produced lath (as a source of winter income), but also fixed the laths, spacing them about ¼ to ⅜-inches apart. The first, or scratch, coat, consisted of coarse plaster, applied diagonally across the laths and made to penetrate the gaps between them to form wet rivets or plaster "keys". After hardening these rivets supported the plaster coating. Usually two more coats of plaster – the "straightening" and "finishing" coats – were applied (Scottish Lime Centre 2002:6).

The first coat was generally ⅜-inch in thickness and was composed of a 1:2.5 or 1:3 mix of lime and sand. Many sources report the use of hair to provide additional strength. Millar, however, seems to imply that the use of hair was most necessary with inferior limes (Millar 1899:51). The second coat would be an additional ⅜-inch, using a similar mix. The final or finishing coat would be a mix of 1:1 to 3:1 lime:sand and was generally only ⅛-inch in thickness (Scottish Lime Centre 2002:24). Millar comments that, "In the best work great skill and care is required to make the surfaces perfectly true and uniform in colour, smoothness, and hardness" (Millar 1899:97). The interval between coats would be one to three weeks. Failure to allow adequate drying between coats would result in shrinkage, crazing, and delamination.

Millar explains that, "three-coat work is usually specified by architects for all good buildings, but sometimes two-coat work is specified for inferior rooms, closets, attics, or cellars in the same building" (Millar 1899:90). Such work is described as "cheap" and best used in warehouses and factories. (Millar 1899:101). Neve (1736), however, makes no such judgment and, in fact, does not specify coats of plaster. This is probably because in the eighteenth century Graham indicates that two coat plaster was more common, with three coats only becoming prevalent in the nineteenth century (Graham 2013:324-325).

At Kendal the plaster appears to be about 9/16-inch and only two coats are clearly distinct. The lower coat is a brown, sharp sand with abundant calcined shell. This suggests that the slaked lime was not well screened prior to use. The finish coat is white and very fine, consistent with abundant lime. Its thickness averages 3/16-inch, with a standard deviation of 1/16-inch. Consequently, this finish coat falls in the range suggested by Millar.

Two distinct cornice profiles were recovered from the Kendal main house. Profile 1 (Figure 140) is best documented and represents a "common 18th century crown molding design" (Matthew Webster, personal communication 2016). On the reverse of several fragments is evidence of a tight cross hatching in the brown coat, providing a key for the decorative work to attach. Examination by Webster revealed that the plaster was run in place, with no evidence of pre-casting, another common trait of eighteenth century work. Webster also notes that it was placed when the wall and ceiling plaster was green, indicating that it was part of the original structural plans for the Moore house and not a later addition. In addition, such work is not common; it shows expense and the presence of

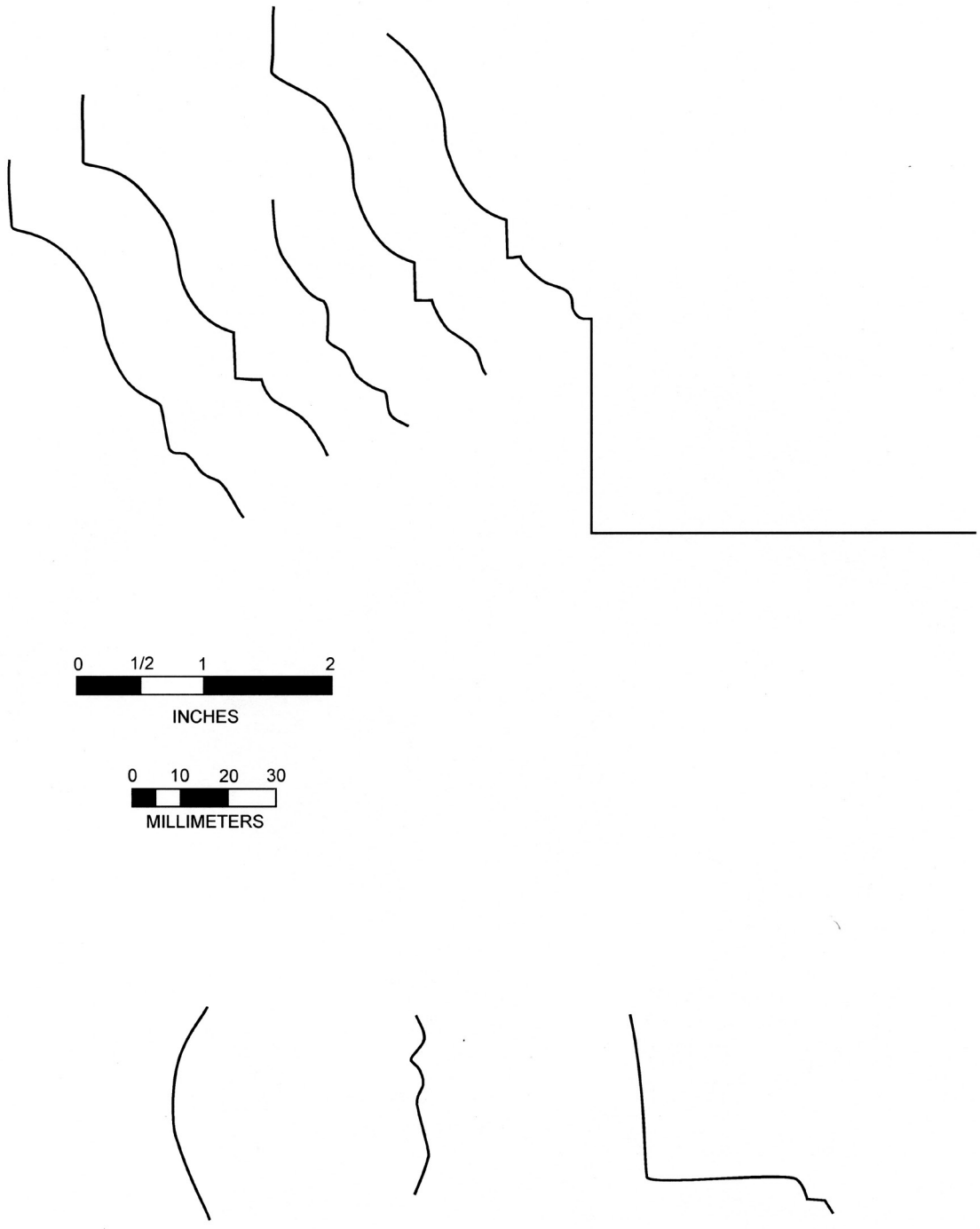


Figure 140. Profiles of plaster moldings recovered from the Colonial House.

specialized craftsmen – not a simple slave plasterer. The profile is also well developed, indicating that the individuals performing this work had the proper tools, such as a plaster horse, to do the work. Webster, currently at Williamsburg and previously at Drayton Hall, notes that not a lot of this work survives.

Profile 2 is represented by only three partial fragments and the full profile cannot be reconstructed. One fragment represents a bolection profile that might be from an ornamental frame or wall panel. The other items may represent cornice work in other rooms. Regardless, these fragments are also very unusual and help document the high status of Moore's Kendal house.

While focusing on Victorian and Edwardian work, Millar (1899:108-111, 309-312, 381) provides details on the installation of decorative cornice work similar to the Kendal examples, including the creation and use of the running mold on a wood support or plaster horse.

Furniture Artifacts

Thirty-two furniture-related artifacts were recovered from the Colonial House excavations. Unlike other blocks, tacks in this assemblage represent only 31% of the collection. The nine specimens of brass tacks range in head diameter from 8 to 13mm. The mean is 11, although the mode is 12mm. The single iron tack was too deteriorated to provide a good measurement. These items are used to attach fabric to chairs or provide decorations to trunks. Two additional items, both decorative brass strips, might have been found on trunks.

Most of the items represent furniture hardware, including an iron escutcheon for a drawer handle; seven brass escutcheons for drawer handles or pulls; four different brass drawer pulls, including two knobs, one small circular ring, and one oval ring. Also recovered were two decorative bolts, one brass and one iron. A small iron and brass rim lock appears to be the size suitable for a cabinet. There were also three small iron furniture hinges (1 pair and one half). These are described by Chappell as, "pairs of small iron staples, or eyes, hooked together" (Chappell 2013:267). Similar hinges are noted at Fort Michilimackinac, where they are called "'staple' or 'pin' hinges" (Stone 1974:193). These hinges might have been used on items ranging from small trunks or boxes to larger cabinets.

The final two items include a white metal wick holder for an oil lamp and a fragment of a white salt glazed statue.

Arms Artifacts

Arms-related artifacts comprise 0.3% of the Colonial House assemblage. The most common artifacts are flint flakes – debitage resulting from the resharpening of existing gunflints or efforts to make gunflints or other tools from flint ballast. The 52 flakes are enumerated in Table 73 below.

Table 73.
Gunflint flakes from the Colonial House

Black flint, primary	6
Black flint, secondary	7
Black flint, tertiary	2
Gray flint, primary	6
Gray flint, secondary	15
Gray flint, tertiary	3
Honey flint, secondary	5
Honey flint, tertiary	7
UID, primary	1

English black and gray flints are the most common, comprising 75% of the assemblage. About 87% (n=34) of the black or gray flakes are primary or secondary, suggesting that these specimens may result from efforts to alter ballast stone. The five tertiary flakes may have resulted from reworking existing gunflints.

A much lower proportion of the flint flakes recovered are honey-colored and likely French (23%, n=12). Most of these (58%, n=7) are tertiary flakes, suggesting that they may have originated from existing French gunflints.

A single flake was identified that is inconsistent with either prehistoric chert sources or historic flint materials.

In addition to the flakes, the house produced 21 gunflints (Table 74). Eighteen of these (86%) are English and of these, 5 (28%) are flakes; the remainder are spall gunflints.

When the size of these gunflints is examined, only one is of a size likely associated with a musket. One other gunflint might have been associated with a carbine or fowler. Most of the specimens (n=12, 63%) are a size that would normally be used in a trade gun.

Curiously, the house shows a much greater range in gunflint sizes than does the kitchen, although in both cases, the most common size is that likely used in a trade gun.

Table 74.
Gunflints recovered from the Colonial House

Provinence	Type	Shape	Origin	Material	Width, mm (heel to edge)	Length, mm (side to side)	Thickness	Comments
145R120, Level 1	Spall	D-shaped	English	Black Chert	21.32	22.10	7.02	Retouch on face and use wear on the edge
145R130, Level 1	Spall	D-shaped	English	Light Gray Chert	20.54	27.35	7.56	Broken across edge
150R130, Level 1	Spall	Square	English	Black Chert	23.62	27.32	10.75	Left side and edge has a flake removal across the back
140R140, Level 1	Spall	D-shaped	English	Black/Grey Chert	16.19	21.28	5.71	
150R140, Level 1	NA	NA	English	Dark Gray Chert	NA	NA	NA	Extensively damaged unable to determine type, shape and measurements accurately
160R140, Level 1	Spall	D-shaped	English	Gray Chert	22.08	29.02	8.18	Edge is damaged
160R140, Level 1	Spall	D-shaped	English	Gray Chert	22.60	65.65	7.22	Potlid damage on right side and edge
160R140, Level 1	Spall	D-shaped	French	Honey Chert	16.66	27.08	8.38	Broken across edge
160R140, Level 1	Flake	Square	English	Black Chert	23.91	22.52	10.59	Extensive damage along edge and sides May have been used as a strike-a-light
160R140, Level 1	Spall	Square	English	Light Gray Chert	21.48	23.22	10.71	Several flakes removed across face
145R150, Level 1	Spall	Square	English	Light Gray Chert	20.75	19.10	6.75	Fire damaged
145R150, Level 1	Flake	Square	English	Gray Chert	22.13	27.17	8.60	Broken across edge
150R150, Level 1	Flake	Square	English	Gray Chert	16.83	20.59	6.47	Broken across edge
160R150, Level 1	Spall	D-shaped	English	Pale Gray Chert	18.76	23.60	7.87	Broken across edge
160R150, Level 1	Flake	D-shaped	French	Honey Chert	15.02	23.26	5.01	Broken across edge
160R150, Level 1	Spall	D-shaped	English	Gray Chert	19.72	27.21	11.34	Broken across edge
160R150, Level 1	Spall	D-shaped	English	Gray Chert	18.14	17.84	5.91	Broken across edge
160R150, Level 1	Spall	NA	English	Dark Gray Chert	NA	NA	NA	Extensive damage, appears to have been used as a strike-a-light
160R160, Level 1	Flake	D-shaped	French	Honey Chert	18.50	12.32	5.17	
150R170, Level 1	Flake	Square	English	Black Chert	17.50	16.70	6.00	
160R170, Level 1	Flake	Square	English	Pale Gray Chert	17.25	16.56	5.32	

No shot was recovered from the Colonial House, although five fragments of sprue were identified.

The remaining seven items are all more modern and would have been associated either with the burned Kendal house or subsequent use of the property. Three of the items are brass cartridge casings. One is unmarked and a .32 caliber rim fire. Another is a .22 rim fire marked "SUPER X," manufactured by the Western Cartridge Company (now Winchester-Western Division, 0lin Mathieson Chemical Corporation) beginning in 1931 (http://www.csrra.com/results/2011-05-11%20A%20Short%20History%20%200f%20%2022%20Rimfire%20Ammo.pdf. The last item is a .32 caliber shell with the headstamp, "PETERS 38 S & W." These shells were produced by the Peters Cartridge Company, Cincinnati, Ohio between 1916, when the company formed, and about 1960.

Figure 141. Furniture hardware recovered from the Colonial House. A, brass and iron rim lock; B-C, furniture handles; D, furniture knob; E-G, escutcheon or back plates for handles; H, decorative brass bolt; I, decorative iron bolt; J, iron staple hinge; K, white salt glazed stoneware statue; K, decorative brass strip.

Three brass and remnant paper shotgun shells were also recovered from the kitchen excavations. One lacks a headstamp. Another is stamped, "WINCHESTER NO. 12 LEADER." This shell was produced between 1894 and 1943. The date, however, can be narrowed down by the primer, which is stamped, "W.P.A. CO. NEW NO. 4." This primer was apparently used in shotgun shells between 1904 and 1932. The third shotgun shell has a headstamp of "UMC & Co. No. 10 CLUB." This was produced by the Union Metallic Cartridge Co. between 1885-1891, and so is the only one of these shotgun shells likely used while the Kendal frame house was standing.

Tobacco Artifacts

The house produced a much more modest collection than the Colonial Kitchen, perhaps because fewer African Americans were routinely associated with the house. Regardless, the most common artifact is the white ball clay tobacco pipe, represented by 172 specimens and representing 73.8% of the assemblage.

About 51% (n=88) of the pipe stems are 5/64-inch in diameter. An additional 40% (n=69) are 4/64-inch.

Most of the ball clay bowls were undecorated (79%, n=38). Three have vertical ribs, two have seams with leaves, one is decorated with a partial flower, and another has the remnants of an unidentifiable decoration.

One of the pipes has a spur impressed with a "T" and a "D." Walker (1966) illustrates several similar examples, but they appear to only be dated later than 1755. Another is impressed with the initials "L C" surrounded by a circle. Within the circle are three dots above and three dots below. This mark has not been identified.

The collection also produced 13 stub stem pipe fragments (representing at least six pipes). Two of these are ball clay and one contains fragments of a face. Two are a brown clay and ribbed; one is a tan clay and ribbed. Six of the fragments are of tan clay, two of which included mending face fragments. The final two pieces are red clay.

At least some of the pipes are likely from Bethabara, where plain and anthropomorphic red clay pipes were produced from the mid-eighteenth century on. Others may be Pamplin-made (South 1967b, Walker 1975). These likely reflect deposition throughout the late eighteenth and early nineteenth centuries and may therefore have originated from both the Colonial House and the later Kendal frame house.

Clothing Artifacts

The Colonial House also produced a more modest assemblage of clothing remains than the kitchen block. This is thought to be the result of fundamental differences in the activities that took place in the two areas, although at least one author suggests that "more unique and expensive materials . . . received greater curation in high status residences" (Beaman 2001: 67).

Table 75.
Buttons Recovered from the Colonial House

South's Type	Description	Number	Measurements (in mm)
3	Embossed brass face, bone back with holes	1	17
7	Spun brass/white metal with eye cast in place	4	15, 17, 22, 24
8	Molded white metal with eye boss	1	21
9	Brass flat disc, hand stamped face, no foot	1	25
15	Bone disc, 1-hole	1	14
18	Stamped brass or white metal	9	3-14, 3-18, 19, 20, 25
19	Bone disc, 5-hole	1	16
23	Porcelain, convex	3	2-11, 14
25	Plain brass face, iron back and eye	1	26
27	Brass, domed, machine embossed	2	16, 21
35	Glass inset in brass holder	1	12
-	porcelain with iron eye	1	9
-	brass frag	1	

The most common clothing artifact in the Colonial House is the button, represented by 27

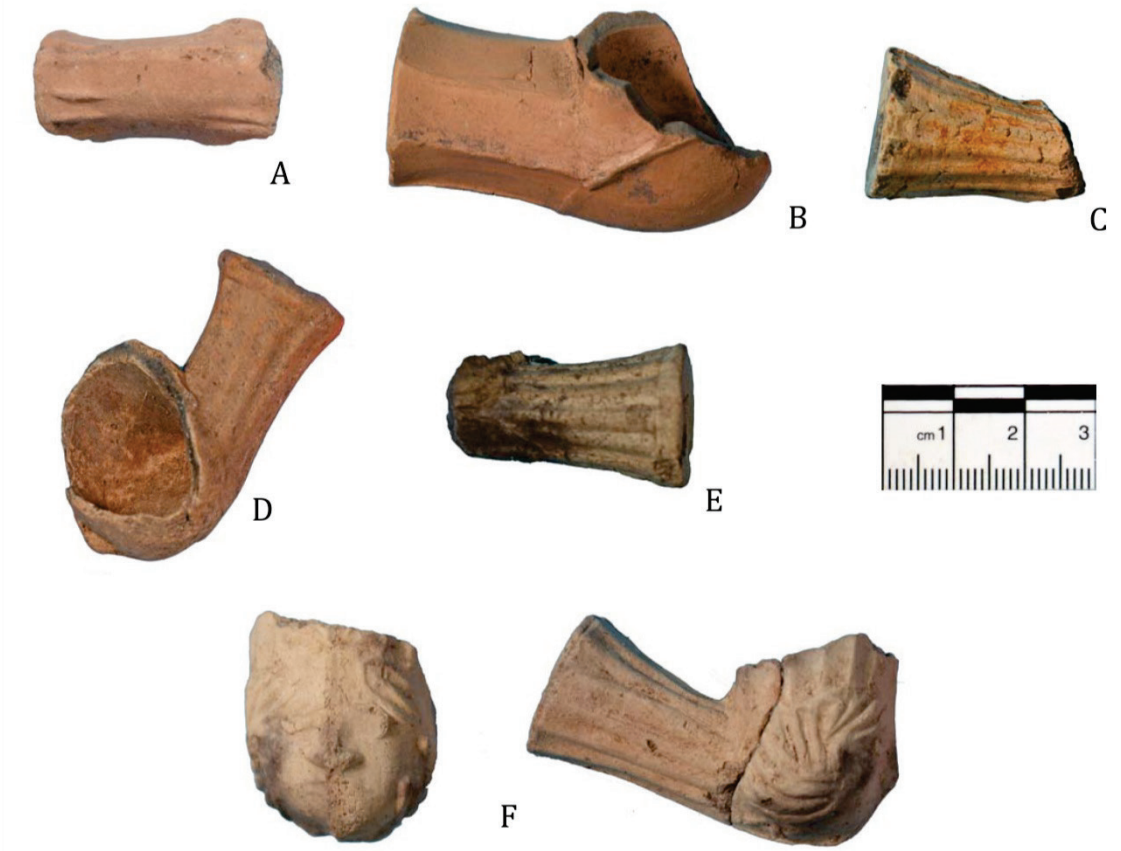


Figure 142. Stub-stemmed tobacco pipes from the Colonial House. A-E, Ribbed specimens. F, anthropomorphic example.

specimens (58.7% of the clothing artifacts). These remains are listed in Table 75. Seventeen (68%) of these buttons likely post-date 1800, so the colonial assemblage in the main house is even smaller than at first glance.

One of the buttons is a U.S. Infantry button without a back mark. It is classified as Albert's GI85 (Albert 1969) or Tice's GI215 (Tice 1997). This style was manufactured between 1845 and 1875, with most dating to the Civil War. It seems likely that the button was deposited immediately after the Civil War, when the area was occupied by Federal troops.

A number of the buttons exhibit back marks identifying them as "Gilt," or "London Gilt." Those manufactured in England were regulated and if a minimum of 1/96th of an ounce of gold was used per square inch, then the button could be identified as "Gilt." Other terms, such as double or treble identified buttons have two or three times the minimum amount of gold (Anonymous 2011:1). Other terms, such as "Rich," "Orange," or "Fine" have no specific meaning and were marketing attempts.

One of the Colonial House buttons is marked, "IMPERIAL ORANGE W.I." The imperial orange is marketing, but the W.I. almost certainly represents the initials of the button maker, although no name has been associated with the initials.

Twenty-three of the measurable buttons are over 14mm in diameter and were likely associated with outer coats. Only four are of a size (between 6 and 13mm in diameter) thought to be

associated with pants (Luscomb 1971). Following White's (2005) assessment, 13 of the buttons are of a size appropriate for coats, with some overlap with waistcoats. Fourteen of the buttons are of a size suitable for sleeve buttons. Consequently, a broad range of size is present, suggesting loss from a broad range of clothing – which might perhaps be expected in the living quarters of the elite.

The next most common artifact is buckles with eight specimens recovered. Four of these are brass shoe buckles and one specimen is an iron shoe buckle chape. Two of the recovered items are small buckle fragments. The final item is a brass boot or garter buckle.

The remaining 11 items include four fragments of a sad iron heater, two scissor fragments, one aglet, one grommet, a brass thimble, a cut glass gem, and a glass bead.

The sad iron heater was a tray, holding one or more irons, which could be placed on a stove or presumably even in a fire to allow the irons to be heated. They are illustrated by at least 1884 (Franklin 1992:111).

The scissor fragments represent two specimens. One includes a bow or loop and a portion of the shank and joint which appear to represent portions of a single pair of small scissors, almost certainly used in sewing. Another pair is represented by two mending fragments, with blades about 3¾-inches in length.

The brass aglet measures ¾-inch in length. Deagan (2002:174-176) illustrates less elaborate examples from sixteenth and seventeenth century Spanish sites, associating them with laces. White notes that aglets or "points" continued to be found in the eighteenth and nineteenth centuries with lacings "used to fasten and tighten clothing down the front of a garment as well as at the knee on breeches" (White 2005:31).

The brass grommet has an interior diameter of 5mm and an exterior diameter of 10mm.

The thimble is a child's size, measuring ½-inch in diameter and having a height of ⅝-inch. Deagan (2002:205) briefly notes the presence of thimbles specifically for children, with the smallest being a centimeter or less (the example in the Colonial House was 1.3 cm). She notes that "child sized thimbles serve as one of the few material indices to female children in the archaeological record" (Deagan 2002:205).

The "cut glass" gem is of clear glass, measuring 9mm in diameter and about 5 mm in height. Its shape is similar to the "brilliant cut" of eighteenth and nineteenth century diamonds. This cut was intended to maximize the diamond's reflection and refraction of light and quickly became very popular (White 2005:98). White observes that paste stones were "worn by the wealthy and middle class alike, as their use assuaged fears of genuine stones being stolen or lost" (White 2005:1000). This specimen appears to be an insert from a ring or some other form of jewelry.

The bead is opaque black glass measuring 14 by 10 mm and 5mm in height. The bead has four facets on its face and there are two holes, each 1mm in diameter running through the long dimension of the bead. It lacks a Kidd and Kidd bead number.

Personal Artifacts

This group included 31 specimens, far more than were found in the nearby kitchen. Eight of the items represent writing slates similar to those found in the kitchen with ruled lines and in some cases "scribbles," but no recognizable letters or numbers.

Eight of the objects are rings – seven brass and one white metal (Table 76). We believe that these items represent jewelry fittings.

Table 76.
Rings Found in the Colonial House

Material	Split/Solid	Exterior Dia. (mm)	Thickness	Notes
white metal	split	10.20	0.76	
brass	solid	31.00	1.78	mis-shaped due to wear
brass	solid	13.00	0.76	mis-shaped due to wear
brass	solid	13.50	1.02	
brass	solid	12.90	1.22	
brass	solid	12.90	1.06	
brass	split	10.60	1.01	
brass	split	12.90	1.70	

Five items are coins or medals. The four coins include one very heavily worn George II halfpenny, which was not minted after 1754 and likely predates 1749. The wear, however, is so great it could have been in circulation for a very long time.[2] The remaining coins are all nineteenth century American mints, including one penny, dated 1864; and two silver quarters, dated 1857 and 1877.

In addition, one unusual item, an Admiral Vernon Medal, was recovered. Admiral Edward Vernon was a Tory back-bencher and British naval officer who had a long and distinguished career, rising to the rank of Admiral. In 1739, during the War of Jenkins' Ear, he successfully captured the Spanish fortification of Portobello, Panama where Spanish gold and silver from Peru was collected and shipped. In celebration of his victories, a large variety of medals were produced, being purchased by the general public of England. At least 250 varieties are reported, many of very low quality (Adams 2008). Although there have been a number of efforts to catalog these medals the effort has not been very successful, so the medal found at Kendal cannot be ascribed to a particular minting. The inscription reads, "ADMIRAL VERNON TOOK PORTOBELLO WITH SIX SHIPS ONLY NOV 22 1739" and is brass with a silver plating. The diameter is 26.41mm. While not immediately identifiable to a particular variety, it nevertheless documents the patriotic fervor of early eighteenth century Englishmen.

Figure 143. Coins and Admiral Vernon medal from the Colonial House. A, 1857 silver quarter; B, 1877 silver quarter; C, obverse and reverse of an Admiral Vernon medal.

Three fragments of umbrella strut or stretcher which extends from the runner to the umbrella rib, similar to the specimen found in the Colonial Kitchen, were found in the house. As previously discussed, Samuel Fox invented the steel-ribbed umbrella in 1852; however, the

[2] Numismatists distinguish between circulation wear and pocket wear. Efforts to determine wear averages have been only partially successful, with a hypothetical thickness wear rate of about of about 0.25% per year (Cope 1969).

Figure 144. Pewter seal, photograph on the left, rendering on the right courtesy Nick Dawson, Belvedere Property Management.

Encyclopédie Méthodique mentions metal ribs at the end of the eighteenth century, and they were also on sale in London during the 1780s.

The two bone toothbrush fragments mend, producing the stock, neck or shank, and a portion of the handle, with an overall (but incomplete) measurement of 5¼-inches. The presence of a wire drawn head suggests a date range of 1875-1885 (Mattick 1993:164); the toothbrush likely was used by an occupant of the burned Kendal house.

Two small fragments of mirror glass with remnant silvering were also recovered. In both cases the glass was thin and there is no evidence of beveling. They may represent relatively late additions to the assemblage. A similarly late addition is an iron hair curler, also known as hair tongs. These items were shaped like scissors with rounded prongs and date back to at least the sixteenth century, changing very little into the nineteenth century. A patent was obtained in 1866, although as early as 1765 the newest version had only one moving prong. The specimen from the Colonial House, based on construction and materials, was likely mid- to late-nineteenth century.

Earlier objects include a fragmentary iron key, about 3-inches in length and a pewter object that is most likely a seal. It bears no resemblance to any of the known Moore seals, so it almost certainly post-dates the mid-eighteenth century (Figure 144).

Activities Artifacts

This group included 140 specimens, representing 0.4% of the Colonial House assemblage. Most of these items (58.6% n=82) represent miscellaneous hardware. Within this category, 53 items (64.6%) are likely associated with the burned Kendal House to the east and *not* the Colonial House. If these items were removed from the artifact pattern calculations, the Activity Artifacts would account for only 0.3% of the assemblage.[3]

Construction tools are represented by a single item – an adze. Farm tools include four items: a shovel blade, a hoe collar, and two team engine governors.

Toys include seven items, including two bisque doll parts, a toy porcelain saucer, a jew's harp, two clay marbles, and a toy cannon. The cannon is particularly worthy of brief mention. Of cast brass, the cannon measures 2½-inches and is well made. The carriage is missing, but this seems to be the case for most recovered specimens. Forsyth and Egan (2005:80-81) discuss toy cannons and suggest those that actually fired were very popular by the end of the sixteenth century but the majority show features that were developed in the seventeenth or eighteenth

[3] We assume, however, that the pattern analysis would not change greatly since throughout these discussions we have noted the presence of later artifacts in virtually all artifact classes.

Figure 145. Toy cannon recovered from the Colonial House.

centuries. The Kendal specimen is almost certainly eighteenth century. Campbell notes that, "those which can be identified would clearly have been expensive pieces" (Campbell 2015:83). It is therefore possible that this toy belonged to one of the Moore children.

Two items of fishing gear were recovered. One is an iron fish hook measuring 115mm in length and today classified as size 14/0. This is a size that would typically be used with large game fish today, such as shark or tuna. It is also used for alligator. We presume it would have been used for similarly large fish or reptiles during the eighteenth and nineteenth centuries. In addition, the Colonial House yielded one brass split-shot sinker. Today these are typically used for fishing in currents, and they can be quickly pinched on or off the line.

Thirteen storage items were recovered with 8 of the items representing various widths of strap metal (61%). Two padlock hasps were recovered. The remaining three items included a brace, a lead screw lid, and a copper strap. None of the items are temporally diagnostic.

Stable and barn items include a horse shoe nail, a horse bit fragment, five harness buckles, a harness decoration, and clip hame iron overtop.

It is surprising that so many stable items were recovered from the Colonial House, although a similar range of items was also found in the kitchen. No stable or barn structure was identified during these investigations, but it is possible that these items have been distributed by plowing from the original stable or barn for the colonial plantation.

A large number of miscellaneous hardware items were recovered from the house. As previously mentioned, it is likely that many of these were associated with the burned Kendal House and not the Colonial House. Distinguishing the two assemblages, however, is problematic in many cases. For example, 54 screws were recovered, but only 32 of these are sufficiently intact to allow their identification as gimlet-point wood screws post-dating 1846 when they were patented (Devoto 1943:214).

Other hardware items likely from the colonial deposits include two nuts, a brass nail fragment, a chain fragment, three staples, and an eye bolt. Those items more likely associated with the later Kendal house include an additional nine staples, two eyebolts, four rivets, three fragments of wire, and three fragments of twisted wire.

An equally wide range of materials makes up the "other" category, including six brass ring fragments, five copper strip fragments, three fragments of unidentifiable iron, and a white metal fragment. As is typical, none of these items can be attributed to a function or even a broad time period.

Dating

The dating of the Colonial House is made difficult by its proximity to the burned Kendal House and the mixing of artifacts. Table 77 shows South's mean ceramic date for the block excavation of 1794 with a standard deviation of 49 years. Removing the whitewares and yellow wares from the calculation has relatively little impact, changing the mean date only two years (to

1792) and leaving the standard deviation unaltered.

There are four marked ceramics in the Colonial House collection. One is an undecorated creamware with an anchor mark that unfortunately is not attributable to a specific maker or time frame. Another is a mark for Enoch Wood & Sons in Burslem, Staffordshire, England on an undecorated pearlware. This mark dates the piece between 1818 and 1846 (Kovel 1986:24). The third ceramic is an undecorated whiteware with a mark for Alfred Meakin that Large (2004:213) indicates dates from 1897 and later. Thus, this ceramic is certainly from the nearby burned Kendal House.

Table 77.
Mean Ceramic Date for the Colonial House Block

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	207	358110
Underglazed blue porc	1660-1800	1730	456	788880
English porc	1745-1795	1770	54	95580
NA salt glazed stoneware	1826-1905	1866	4	7464
Nottingham stoneware	1700-1810	1755	5	8775
Westerwald	1700-1775	1738	30	52140
White salt glazed stoneware	1740-1775	1758	158	277764
White sg sw, slip dipped	1715-1775	1745	99	172755
White sg sw, scratch blue	1744-1775	1760	33	58080
Black basalt	1750-1820	1785	11	19635
Eler's ware	1690-1715	1702	7	11914
Lead glazed slipware	1670-1795	1733	158	273814
Jackfield	1740-1780	1760	26	45760
Refined agate ware	1740-1775	1757	1	1757
Green glazed, cream body	1759-1775	1767	2	3534
Clouded wares	1740-1770	1755	40	70200
Decorated delft	1600-1802	1750	112	196000
Plain delft	1640-1800	1720	91	156520
Buckley ware	1720-1775	1748	25	43700
Creamware, annular	1780-1815	1798	37	66526
Creamware, hand painted	1790-1820	1805	206	371830
Creamware, undecorated	1762-1820	1791	3670	6572970
Pearlware, mocha	1795-1890	1843	9	16587
Pearlware, poly hand painted	1795-1815	1805	104	187720
Pearlware, blue hand painted	1780-1820	1800	210	378000
Pearlware, blue trans printed	1795-1840	1818	1144	2079792
Pearlware, edged	1780-1830	1805	244	440420
Pearlware, annular/cable	1790-1820	1805	97	175085
Pearlware, undecorated	1780-1830	1805	1309	2362745
Whiteware, green edged	1826-1830	1828	2	3656
Whiteware, blue edged	1826-1880	1853	8	14824
Whiteware, poly hand painted	1826-1870	1848	97	179256
Whiteware, blue trans printed	1831-1865	1848	103	190344
Whiteware, non-blue trans printed	1826-1875	1851	77	142527
Whiteware, annular	1831-1900	1866	24	44784
Whiteware, sponge/splatter	1836-1870	1853	3	5559
Yellow ware	1830-1940	1885	19	35815
Total			9236	16569262
Mean Ceramic Date				1793.9868
SD				48.9

The fourth item is the most interesting, being fragments of several gray salt glazed stoneware ceramics. They have partial stamped marks for "C. CROLIUS / MANUFACTURER / MANHATTEN- WELLS / NEW YORK" highlighted in cobalt blue. The stamp was used by Clarkson Crolius, Sr. between 1794 and 1815. Between the last two lines is a stamped flower, apparently often used by this firm (Webster 1971:167, 182).

In addition to marks, dating has been proposed for the shell-edged ceramics (Miller and Hunter 1990). Table 78 identifies the edged wares from the Colonial House by the edge design. Using the dates provided by Miller and Hunter, the edged pearlwares have a mean date of 1820, compared to the anticipated 1805 mean date identified by South. The green edged whitewares have a mean date of 1818, compared to South's mean ceramic date of 1828. The blue edged whitewares have a mean date of 1828, compared to South's projected mean date of 1853.

Although overall these differences have little effect on dating estimates, they do caution us that South's mean ceramic dates are open to revision.

If we examine South's bracketing dates, we find the assemblage ranges from a beginning date of about 1750 to a terminal date of about 1820. This closely resembles the bracket dates for the Colonial Kitchen which had a distinctly earlier mean date. Unlike the kitchen, however, we failed to identify any middens in close proximity to the main house (although we will discuss a midden area that does contain mixed eighteenth and nineteenth century deposits that may relate to changing owner episodes at the Colonial House).

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				9236	
English porcelain	1745-1795	50	54		0.000
Overglazed enameled porc	1660-1800	140	207		0.000
Underglazed blue porc	1660-1800	140	456		0.000
NA salt glazed stoneware	1826-1905	79	4		0.000
Nottingham stoneware	1700-1810	110	5		0.000
Westerwald	1700-1775	75	30		0.000
White salt glazed stoneware	1740-1775	35	158		0.000
White sg sw, scratch blue	1744-1775	31	33		0.000
White sg sw, slip dip	1715-1775	60	99		0.000
Black basalt	1750-1820	70	11		0.000
Eler's ware	1690-1715	25	7		0.000
Lead glazed slipware	1670-1795	125	158		0.000
Jackfield	1740-1780	40	26		0.000
Green glazed, cream body	1759-1775	16	2		0.000
Clouded wares	1740-1770	30	40		0.000
Agate wares	1740-1775	35	1		0.000
Decorated delft	1600-1802	202	112		0.000
Plain delft	1640-1800	160	91		0.000
Buckley ware	1720-1775	55	25		0.000
Creamware, annular	1780-1815	35	37		0.000
Creamware, hand painted	1790-1820	30	206		0.001
Creamware, blue trans print	1765-1815	50			0.000
Creamware, undecorated	1762-1820	58	3670		0.007
Pearlware, mocha	1795-1890	95	9		0.000
Pearlware, poly hand painted	1795-1815	20	104		0.001
Pearlware, blue hand painted	1780-1820	40	210		0.001
Pearlware, blue trans printed	1795-1840	45	1144		0.003
Pearlware, edged	1780-1830	50	244		0.001
Pearlware, annular/cable	1790-1820	30	97		0.000
Pearlware, undecorated	1780-1830	40	1309		0.004
Whiteware, green edged	1826-1830	4	2		0.000
Whiteware, blue edged	1826-1880	54	8		0.000
Whiteware, poly hand painted	1826-1870	44	97		0.000
Whiteware, blue trans printed	1831-1865	34	103		0.000
Whiteware, non-blue trans printed	1826-1875	49	77		0.000
Whiteware, annular	1831-1900	69	24		0.000
Whiteware, sponge/splatter	1836-1870	34	3		0.000
Whiteware, undecorated	1813-1900	87	354		0.000
Yellow ware	1830-1940	110	19		0.000

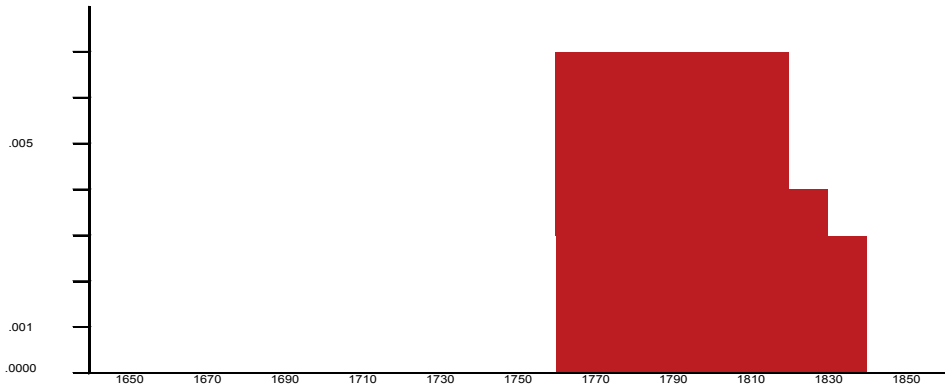


Figure 146. Salwen and Bridges dating for the Colonial House at Kendal Plantation.

Table 78.
Chronology for Shell-Edged Earthenwares Recovered in the Colonial House Excavations

Ceramic Type	Edged Design	Date Range	South's Mean Ceramic Date	#
Pearlware, Edged			1730-1830 (1805)	
Type A	Rococo	1784-1812		3
Type B	Impressed Curved Lines	1802-1832		18
Type C	Impressed Bud Motif	1813-1834		6
Type D	Impressed Straight Lines	1809-1831		21
Type E & F	Embossed Patterns	1823-1835		4
Type G	Impressed Repetitive Patterns	1841-1857		2
Whiteware, Green Edged			1826-1830 (1828)	
Type B	Impressed Curved Lines	1802-1832		1
Type D	Impressed Straight Lines	1809-1831		1
Whiteware, Blue Edged			1826-1880 (1853)	
Type C	Impressed Bud Motif	1813-1834		2
Type D	Impressed Straight Lines	1809-1831		2
Type E & F	Embossed Patterns	1823-1835		2
Type G	Impressed Repetitive Patterns	1841-1857		1

The Salwen and Bridges dates, shown in Figure 146, show a very strong similarity to these other dating techniques, suggesting a broad date of 1760 to 1840, with a peak from about 1760 to 1820 or about 60 years. These peak dates are identical to those of the Colonial Kitchen, although the kitchen was likely built slightly earlier. In addition, the Kitchen reveals a range of earlier ceramics contributing to the assemblage that we don't see in the House.

Thus, it seems likely that not only does the Kitchen predate the Colonial House, but the House, like the Kitchen, was cleaned up when the property passed out the Moore family holdings, initially to the Davis family in 1760.

At other blocks we have used tobacco pipe stem dating to supplement ceramic dating. However, since the pipe stems, by definition, cannot provide a date later than 1800, and we know that refuse from the area dates into at least the first third of the nineteenth century, the application of these techniques is not entirely appropriate. Nevertheless, for those readers interested, we provide the Binford date of 1754 and Heighton and Deagan date of 1756 (earlier than the dates obtained for the Colonial Kitchen) in Table 79.

Table 79.
Tobacco Pipe Stem Dates for the Colonial House

Bore Diameter	#		
4/64	69	276	
5/64	88	440	
6/64	10	60	
	167	776	
average bore diameter		4.646707	
Binford Date			1754
log of average bore diameter		0.667145	
		7.084988	
Heighton and Deagan Date			1756

Kendal House

We have several photographs of the Kendal House, which burned in 1919, and the abundant ruins provided a fairly detailed floor plan without excavations. Consequently, this structure received only modest investigation, with one or two units excavated in different structural components or rooms. The primary goal was to obtain collections that might assist in documenting different use areas and, in particular, better help us determine when the Kendal House was constructed.

Figure 147 illustrates the floor plan along with the seven 10-foot units that include portions of the structure. One of these units, 140R170, has been included in the Colonial House block and will not be included in these discussions, leaving six units comprising 600 square feet (80R190, 100R170, 100R200, 120R170, 130R170, and 130R200).

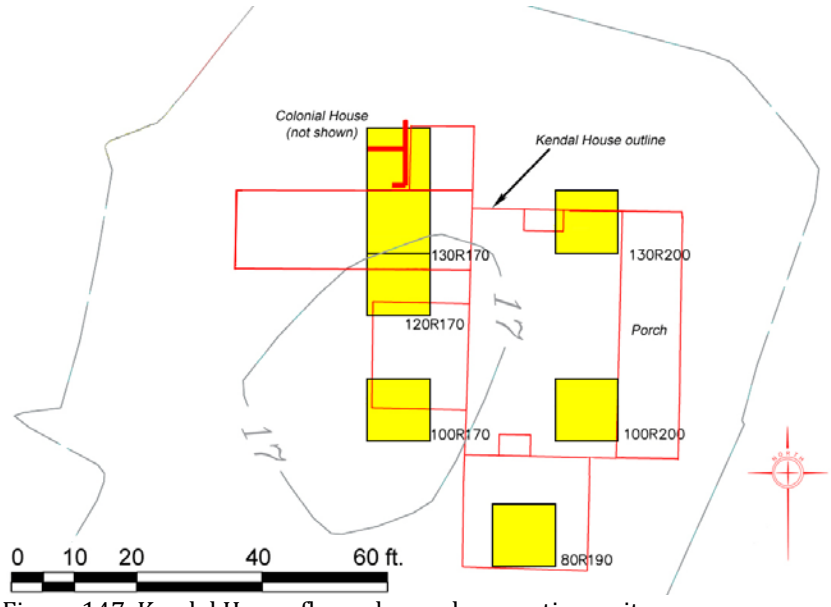


Figure 147. Kendal House floor plan and excavation units.

Since each of these units represents a distinct area or space of the Kendal House, it seems counterproductive to lump them together for these discussions. Instead, artifacts recovered in each house space will be briefly discussed and then some will be combined for dating purposes.

Unit 80R190 represents the southern addition to the main core. This was a single floor room measuring about 18½ by 20 feet. The east façade had only one window close to the main house core. The south façade had two windows and a door slightly offset to the west. The west façade had at least one tall, narrow window and another smaller window that appears boarded up in the one available photograph. It is possible that the room was heated by a fireplace.

Unit 100R170 is situated at the southwest corner of a two-story projection on the south end of the main core's west side. This space measured about 17½ by 16 feet. The available photographs show only two west facing windows on the second floor. On the first floor there was a south facing window, and a door and window on the west façade. Nothing can be seen on the north façade. A chimney stack suggests that the two rooms in this space each had a fireplace. Included in this unit was the structure's cistern, as well as considerable plumbing features.

Unit 100R200 is situated in the south room of the main house core. This is based on our belief that the

Table 80.
Artifacts Recovered from the Kendal House

	80R190	100R170	100R200	120R170	130R170	130R300		
Kitchen Group							1336	6.6
Chinese porcelain, undecorated	2		2	1	2	3		
Chinese porcelain, blue hand painted	13		5	3	10	9		
Chinese porcelain, poly HPDG	5	1	4	3	2	2		
Chinese porcelain, Batavia						1		
White porcelain, undecorated	1	2	2	1	4	5		
White porcelain, blue hand painted				1				
White SG SW	9		5	3	2	2		
White SG SW, scratch blue			1					
White SG SW, slip dipped	1		1		4	3		
Delft, undecorated	12		8	1	1	9		
Delft, polychrome hand painted	1		1					
Delft, blue hand painted	2		2	1	2	1		
Delft, sponged	5		1					
Lead glazed slipware	2	1	1			1		
Creamware, undecorated	4	4	12	12	47	6		
Creamware, poly hand painted		1		2	2			
Pearlware, undecorated			5	11	16	1		
Pearlware, blue hand painted			10	1	3	1		
Pearlware, poly hand pained					1	3		
Pearlware, annular					2	1		
Pearlware, green edged				3	3			
Pearlware, blue edged				1	2			
Pearlware, blue transfer printed		2		9	14	4		
Whiteware, undecorated	20	1	5	14	31	4		
Whiteware, poly hand painted		1	2	3	3			
Whiteware, edged	8				7			
Whiteware, blue transfer printed	4			7	7			
Whiteware, non-blue transfer printed	5		1	11	8	2		
Yellow ware, undecorated				1				
Yellow ware, annular				29				
Astbury ware	1							
Jackfield			1					
Clouded ware		1			1			
Refined earthenware, UID	1							
Tortoiseshell				1	5	2		
Nottingham		1				1		
Westerwald			1					
Gray SG SW			3	1	3	2		
Brown SG SW				4	1	1		
Coarse Red earthenware	2		3	1	7	1		
Buckley	3		2					
Burnt stonewares	5		10					
Burnt refined earthenware	30	58	15		17			
Glass, black	37	4	10	15	50	12		
Glass, aqua		8	1	7	4	1		
Glass, green	2							
Glass, light green	9	7	2	47	7	8		
Glass, brown	1	32						
Glass, other				3	3			
Glass, clear	11	40	8	140	10	11		
Glass, milk		11		48				
Glass, manganese	7	5		14				
Glass Tableware	6	2	1	7	7	13		
Utensil	1				1			
Kitchenware		1		3	8	1		
Colono ware						1		
Architecture Group							18490	90.9
Window glass	703	1083	86	979	980	82		
Brass door handle				1				
Butt hinge	3			2	11	2		
Pintle and hinge		1						
Pintle				16		5		
Strap hinges						2		
Shutter hinges				9	1	4		
Window pulley	1	3				2		
Window weights			2			4		
Sash lift		1	4			1		
Shutter fasteners		2		1	2	5		
Escutcheon fragments, brass					8			
Porcelain shutter knob		1						
Sash lock		1		1	1	2		
Window spring bolts						2		
Window screen, copper				7		1		
Window or blind screen staples					70	2		
Lock box parts	4		2	4	4	8		
Roofing lead, melted		P	P	P	P			
Gutter hook		1						
Brass, melted		P	1					
Bisque porcelain insulator				2				
Plumbing pipe	4	10	1	13	5			
Plumbing hardware	9	11	1		9			
Plumbing porcelain	149	38						
Clay pipe	44			1	16			
Paver	1							
Ceramic tile	1	3	33		3	63		
Delft tile			3		1	1		
Spike		1	2					
Nails, hand wrought		3		9	121			
Nails, machine cut	1406	956	2227	1862	1490	2230		
Nails, wire	30	42	35	189	463	80		
Nails, UID	446	348	487	997	390	136		
Furniture Group							152	0.7
Soap dish	1							
Cupboard latch				1		1		
Fire screen	1		12			7		
Fireplace tools						7		
Brass clothing hook	1							
Brass candlestick fragment	1			1		5		
Stamped brass lantern base	1							
Caster wheel		1			3			
Brass eye screw and ring		1						
Furniture butt hinges, brass					2			
Cupboard or drawer locks					4	1		
Wardrobe lock, brass						1		
Cupboard latch					1			
Drawer pull, brass					18	2		
Bed springs			13			13		
Tack, iron			1					
Oil lamp base				2				
Oil lamp chimney				3				
Lamp parts					1			
Mirror				2				
Floor lamp base				1				
Cast iron leg					1			
Curtain rod bracket				1	1	7		
Curtain ring, brass					1	2		
Drapery pins					21			
Window shade brackets			3			6		
Picture hangers						3		
Picture nail						1		
Stove parts						10		
Decorative pot					1			
Arms Group							7	0.0
Lead shot	1							
Gunflint flakes	1				2			
Shotgun shell base, brass				2				
Shotgun powder and shot measure					1			
Tobacco Group							16	0.1
Pipe stems, 4/64-inch	4	1	1		1			
Pipe stems, 5/64-inch			1		3			
Pipe bowl fragments				1	1			
Stub stem pipe frag			1			2		
Clothing Group							7	0.0
Buttons	1	1		1	1	2		
Pins				1				
Personal Group							3	0.0
Other			1		2			
Activities Group							319	1.6
Construction tools						2		
Farm tools			1	1				
Toys	1			7	15			
Stable and barn items		1		1		1		
Misc. hardware	23	16	9	59	43	65		
Other	21	4	4	34	2	9		
TOTAL	3,068	2,713	3,056	4,620	3,997	2,891	20,345	

Kendal House had a through-hall plan with two rooms on each floor. This main core measured 40 by 24 feet. The east, or main, façade included on the first floor a centered entrance, flanked by two windows on each side. Thus, unit 100R200 was situated between two windows against the east structure wall. The second floor mirrored the first except that a door to a second floor porch (no longer present) was offset from that on the first floor. At the north end of the room was a centered interior chimney flanked by two windows on both floors. There was at least one second floor window on the south façade, as well as the external chimney stack.

Unit 120R170 was located between the space explored by 100R170 and a long westward projecting extension. It was intended to examine an area shown in the photograph as occupied by a flight of stairs, presumably accessing the second floor of the main house core (although why is uncertain).

Unit 130R170 was located in the long, two-story addition to the main house located at its northwest corner. This extension measured 12 by 36½ feet. The south façade reveals a door at the west end and two windows west of the stairs on the first floor. On the second floor there are three windows, matching the openings on the first floor. The west façade is punctured by only a single, centered window on the second floor.

Unit 130R200 was located bisecting the north wall of the main house core, incorporating a portion of the chimney base in that area.

The final structural extension, located on the north side of the long westward projecting extension, was not specifically investigated, although portions of its wall were encountered in 140R170, discussed with the Colonial House. This addition measured only 10 feet square. Its east façade lacked windows, and there is no indication of steps on its north façade.

Thus, the Kendal House contained a central, and historic core, measuring about 40 by 24 feet, with four projections. All of the structures were supported by brick piers about 2 feet off the ground with brick infill in most areas. The quality of both the piers and the infill varied dramatically.

Unit 80R190

This unit produced 3,068 artifacts, or about 44 specimens per cubic foot. The collection is dominated by architectural items, which account for 92.3% of the assemblage, followed by Kitchen Artifacts (6.8%) and Activities items (1.5%).

In the Kitchen Artifact Group the whitewares comprise the single largest ceramic assemblage, although they account for only 27.2%. However, if the burned materials are excluded and only identifiable ceramics are examined, then the whitewares account for 37% of the total. In either case, the unit produced a broad range of eighteenth and early nineteenth century ceramics, including Chinese porcelains, delft, white salt glazed stoneware, and creamware. Black glass, representing eighteenth and nineteenth century wine and beer bottles, was the most common glass, although later materials, such as manganese glass, were recovered in small quantities. A single fragmentary bone utensil handle fragment was recovered, as were several fragments of probable eighteenth or early nineteenth century tumbler fragments.

Table 81.
Vessel Forms at 80R190

	Hollow Ware		Flat Ware		Serving				
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid
Chinese porcelain, undecorated	1								
Chinese porcelain, blue hand painted	2	2							
Subtotals	5		0				0		
Buckley ware						1			
Subtotals			0				1		
Coarse Red Earthenware						1			
Subtotals	0		0				1		
Whiteware, undecorated	1	2							
Whiteware, edged				1					
Totals by Function	8		1				2		
%	72.73		9.09				18.18		

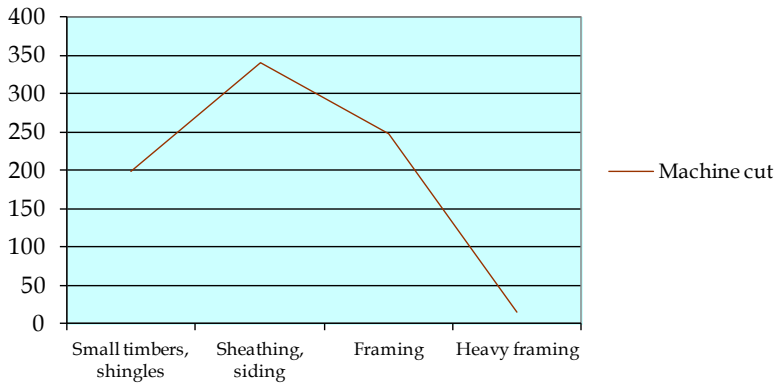


Figure 148. Nails recovered from unit 80R190 in the Kendal House.

This assemblage produced only11 vessels, all tablewares (Table 81). Given the small sample size and mixture of eighteenth and nineteenth century ceramics, we hesitate to draw any conclusions, except perhaps that this portion of the Kendal House did not see a great deal of trash disposal.

The Architecture Group produced a significant array of specimens associated with the Kendal House, including 1,406 cut nails and 703 fragments of window glass. The nails are almost exclusively machine cut with machine applied heads, indicating a post-1815 construction date. Figure 148 graphs the different size nails by function, revealing the most common nails were of a size intended for sheathing – consistent with the known construction of the Kendal House. The presence of framing nails also suggests a nineteenth century construction date, as craft traditions were eroding in the face of new technologies.

The next most common architectural artifact is plumbing porcelain, with the recovery of 149 fragments of porcelain sink pedestal, sink with molded decorations, and toilet bowl. In this same plumbing category are four fragments of iron and copper pipe, nine plumbing hardware items, and 44 fragments of clay waste pipe. The plumbing hardware includes a basin cock, a tail piece and coupling for a basin cock, a brass plumbing screw, and brass toilet parts.

Unfortunately, none of the plumbing items have a maker's mark, although the sink pedestal has the stamped number, 728, which is likely a part number. Their presence, however, indicates that the southern extension was most likely the location of a full bathroom, including a tub, sink, and toilet. Water would have come from the cistern. Waste lines may have led to an undiscovered septic tank, or possibly to the nearby marsh.

Building hardware included two different sizes of butt hinges, four of which measure 5¼ by 2¼-inches and one which measures 4½ by 1¾-inches. Door locks included three lock boxes, one of which was marked "[SAR]GENT & CO." Also present was a metal doorknob and shank and a brass door strike plate.

None of these items are temporally diagnostic, although Sargent & Company wasn't incorporated until 1857, so this rim lock must post-date the middle of the nineteenth century.

Unit 80R190 produced a small, but interesting, assortment of furniture items. Among these items and associated with the previously discussed bathroom fixtures, is a white earthenware soap dish measuring 4½ by 3⅜-inches. It is stamped with a common Royal Ironstone China imprint used by Alfred Meakin (Godden 1964:425, Lage 2004:213), except that "Alfred" is abbreviated "A." We have not been able to document this variation in the mark, but suspect it post-dates 1897.

Also recovered was an iron and brass fire screen measuring 32-inches square. This provides additional evidence that the southern fireplace in

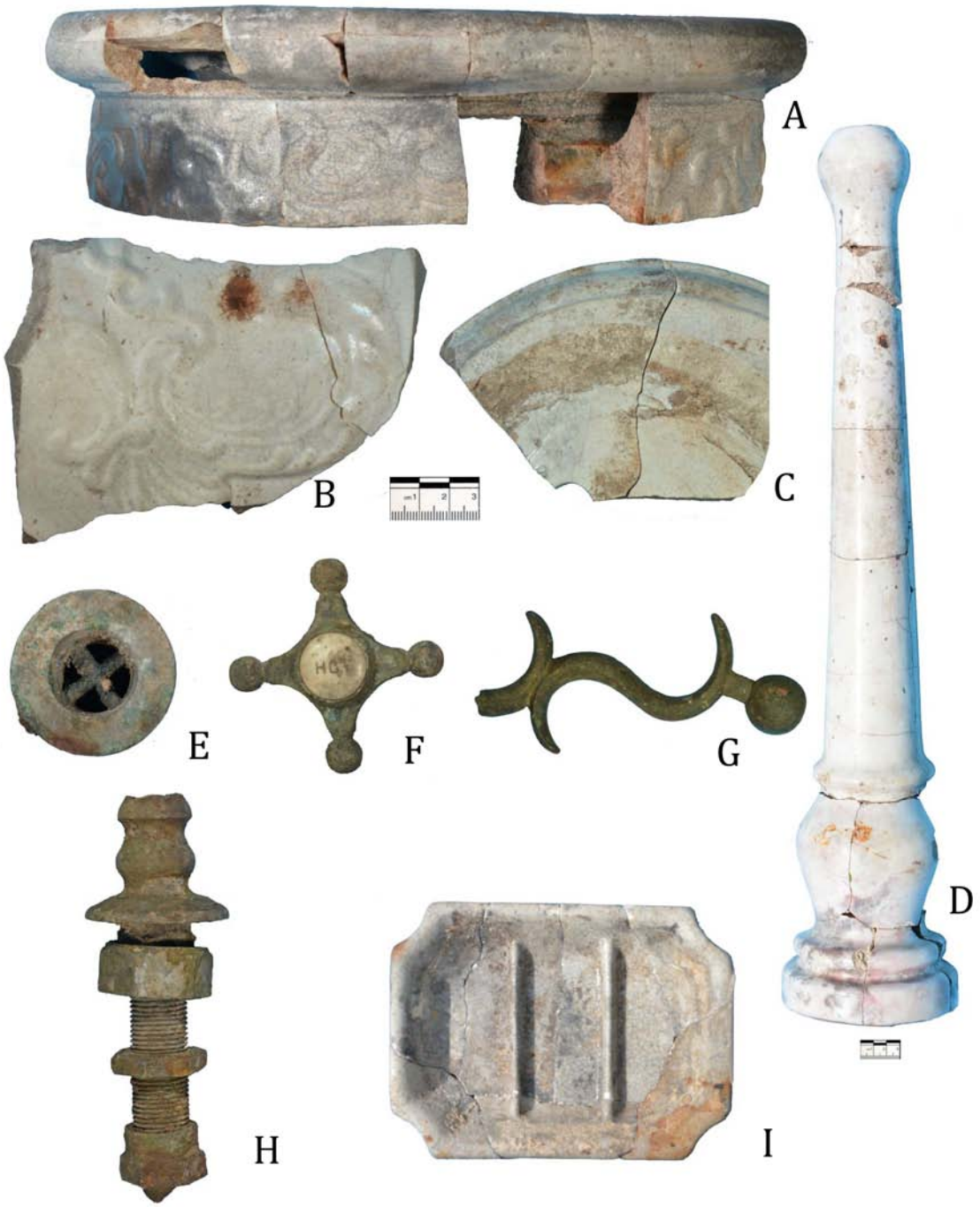


Figure 149. Bathroom plumbing items from the Kendal House. A-B, molded porcelain toilet bowl; C, porcelain sink; D, pedestal stand for sink; E, brass strainer for sink; F, brass basin cock with porcelain "HOT" insert; G, brass clothes hook, probably from bathroom; H, tail piece and coupling for a basin cock; I, white ironstone soap dish.

the main house core was relocated when the southern addition was added, resulting in a fireplace for rooms on both sides.

The brass candlestick fragment is heavy and well molded. It originally appears to have had silver plate and we can imagine it was on the mantle. An ornate brass hat or clothing hook might have been installed in the bathroom.

A final item is the remnants of a stamped brass lantern marked C.T. Ham Co. Charles Ham left the Steam Gauge & Lantern Company in 1886 to start his own company and it is that year that there begin to be patents issued in Ham's name. The Dietz Company purchased the C.T. Ham Manufacturing Company in 1915, moving its operations to Syracuse, New York. Thus, this lantern – intended for farm work, not interior illumination – was likely used sometime between 1886 and the Kendal House burning in 1919.

The one button recovered from this unit is South's Type 13, with a black, faceted glass setting that measures 17mm in diameter.

The mean ceramic date for this assemblage is remarkably early – 1794 – probably as the result of a smear of eighteenth century ceramics from the nearby Colonial Kitchen and House. This "smear" likely explains why the Salwen and Bridges dating suggests an occupational peak about 1740-1775, with a stronger and more pronounced occupation between 1810 and 1900. Added to this, the ceramic makers' marks are all late. The Meakin mark previously discussed post-dates 1897. Another mark, for Maddock Pottery, post-dates 1904 (Lage 2004:202).

The window glass for this unit was measured and the date calculated, using the Moir (1982) formula ID = 84.22 (TH) + 1712 previously discussed in the Artifact Section. The 684 flat glass fragments yield a mean thickness of 1.68mm and a date range of 1854±12 years. This nicely fits the mid-point of the Salwen and Bridges date range.

Unit 100R170

This unit is situated at the southwest corner of the western two-story extension and explored an area that included the cistern (Feature 4) and other plumbing features. The unit produced 2,017 artifacts, or 29 artifacts per cubic foot. It is dominated by architectural remains which comprise 92.3% of the total collection. Kitchen artifacts contribute only 6.7% of the assemblage, followed by Activities items which contribute an additional 0.8%.

Fifty-eight of the 73 ceramics (52%) are burnt earthenwares. Of those that can be identified, four are undecorated creamwares, two are blue transfer printed pearlwares, and an additional two are white porcelain (probably American). The remainder of the assemblage consists of individual specimens. Only two vessels can be identified in the assemblage – both creamwares – including a plate and a creamer.

Most of the glassware is either clear (n=40) or light green (n=32). While milk glass was produced as early as the sixteenth century, the specimens from Kendal date from the Victorian period.

The two fragments of tableware are clear tumbler with an engraved fret design. These are likely associated with the eighteenth century occupation. Also recovered was a "drop handle," consistent with those used on wash tubs.

The architectural items consist primarily of window glass (n=1083, 50%) and machine cut nails (n=956, 44%). All of the machine cut nails, except one, are post-1815, with machine applied heads. Figure 149 shows the distribution of nail sizes by function. A different pattern is seen in this assemblage than from 80R190. In Unit 100R170 the small nails for lath and shingles dominates, with a significant decline in the prevalence of sheathing nails and a secondary peak for framing nails. Given this addition was two stories and the unit was excavated at two wall lines, we are unable to explain why sheathing nails are so uncommon. The presence of small shingle nails,

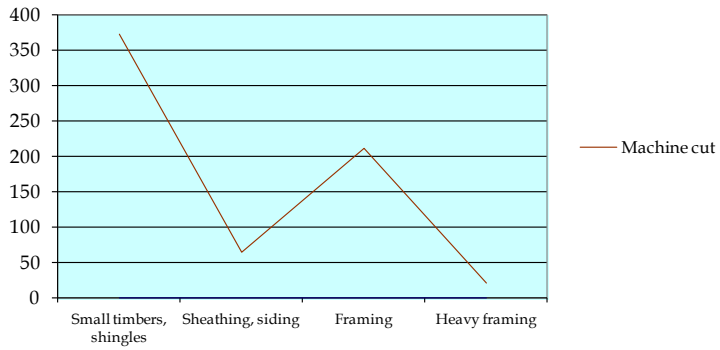


Figure 150. Nails recovered from unit 100R170 in the Kendal House.

given the presence of a metal roof, suggests that the metal roof had been installed over the pre-existing wood shingles. In both areas, heavy framing nails were not extensively used, indicating the continuing presence of craft traditions.

A very large quantity of melted lead was recovered from this area, representing lead seams on the metal roof which melted during the 1919 fire.

Plumbing items continued to be common, including 10 fragments of pipe, most of which was associated with the cistern and its associated pump. Included are lead, brass, iron, and clay pipes for water distribution and waste lines. Plumbing hardware includes strainer fragments from the water filtration feature emptying into the cistern, trap pipe for a sink, iron pipe brackets, a brass sink drain, and a brass plumbing fixture, perhaps for a gas lamp. Also present were 38 fragments of porcelain, most associated with a sink.

Nine of the architectural items are associated with the Kendal House windows, including a pintle and hinge, probably for a shutter; three window pulleys; a sash lift; two shutter fasteners; a sash lock; and a porcelain shutter knob. Many of these items match specimens recovered from the Colonial House.

Also recovered were a gutter hook from the roof line and pipe hook, both associated with the complex water collection devices at the Kendal House.

Because of the proximity of the southern fireplace, this unit also produced several fireplace tiles, found more abundantly in 130R200. These tiles were marked on their backs, "A.E.T. CO. LTD." These tiles, measuring 3 by 1½-inches, were manufactured by the American Encaustic Tiling Company of Zanesville, Ohio. The company was founded in 1875, making tiles to compete with the English tiles that were selling in the United States for fireplaces and other architectural designs. Their first glazed tiles were manufactured in 1880 and the firm closed in 1935. The presence of these tiles suggests that the southern chimney was reworked post-1880.

A 1912 catalog describes the "'ARTCO' Wall Tiles" noting they were "fireplace and wainscoting tiles," with the specimens recovered from Kendal probably being their line of, "ENAMEL – GLAZED – Made in bright Enamel colors; Onyx colors, Marble colors, and Matt Glazes" (Associated Builders Catalog Co. 1912: Section 24, Catalog 3).

Furniture items are represented by only two items, a portion of a white porcelain caster and a brass eye and ring.

The single button recovered from this area was a 4-hole porcelain, Type 23 Prosser button. This button post-dates 1840 (Sprague 2002).

Activity artifacts are dominated by miscellaneous hardware, including primarily gimlet pointed screws that post-date 1846.

The mean ceramic date for this unit is also early – 1788 – although a variety of artifacts point to a mid-nineteenth century date, such as

the Prosser button, the AECO tiles, machine cut nails, and gimlet screws. The one maker's mark present is for John Maddock & Sons, which Godden (1964:406) dates after 1896.

The window glass from this unit includes a number of thick fragments that force the resulting date into the 1940s – long after the Kendal House burned. We suspect that glass from off-site, perhaps from Orton greenhouses, was dumped at Kendal, and this has thrown off the dating. If, however, we use only the glass from within the foundation limits and troweling, the 151 fragments yield at date of 1905±12 – certainly within the probable limits based on other artifacts. If this date is correct, then this two-story addition represents one of the later additions on the Kendal House.

Unit 100R200

As previously discussed, this unit was excavated in the southern room of the presumed Kendal House core. A total of 3,056 artifacts were recovered, producing a density of about 44 artifacts per cubic foot. Most of these artifacts are architectural, primarily window glass and nails.

Kitchen items contribute only 125 items, representing 4.1% of the assemblage. Ceramics are the most common kitchen artifact, accounting for 82% of the total (n=103). Many of these ceramics are eighteenth century wares, including creamwares, delft, porcelain, and white salt glazed stoneware. Pearlwares and whitewares account for only 23 specimens (22%).

The minimum vessel count includes 11 vessels (Table 82). Hollow wares dominate the collection, although with such a small sample it is difficult to draw any conclusions.

Kitchenware items account for only one item – a fragment of a pressed glass decanter of indeterminate age.

While container glass is present, most of the fragments are very small. The one identifiable item is a machine molded aqua glass bottle with "[TR]ADE / [TI]VOLI /MARK / [ALEXA]NDRIA, VA." This bottle came from the Robert Porter Brewing Company, known as the "Tivoli" (I Lov It spelled backwards) brewery. The brewery was established in 1862 and closed with prohibition in 1918. The bottle, however, is typical of the 1883-1916 period.

Nails account for 95% of the architectural remains from 100R200, with window glass contributing a very low proportion (only 3%). The nails are almost entirely machine cut and all of the identified specimens have machine applied heads, dating them after 1815.

The most common nails are of a size likely used for lath or shingles. We have previously suggested that the original wood shingle roof was still present and covered with metal. Nails used for sheathing and framing are equally common; nails for heavy framing are almost absent, indicating that craft building traditions were still prevalent when the Kendal House was erected.

Plumbing parts are far less common than in either 80R190 or 100R170, suggesting that no

Table 82.
Vessel Forms at 100R200

	Hollow Ware		Flat Ware		Serving	Utilitarian
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Chamber Pot
Chinese porcelain, poly HPOG			2			
Subtotals	0		2		0	0
Delft, undecorated		1				
Subtotals	1		0		0	0
White SGSW		1				
Subtotals	1		0		0	0
Buckley ware					1	
Subtotals			0		1	0
Westerwald	1					
Subtotals	1		0		0	0
Creamware, undecorated		1		1		1
Subtotals	1		1		0	1
Whiteware, undecorated		1				
Whiteware, hand painted				1		
Subtotals	1		1		0	0
Totals by Function	5		4		1	1
%	45.45		36.36		9.09	9.09

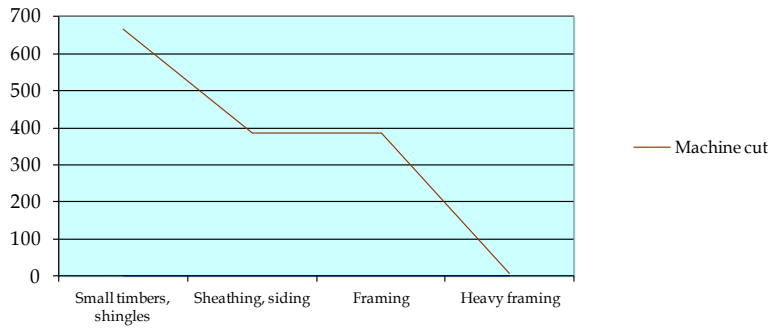


Figure 151. Nails recovered from unit 100R200 in the Kendal House.

plumbing was present in the main Kendal House core. The "ARTCO" tiles, however, are more common, representing scatter from the fireplace in the south room.

Two window weights were recovered, both of cast iron and with an "X" cast into the weights at the end where the sash cord would be attached. These weights measured 20-inches in length and were 1½-inches in diameter. They weigh 9¼-pounds. The combined weight of the sash counterweights must match the full weight of the glazed sash to which it is installed. Thus, the Kendal sashes must have weighed about 18 pounds.[1]

In the Furniture Group we found additional fragments of fire screen. Also recovered were several roller blind hangers and remnants of a mattress box spring. Spring rollers are a nineteenth century innovation and mattress springs did not become commonplace until the mid-nineteenth century.

The Personal Group produced a single item – a pierced 1846 penny. The coin is in excellent condition, suggesting it was both pierced and lost shortly after minting.

The ceramic assemblage from the southern room of the main house core produced a mean date of 1775. The Salwen and Bridges dating reveals a low level of occupation spanning the entire period of Kendal history, from the early eighteenth century through the early twentieth century. Nevertheless, the densest occupation, according to this formula was between 1760 and1820.

Figure 152. Puddled lead from the metal roof.

In spite of the ceramics, other artifacts, including machine cut nails, a single coin, an unusual beer bottle, porcelain and brass bathroom fixtures, and several furniture items all point to a mid- to late-nineteenth century date.

The window glass from this unit (n=107)

[1] Generally 2 pounds were added to the top sash total weight (1 pound each side) so that the counterbalance weights would be heavier than the top sash to ensure that it always stayed tightly shut. Similarly, 2 pounds were subtracted from the bottom sash total counterbalance weight so they would be lighter than the bottom sash to prevent the sash from rising.

Figure 153. Penny recovered from 100R200 in the Kendal House.

with a mean of 1.83mm yields a date of 1866±12 (Moir 1982). This is consistent with artifacts other than ceramics, indicating that the main core of the Kendal House was built during the antebellum, although it seems increasingly likely that either smear from the Colonial structures or possibly even another Colonial structure was present in the immediate footprint of the nineteenth century house.

Unit 120R170

This 10-foot unit was situated partially within the two westward extensions on the rear of the Kendal House, but primarily incorporated the space filled by the stairs to the second level. A total of 4,620 artifacts were recovered from the unit, resulting in an artifact density of 66 artifacts per cubic foot. As with other units associated with the Kendal House, over 90% of this assemblage represents architectural remains; kitchen remains are even less common here than elsewhere in the excavations.

The Kitchen Artifact remains include 125 ceramics, primarily yellow wares and whitewares, and 281 glass artifacts, primarily 140 clear glass container fragments. Only 14 of the ceramics (11%) predate the nineteenth century; this is the first unit that, in spite of its proximity to the Colonial House, is dominated by nineteenth century remains. Even if the creamwares are included, over three quarters of the ceramics are mid- to late-nineteenth century.

This assemblage, although small, is heavily weighted toward flat wares, which account for nearly four-fifths of the minimum vessel count (Table 83). Two serving vessels account for an additional 15% and the remainder of the collection consistzs of one utilitarian vessel. While the pearlwares are all inexpensive motifs, all of the recovered whitewares are considered expensive or high status.

Although clear glass is especially numerous, most of the fragments are small and cannot be attributed to a specific type of vessel. We did, however, recover the remains of at least one clear glass canning jar with a molded base identifying it as the remains of the "Safety Valve" style used between 1895 and the terminal date of the site (Toulouse 1977:70). Other fragments have molded liquid measurements on the side and are likely associated with either a baby or medication

Table 83.
Vessel Forms at 120R170

	Flat Ware		Serving	Utilitarian
	Saucer	Plate	Bowl	Chamber Pot
Chinese porcelain, poly HPOG		1		
Subtotals	1		0	0
White SGSW		1		
Subtotals	1		0	0
Creamware, undecorated		2		
Subtotals	2		0	0
Pearlware, annular		4		
Subtotals	4		0	0
Whiteware, transfer printed	1	1	1	
Subtotals	2		1	0
Other ceramics			1	1
Subtotals	0		1	1
Totals by Function	10		2	1
%	76.92		15.38	7.69

bottle.

There are also seven tableware items, including fragments of a footed vessel, two tumblers, a decorative bottle (probably for condiments), a decanter with an engraved design, and a container with the engraved letters, "zed."

The kitchenware items include a "can key" and two hole-in-top, stamped lids. While the can key was manufactured by about 1866, its condition argues for a late nineteenth century date. The can fragments likely post-date 1847 (Rock 1984:100).

Nearly three-quarters of the architectural remains (n=3,057, 74.7%) are nails, with machine cut nails accounting for 60.9% of the collections (an additional 997 or 32.6% were too fragmented or corroded to further identify). Window glass accounts for an additional 979 fragments or 23.9% of the architectural collection.

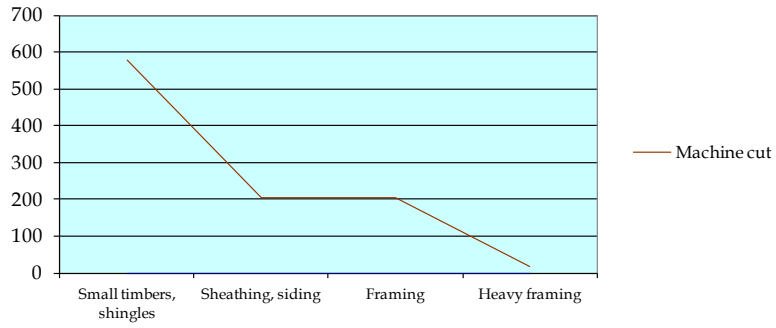


Figure 154. Nails recovered from unit 120R170 in the Kendal House.

Figure 154 reveals that the distribution of nails is nearly identical to that found in 100R200, with a predominance of small nails for lath and shingles and a relatively low incidence of nails for traditional siding.

There were an additional 57 architectural items, including 13 fragments of plumbing pipe and 16 pintles or pintle fragments. The latter were most likely associated with shutter hinges, nine of which were also recovered in the collection. Two butt hinges and a fragment of a brass latch were also recovered. Fragments of copper window screen document that at least some of the Kendal windows received protection against mosquitoes and other insects, probably not long before the structure burned in 1919.

The 1897 Sears catalog illustrates window screen (1/16th-inch mesh), painted either black or green and even sells paint "that will not clog meshes of screens" for rejuvenation of rusted wire (Sears, Roebuck and Company 1897:757-758). Some of pre-manufactured screens were "painted and varnished." By 1923, however, Bering-Cortes offered "golden bronze" as a more expensive alternative that was "practically indestructible" and would not "rust nor corrode" and required "no paint nor lacquer" (Bering-Cortes Hardware Company 1923:354).

Two mending fragments of a tube-type porcelain electrical insulator, known as knob and tube, were recovered. Myers (2010:33-34) notes that this was the "cheapest and easiest form of electrical wiring" accompanying rural electrification between 1890 and 1930. Tod (1977) notes that the "G" molded into the insulator is "unattributed." It seems unlikely, given the amount of excavation conducted, that Kendal would have had electrical service and only a single insulator would be recovered. It seems more likely that the insulator was discarded on-site by a worker who had made repairs at Orton, where electrical service was added during the early twentieth century.

Eleven furniture items were recovered from Kendal, including six items that address the absence of electrical service at Kendal, including a brass candlestick holder fragment, two fragments of an oil lamp, and three fragments of clear glass lamp chimney. What we believe to be a metal floor or table lamp base was also recovered.

Two mirror fragments were recovered, although neither evidenced beveled edges. Also present was a curtain rod holder bracket.

Two brass shotgun shell bases were recovered from 120R170. One was stamped, "WINCHESTER / No. 12 / REPEATER," a brand that dates from 1896 to 1938. The other headstamp is "REM-UMC / No. 12 / NEW CLUB." Remington combined with UMC to form "REM-UMC" from 1911 to 1934. Since neither cartridge was burned, it is likely that they were deposited after the 1919 fire, dating them to the first third of the twentieth century.

The one button is another example of a 4-hole Prosser style that post-dates 1840. The other clothing item is a fragment of a brass safety pin. The fragment remaining is most similar to the Jenkins safety pin patented on May 1, 1883 (Patent 276,971).

The Activities related category is dominated by miscellaneous hardware, including 56 gimlet screw fragments, post-dating 1846.

The mean date for the ceramics present in this unit is 1833, consistent with the pearlwares and whitewares recovered in the unit. When the Salwen and Bridges dating is examined, there is a smear of occupation as early as 1740, consistent with the nearby Colonial structures, but the densest occupation extends from about 1760 to 1910.

Seventy-two fragments of window glass were measured, producing a mean thickness of 1.97mm. This thickness is consistent with a date of 1877±12.

Unit 130R170

This unit is situated adjacent to and immediately north of 120R170, just discussed. We have not combined the two units since it is likely the remains from this unit come from a different portion of the Kendal House, although certainly overlap exists. Unit 130R170 was located in the long, two-story addition to the main house located at its northwest corner.

The unit produced 3,997 artifacts, with just under 90% of the collection representing architectural remains. Artifact density is about 40 specimens per cubic foot, within the range produced by other units in the main house.

Only 207 ceramics were recovered in the unit, with over a third (36.7%, n=76) representing creamware or earlier wares. The remainder are primarily nineteenth century pearlwares and whitewares. The contribution of earlier ceramics compared to 120R170 is the result of the current unit being situated partially within the Colonial House to the west.

Tablewares compose 92% of the ceramic assemblage, with utilitarian ceramics contributing the remaining 8%. The flat wares (plates and saucers) account for two-thirds of the assemblage, followed by hollow wares (cups and bowls) at 21%. If we distinguish teawares from the hollow wares, then 50% of the collection is flat wares, nearly a third of the items represent teawares, and only about 14% are bowls (hollow wares). This suggests an elite table with an emphasis on elaborate plated meals.

When we look at motifs, we see a mixture of both expensive (transfer printed and hand painted) and inexpensive (annular and edged) motifs, perhaps reflecting the mixture of refuse from both owner and enslaved, the changing fortunes of the owners, or the very small sample size. The pearlwares are dominated by less expensive motifs, stabilizing during the later nineteenth century with whitewares consisting of equal portions of both expensive and inexpensive motifs.

The container glass represents about a quarter of the kitchen artifacts (25.2%, n=74). Black glass dominates with 50 specimens, nevertheless the materials are so fragmented, we can discern only two vessels in the assemblage, one black glass wine bottle and one clear glass pharmaceutical bottle.

Figure 155. Two arms of a nutcracker.

The seven tablewares include, minimally, a tumbler and a footed vessel.

Kitchenwares contribute nine items, four of which are nutcracker fragments. These represent two complete and identical nutcrackers. Manufactured of iron, they consist of two levers retained by a rivet and measure 6-inches overall. Forward of the rivet is one set of small jaws and on the handle side of the rivet is a second set of larger jaws. By the late nineteenth century nutcrackers were commonly for sale in hardware catalogs, although the precise design found in 130R170 has not been located. The 1897 Sears, Roebuck catalog offered nutcrackers, nickel plated, for 5¢ each (Sears, Roebuck and Company 1897:98). Another two fragments in the assemblage represent the remains of a corkscrew. These, too, were available for as little as 5¢ (Sears, Roebuck and Company 1897:98).

The remaining kitchenware items include a fragment of an 8-inch kettle, a two-tine cooking fork, and a brass ferrule or ring for attaching a handle to a utensil. In the Russell and Erwin 1865 catalog these forks were called "Iron Handle Flesh Forks" and might be 13 or 16 inches in length (Russell and Erwin 1980 [1865]:345). By 1897 the Sears catalog identified them simply as "Extra heavy tinned iron Kitchen Forks" (Sears, Roebuck and Company 1897:131).

The architectural artifacts consist of 3,575 specimens, most of which are nails (68.9%, n=2,464) or window glass (27.4%, n=980). The nails include hand wrought, machine cut, and wire specimens, with the machine cut nails accounting for 60.5% of the nail collection (n=1,490). We speculate that the wrought nails are scattered from the Colonial House, while the wire nails are likely evidence of expansion or repair at the Kendal House.

Figure 156 reveals a different size distribution than seen in 120R170, with shingle nails, siding nails, and framing nails all nearly equal in number, although as with other units in the Kendal House, heavy framing nails are almost non-existent. We believe this difference in distribution is related to construction. While all of the house was sided in cypress shingle, the core had a metal roof. On this section of the house, however, there was a wood shingle roof. Therefore, we might expect abundant nails used in both singling and siding.

The next most common items are ⅝-inch iron staples known as blind staples. Available at least by 1868, one patent described that they were, "used to connect revolving blind-slats with the rod so that a number of slats may be revolved at the same time, and are held in their proper relative position to each other" (Letters Patent No. 84,5285, *Improvement in Blind-Staples*, December 1, 1868). They are also known as shutter staples and are found on interior (not exterior) shutters.

Sears does not offer this staple in their 1897 catalog, although present are "wire cloth staples" (Sears, Roebuck and Company 1897:757). Identical staples are, however, being offered in a 1923 catalog under the term "blind staples" (Bering-Cortes Hardware Company 1923:179). We suppose that these staples might find other uses, including the attachment of window screen (found in the previous unit).

Thirty plumbing items were recovered from the 130R170 excavations, including 16 fragments of clay waste pipe, five fragments of pipes, and nine items of plumbing hardware. These include two brass handle fragments similar to "levers" found on ground keys, a brass sink or tub drain with a brass stopper, and a variety of

fairly complex fittings, including brass cocks and handles. The pipe fragments include both copper and iron pipes.

Window and door hardware is also quite common, including 11 butt hinge fragments, four lock box fragments (including a nearly complete rim lock and a stamped metal door knob), a sash lock, two shutter fasteners, a fragment of a shutter hinge, and eight brass escutcheon fragments. All of these trimmings are similar, or identical, to previously identified Kendal House hardware.

Also present in the collection are several ceramic tiles impressed "A.E.T. CO. LTD." and measuring 6 by 1½-inches.

Thirty-three furniture items were recovered from the unit, representing 1.3% of the assemblage from 130R170 – a relatively high proportion of the collection. Most common are items associated with curtains, including 21 "drapery pins," one round brass curtain ring, and one curtain rod bracket. The hooks themselves are most interesting, identical to those for sale in a 1932 catalog and described as "steel wire, brass plated . . . for attaching draperies or curtains to rings on poles" (Belknap Hardware and Manufacturing Company 1932:3024).

This style appears almost identical to the Lewis and Driggs "Drapery Pin and Hook" (Patent 467,139 dated January 12, 1892). Despite its appearance in a 1932 catalog, the design predates the invention of non-sew-on drapery hook and ring by James W. McGhee in the 1920s (and, of course, the house burned in 1919).

Nearly as common are brass drawer or cabinet pulls with 18 specimens. These are likely from not only furniture, but also the types of standing cabinets that might be found in a turn-of-the-century kitchen. Two small brass butt hinges were also present in the collection.

There are also five drawer or cupboard locks (i.e., containing only an exterior keyway and intended to be mounted inside the door or drawer with the keyway exposed). All were found in the unlocked position. Two caster wheels were recovered, one all iron and another which originally had a porcelain wheel. A leg from an iron sewing machine stand was also recovered.

An item that speaks to an effort to beautify the house is a decorative pot used either to contain a secondary pot or for arrangement of cut flowers. Similar flower pots are illustrated in the 1895 Parker and Wood catalog (Parker and Wood 1895:7). While most flower pots, even the more artistic varieties, were sold with saucers (indicating the presence of drainage holes), a few were sold "with inside pot," indicating the exterior pot was intended to be decorative, allowing already potted plants to be displayed and easily changed out. The presence of a glazed, exterior pot also offered protection to interior furnishings.

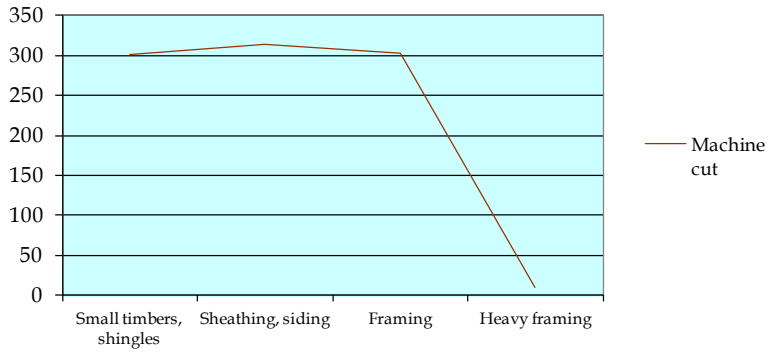


Figure 156. Nails recovered from unit 130R170 in the Kendal House.

Besides two small flint flakes in the Arms Group, the only other artifact is a brass shotgun powder and shot volume measure. The cylinder measures ⅛-inch in height and has a diameter of ¾-inch. It is adjustable with markings for 1, 1¼, and 1½ ounces. The base is stamped "1106." These devices are still manufactured today, although generally the measures are 1, 1¼, and 1¼

Figure 157. Brass shotgun powder and shot volume measure.

ounces. These were intended for the field loading of power and shot in muzzle loading shotguns, with the volume dependent on the gauge of the shotgun. In general, volume is considered a better system than weight, and both powder and shot would be added in equal volumes.

Muzzle loading shotguns range back in time to the eighteenth century when there were flintlock shotguns, often known as "Bank Guns," since they would be shot at waterfowl from banks. Regardless, the presence of this artifact likely dates from the late nineteenth century, based on condition and overall appearance. It is likely associated with the percussion caps found in the Kendal root cellar (discussed in a following section of this report).

The single clothing item from 130R170 is a South's Type 16 brass button.

The only personal items are two identical steel keys intended for the drawer locks previously discussed. One of the keys evidences adhering melted brass from the keyhole, indicating that the key was inserted in the lock at the time of the fire.

The Activities Group is dominated by miscellaneous hardware items, primarily screws. Of more interest are the 15 fragments classified as toys. These represent the remains of at least three toy porcelain dishes, including a plate (which mends with fragments from 120R170), a cup, and a saucer. These suggest a set and the presence of a child at the site, possibly at the time of the fire.

The mean ceramic date for the collection is 1808, about 25 years earlier than the date from 120R170. Both units, however, have a similar Salwen and Bridges dating pattern, with occupation beginning perhaps as early as 1760 and extending to about 1900. The current unit does reveal more intense occupation, especially prior to about 1830. Thus, these dates may reflect the influences of the adjacent (and partially overlapping) Colonial House.

When the thickness of the 980 fragments of window glass is measured, a mean of 2.08 is obtained. This yields a date of 1887±12 years (Moir 1982). This seems to be a relatively reasonable mean date for this structural addition and it may have been constructed shortly after Kidder's purchase of the property in 1882.

Unit 130R200

The last excavation unit within the Kendal House, at 130R200, is situated at the northeast corner of the main structure's presumed core. It would have encompassed the north and east walls of the northern room, including a substantial portion of the northern fireplace.

The unit produced 2,891 artifacts, resulting in an artifact density is 41.3 per cubic foot. This is consistent with other areas of the main Kendal House and, like elsewhere, architectural remains dominate the collection, contributing 91% of the specimens.

Kitchen artifacts consist of 112 specimens, over half (58%) being ceramics. Most of these ceramics consist of only a few specimens and the most prevalent are eighteenth century delft and porcelains. Less than 10% of the ceramics are whitewares. Thus, the assemblage appears more closely related to the earlier occupations of the Kendal site than the last Kendal house.

The collection, while small (15 vessels), contains no utilitarian wares, but nearly equal proportions of flat wares (27%), hollow wares (33%), and tea wares (27%), with the remaining

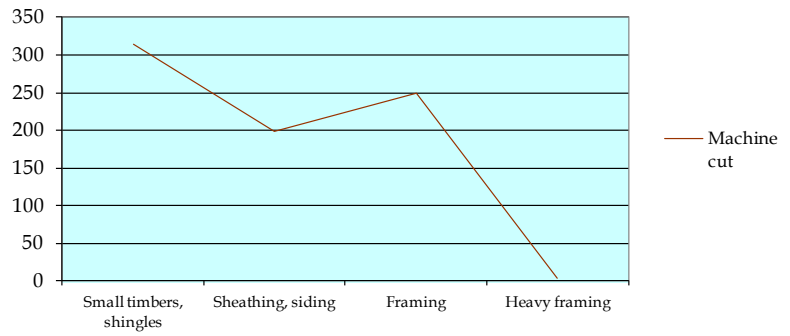


Figure 158. Nails recovered from unit 130R200 in the Kendal House.

13% representing serving pieces. When tea wares are not specifically assigned, flat wares (plates and saucers combined) account for 47% of the collection, while hollow wares contribute an additional 40% of the assemblage. Serving wares account for only 13% of the total. All of the reconstructed vessels are plain.

Container glass accounts for only 32 fragments while tablewares are represented by an additional 13 items. These latter items include one engraved manganese item and a 3-inch clear glass tumbler. Also recovered from the unit was a fragment of a butcher's steel, more commonly called a knife sharpener today. Very similar items are illustrated in the Sears catalog (Sears, Roebuck and Company 1897:108).

Architectural artifacts, accounting for 2,632 specimens, are dominated by nails (92.9%, n=2,446). Most of these nails (91.2%, n=2,230) are cut with machine applied heads, indicating a post-1815 date. Nails associated with small timbers and shingles are most common, followed by framing nails. Sheathing nails were nearly as common, while heavy framing nails were almost absent (Figure 158).

Although the excavation was at the northeast corner of the structure, in the vicinity of two windows (one on the north elevation and another on the east elevation), window glass is not common, consisting of only 82 specimens. The reason for this is unclear.

The next most common artifact are ceramic tiles manufactured by A.E. Tile Company and discussed from previous units. In 130R200, however, specimens were found in three sizes and also were recovered still exhibiting the pattern used around the north room fireplace (Figure 159).

Figure 159. Fireplace tiles found in situ, 130R200.

The sizes include 6 by 3-inches, 6 by 1½-inches, and 4 by 1½-inches. Where not burned, the color of these tiles is strong brown (Munsell 7.5 YR5/6).

Otherwise, the collection consists of an array of construction items, including butt hinges, lock boxes and fragments, and window and shutter hardware.

Figure 160. Miscellaneous artifacts from the Kendal House. A, lockbox; B, butt hinge; C, shutter latch; D, window or sash latch; E, window or sash lift; F, window spring bolt; G, brass curtain ring; H, curtain rod bracket; I, blind staple; J-K, window shade brackets; L, drapery pin; M, cupboard lock; N, iron caster wheel; O, cork screw; P, butcher's steel or knife sharpener.

Two of the more interesting items were window spring bolts. These were designed for installation in the wood stile of a vertically sliding sash and were most often found on lightweight, single hung sashes in lieu of a balance system (window pulleys and weights). They could also be used to hold window screens in place.

Since we have ample evidence of weights and pulleys at Kendal, it is most likely that these were found on a screen, set between the window sash and the exterior shutters. Evidence of bronze insect screen was found in this and other units at Kendal, so screens are known to have been present.

Sixty-six furniture specimens were re-covered from 130R200. Most common were 13 bed springs, followed by 10 fragments of an iron stove, most representing a decorated door. The bed springs likely came from an upper floor, while the stove could have come from either upstairs or downstairs. It suggests that at least one of the spaces had the fireplace converted to use a more efficient stove heater.

Nevertheless, the presence of seven fireplace tools, representing at least two complete sets of shovel, tongs, and poker, and at least one fire screen suggests that open fireplaces were still present.

Several cupboard and wardrobe latches and candlestick fragments indicates additional furnishings in the house at the time of the fire. The picture hangers may have been left from the various etchings bequeathed to Kidders heirs or may suggest new furnishings.

There were also a number of window treatments evidenced by the remains, which included curtain rod brackets and curtain rings, as well as roller shade brackets.

The two buttons recovered from 130R200 include a bone specimen, South's Type 15, and a painted porcelain "bulls eye" domed button (no type number).

As elsewhere, the activities artifacts consist primarily of miscellaneous hardware, such as screws, which might better be included with the architectural remains. However, two tools were recovered, including a shovel blade fragment and a bush scythe. Both could easily have been discarded on site and are not necessarily associated with the Kendal house when it was occupied.

The mean ceramic date for this unit is 1766.4. Such an early date could have been guessed by the abundant eighteenth century ceramics. The Salwen and Bridges dating suggests occupation as early as 1660, extending as late as 1900, with a peak from 1790 to 1820. It is difficult to associate these dates with the Kendal structure that burned in 1919.

When the thickness of 66 fragments of window glass is measured, a mean of 1.84 mm is obtained. This yields a date of 1867±12 years (Moir 1982). In this case, it appears that the window glass date is likely a much more meaningful representation of the main Kendal House core than can be offered by the ceramics.

Summary and Interpretations

The six units comprising the nineteenth century Kendal House (Figures 55, 56, and 147) are difficult to interpret. They include considerable overlap with the Colonial House, found mere yards away. A list of the artifacts recovered from these units has been provided by Table 80, which shows a range of colonial, antebellum, and postbellum specimens.

We know that the Kendal House was present by at least 1866 (when it appeared in a *Frank Leslie Newspaper* article) and was destroyed in 1919 (when it burned to the ground with a superintendent and his family as occupants). In between these dates the house was used by a variety of wealthy planters, most prominently Frederic Kidder (between 1882 and his death in 1908). Afterwards, the house was used by family

and then was sold to James Sprunt in 1918. Sometime late in its history we have two overall photographs of the structure, as well as a handful of additional closer views. These views and their contributions to our architectural understanding of the structure have been previously examined (pages 156-159 of this study).

What we don't know, however, includes when the Kendal House was constructed and how its various rooms were used.

Consequently, in this brief section we will try to bring all of the unit data together and offer some general interpretations regarding the construction and expansion of the house, as well as what the remaining artifacts might tell us about the plantation and its activities.

Dating

Table 84 provides a synthesis of the ceramics and resulting mean ceramic dates, briefly discussed with each unit. These dates range from as early as 1766 to as late as 1833, clearly being affected by the quantity of eighteenth century wares present in the assemblage, but likely not having anything to do with the Kendal House. When all of the data are combined, the resulting mean ceramic date is 1801 and at this time we feel confident that the brick Colonial House to the west was still being used. Of course, the problem is that we can't with confidence know what ceramics are intrusive from the earlier Colonial House.

Sometimes the Salwen and Bridges dating method provides a clearer picture of a site's occupation span. At the Kendal House we see an occupation span from about 1660 to 1900. From 1660 to 1740 we believe that we are seeing evidence of the Colonial Kitchen – refuse that spread over the site east of the kitchen. From 1740 to 1820 we believe that we are seeing the dense occupation of the Colonial House, immediately west of the as-yet built Kendal House. Finally, from about 1820 we are seeing a mix of refuse associated with the Colonial and Kendal houses. Unfortunately, we see no spike with the construction of the Kendal House, probably because the site was never as intensively used as it was during the earlier colonial period.

We have previously commented on the possibility that an eighteenth century midden may have been present in the area under the southern portion of the later Kendal House. This was based on the density of earlier remains being higher than we would expect from simple sheet deposits or scatter.

The Moir (1982) glass thickness dating ought to provide the best possible dates for the Kendal House, at least in theory, since they are dating a relatively fragile component of construction. The resulting dates are shown in Figure 159 with mean dates ranging from 1854 to 1919. They reveal a spread of dates throughout the structure's history, reflecting not only replacement episodes, but when the structure was expanded.

Consequently, it seems likely that the Kendal House was built between 1842 and 1866, with construction earlier in this period more likely since it seems unreasonable to expect much building during the Civil War. While some of the early dates come from the South Addition, we believe this is because of its proximity to the structure core and the main house chimney fall. The two dates from the main house core are nearly identical, with means of 1854 and 1855. Combining these three dates, an initial construction period of about 1845 to 1855 seems reasonable.

The next two dates, from 120R170 and 130R170, suggest that the smaller western extension was built around 1880 (perhaps shortly after Kidder acquired the property in 1882). The final two dates, from 100R170 associated with the larger, two-story addition, was the last modification to the Kendal House, perhaps shortly before Kidder's death in 1908.

These additions, as well as the main house core, were built using similar hardware and machine cut nails – all consistent with a ca. 1845 through 1910 date range.

Table 84.
Mean Ceramic Dates Associated with the Kendal House

Ceramic	Date Range	Mean Date (xi)	80R190 (fi)	80R190 fi x xi	100R170 (fi)	100R170 fi x xi	100R200 (fi)	100R200 fi x xi	120R170 (fi)	120R170 fi x xi	130R170 (fi)	130R170 fi x xi	130R200 (fi)	130R200 fi x xi	All Units Combined (fi)	All Units Combined fi x xi
Overglazed enameled porc	1660-1800	1730	3	5190	1	1730	4	6920	3	5190	2	3460	2	3460	15	25950
Underglazed blue porc	1660-1800	1730	12	20760	0	0	5	8650	3	5190	12	20760	10	17300	42	72660
English porc	1745-1795	1770	1	1770	2	3540	2	3540	2	3540	4	7080	5	8850	16	28320
Nottingham stoneware	1700-1810	1755	0	0	1	1755	0	0	0	0	0	0	1	1755	2	3510
Westerwald	1700-1775	1738	0	0	0	0	1	1738	0	0	0	0	0	0	1	1738
White salt glazed stoneware	1740-1775	1758	6	10548	0	0	5	8790	3	5274	2	3516	12	21096	28	49224
White sg sw, slip dipped	1715-1775	1745	1	1745	0	0	1	1745	0	0	4	6980	3	5235	9	15705
White sg sw, scratch blue	1744-1775	1760	0	0	0	0	1	1760	0	0	0	0	0	0	1	1760
Lead glazed slipware	1670-1795	1733	2	3466	1	1733	1	1733	0	0	0	0	1	1733	5	8665
Jackfield	1740-1780	1760	0	0	0	0	1	1760	0	0	0	0	0	0	1	1760
Clouded wares	1740-1770	1755	0	0	1	1755	0	0	0	0	1	1755	0	0	2	3510
Decorated delft	1600-1802	1750	4	7000	0	0	4	7000	1	1750	2	3500	1	1750	12	21000
Plain delft	1640-1800	1720	7	12040	0	0	8	13760	1	1720	1	1720	9	15480	26	44720
Buckley ware	1720-1775	1748	3	5244	0	0	2	3496	0	0	0	0	0	0	5	8740
Creamware, hand painted	1790-1820	1805	0	0	1	1805	0	0	2	3610	2	3610	0	0	5	9025
Creamware, undecorated	1762-1820	1791	3	5373	4	7164	12	21492	12	21492	47	84177	6	10746	84	150444
Pearlware, poly hand painted	1795-1815	1805	0	0	0	0	0	0	0	0	1	1805	3	5415	4	7220
Pearlware, blue hand painted	1780-1820	1800	0	0	0	0	10	18000	1	1800	3	5400	1	1800	15	27000
Pearlware, blue trans printed	1795-1840	1818	0	0	2	3636	0	0	9	16362	14	25452	4	7272	29	52722
Pearlware, edged	1780-1830	1805	0	0	0	0	0	0	4	7220	5	9025	0	0	9	16245
Pearlware, annular/cable	1790-1820	1805	0	0	0	0	0	0	0	0	2	3610	1	1805	3	5415
Pearlware, undecorated	1780-1830	1805	0	0	0	0	5	9025	11	19855	16	28880	1	1805	33	59565
Whiteware, green edged	1826-1830	1828	0	0	0	0	0	0	0	0	1	1828	0	0	1	1828
Whiteware, blue edged	1826-1880	1853	8	14824	0	0	0	0	0	0	6	11118	0	0	14	25942
Whiteware, poly hand painted	1826-1870	1848	0	0	1	1848	2	3696	3	5544	3	5544	0	0	9	16632
Whiteware, blue trans printed	1831-1865	1848	4	7392	0	0	0	0	7	12936	7	12936	0	0	18	33264
Whiteware, non-blue trans printed	1826-1875	1851	5	9255	0	0	1	1851	11	20361	8	14808	1	1851	26	48126
Whiteware, mocha	1831-1900	1866	0	0	0	0	0	0	0	0	0	0	4	7464	4	7464
Whiteware, undecorated	1813-1900	1860	19	35340	1	1860	5	9300	14	26040	31	57660	0	0	70	130200
Yellow ware	1830-1940	1885	0	0	0	0	0	0	30	56550	0	0	0	0	30	56550
Total			78	139947	15	26826	70	124256	117	214434	174	314624	65	114817	519	934904
Mean Ceramic Date by Provenience				1794.19		1788.4		1775.09		1832.77		1808.18		1766.42		1801.36

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				509	
English porcelain	1745-1795	50	16		0.001
Overglazed enameled porc	1660-1800	140	15		0.000
Underglazed blue porc	1660-1800	140	42		0.001
Nottingham stoneware	1700-1810	110	2		0.000
Westerwald	1700-1775	75	1		0.000
White salt glazed stoneware	1740-1775	35	28		0.002
White sg sw, scratch blue	1744-1775	31	1		0.000
White sg sw, slip dip	1715-1775	60	9		0.000
Lead glazed slipware	1670-1795	125	5		0.000
Jackfield	1740-1780	40	1		0.000
Clouded wares	1740-1770	30	2		0.000
Decorated delft	1600-1802	202	12		0.000
Plain delft	1640-1800	160	26		0.000
Buckley ware	1720-1775	55	5		0.000
Creamware, hand painted	1790-1820	30	5		0.000
Creamware, undecorated	1762-1820	58	84		0.003
Pearlware, poly hand painted	1795-1815	20	4		0.000
Pearlware, blue hand painted	1780-1820	40	15		0.001
Pearlware, blue trans printed	1795-1840	45	29		0.001
Pearlware, edged	1780-1830	50	9		0.000
Pearlware, annular/cable	1790-1820	30	3		0.000
Pearlware, undecorated	1780-1830	40	33		0.002
Whiteware, green edged	1826-1830	4	1		0.000
Whiteware, blue edged	1826-1880	54	14		0.001
Whiteware, poly hand painted	1826-1870	44	9		0.000
Whiteware, blue trans printed	1831-1865	34	18		0.001
Whiteware, non-blue trans printed	1826-1875	49	16		0.001
Whiteware, mocha	1831-1900	69	4		0.000
Whiteware, undecorated	1813-1900	87	70		0.002
Yellow ware	1830-1940	110	30		0.001

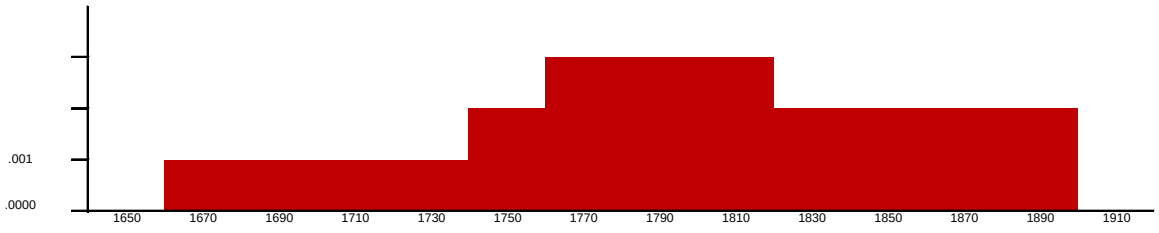


Figure 161. Salwen and Bridges dating for the Kendal House.

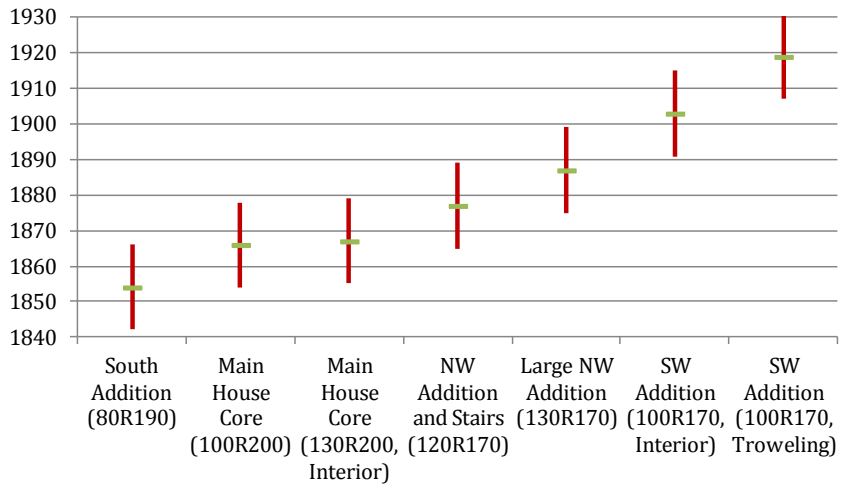


Figure 162. Glass thickness dates for the Kendal House.

While this reconstruction is not perfect, it does begin to present the Kendal House in an evolutionary context, growing and adapting to the changing needs of the last owner who most intensively occupied the site.

Use of Kendal

We know that at least some spaces of the Kendal House were occupied 11 years after Kidder's death, when the structure caught fire. News accounts tell us that the Kendal "superintendent," Rudwick Fields, was living in the house and that the wood shingle roof of the attached kitchen caught fire. The photos of the house suggest that the only portion of the structure with a wood roof was the two-story northwest addition. It is in this area that artifacts consistent with a kitchen (plumbing, sink, cupboard remains, kitchenware items) were found. It is also in this area where the artifacts are most frequently heavily burned or melted, suggesting it was, in fact, the seat of the fire.

The best explanation for the presence of the wood shingle roof is that being the most recent addition, Kidder simply did not have the resources to cover it in metal as he had done earlier with the remainder of the house. Short-sighted perhaps, but we know that Kendal late in its history was not an especially profitable plantation and Kidder used it primarily as a show of his status.

We know from the artifacts that the small southern addition was the location of a bath, including a toilet, sink, and bathtub. Water was obtained from the cistern and heated using a small boiler. We also know that above the northern room of the main core was likely a bedroom, based on the presence of bedsprings and wardrobe hardware in the ruins. Fireplace tools and at least one fire screen were still present, although one fireplace, probably upstairs, had been converted to a more efficient heating stove.

Table 85.
Artifact Pattern Found in the Kendal House

	80R190	100R170	100R200	120R170	130R170	130R200	Kendal House	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]
Kitchen	6.8	6.7	4.1	6.9	7.4	3.9	6.6	51.8-65.0	42.1-64.2
Architecture	91.3	92.3	94.4	91.3	89.4	91.0	90.9	25.2-31.4	26.5-55.8
Furniture	0.2	0.1	0.9	0.3	1.3	2.3	0.7	0.2-0.6	0.1-0.8
Arms	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1-0.3	0.1-1.0
Tobacco	0.1	0.0	0.1	0.1	0.1	0.1	0.1	1.9-13.9	0.2-4.7
Clothing	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6-5.4	0.1-0.3
Personal	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2-0.5	0.1-1.1
Activities	1.5	0.8	0.5	1.4	1.5	2.7	1.6	0.9-1.7	0.2-1.6

[1]Garrow 1982

There is abundant evidence of window treatments, including curtain rods, hooks, and pins. Also present were interior shutters, as well as roll blinds. Even picture hooks were recovered,

likely from pictures hanging in the house at the time of the fire.

Household architectural hardware, including door hinges, door locks, shutter and window fixings, were all present with little indication of salvage after the fire.

Although the archaeological research reveals considerable stratigraphic mixing, the intensity of the fire suggests this may be more likely the result of an effort to salvage brick than to recover hardware or personal items.

Pattern

Clearly another issue with the Kendal House is that its artifact pattern (Table 85) seems unusual, not matching what archaeologists often expect at colonial and antebellum sites. Nor does the pattern match what is typically seen in piedmont farms (e.g., Joseph et al. 1991:Table 23).

The former are too early and too dominated by a British mindset, while the latter are too rural and too dominated by a farming mentality. Kendal, while rural, was far more a social hub than a working farm. Early in its history it probably had very limited occupation, while later its social importance probably demanded clean yards and careful removal of trash. As a result of its sudden destruction we have a collection that is overwhelmed by architectural remains, especially nails and window glass. Kitchen (and other) items are nearly absent since trash was carefully collected and removed.

The artifact pattern may also have been affected by the nature of the occupation. For the first half of Kendal's history, it was likely a winter retreat. Once acquired by Kidder, it became a full-time residence, but by a single individual who apparently had only modest needs based on his estate inventory (furniture valued at only $124, Dresden china, a student's chair, a bookcase, and a small amount of plated silver). It seems that there was little effort by Kidder to display wealth or conspicuous consumption outside of his elaborate parties.

Regardless of the precise reason for this artifact pattern, it is remarkably consistent unit to unit.

Status

Although the pattern at Kendal is unusual and we attribute this at least in part to Kidder's limited display of wealth, those ceramics which are present from the nineteenth century (primarily pearlwares and whitewares) tend to reveal a fairly typical high-status assemblage. For example, there are no utilitarian wares. The tablewares are dominated by flat wares (61.5%, n=16). Hollow wares contribute only 26.9% of the collection (n=7) and serving vessels account for an additional three vessels (11.5%).

All of the pearlwares (eight vessels) are either edged or annular wares, considered to be low status. Whether the result of the small sample, reflective of hard economic times at Kendal during the antebellum, or indicative of owners with little

Table 86.
Ceramic Vessel Forms at the Kendal House

	Hollow Ware		Flat Ware		Serving	
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Lid
Pearlware, annular		1				
Pearlware, edged				7		
Subtotals	1		7		0	
Whiteware, undecorated	1	3				
Whiteware, edged				5		
Whiteware, hand painted		1	1	1		
Whiteware, transfer printed		1	1	1	1	1
Subtotals	6		9		2	
Other ceramics					1	
Subtotals	0		0		1	
Totals by Function	7		16		3	
%	26.92		61.54		11.54	

desire for display, is uncertain. Later in the century, however, whitewares become nearly evenly divided between high-status decorations (47%) and low-status decorations or plain vessels (53%). Unfortunately, the sample size is still so small that it is difficult to interpret the meaning of these results.

Curiously, the collection does not include any Dresden (or similar) porcelain, which was known to be present during Kidder's ownership.

Nineteenth Century Slave House

A series of 12 units comprise the block identified as the nineteenth century slave house. These include five 10-foot units and one 5 by 10 unit (200R210, 200R220, 200R230, 215R210, 210R220, and 210R230) centered on the house remains which revealed the chimney and piers, as well as five 5 by 10 units and one 5-foot unit (180R205, 190R205, 220R205, 230R205, 240R205, and 240R220) which explored the surrounding yard. In total, 825 square feet or 795 cubic feet were excavated in this block.

As a result of these investigations 10,020 artifacts were recovered, resulting in an artifact density of 12.6 specimens per cubic foot or 12.1 specimens per square foot of excavations (Table 87).

Artifact density is fairly uniform in structural and non-structural areas. Nearly two-thirds (63.6%, n=6,370) of the artifacts were recovered from the six units comprising the structural area, with comprises 66.7% of the total square footage.

Photographic documentation reveals that the Slave House was occupied during, and likely after, Frederic Kidder's use of Kendal, indicating a long period of postbellum occupation by African Americans.

Just as specimens from the Colonial House were found mingled with items clearly associated with the Kendal House, these discussions will reveal that items from the Kendal House were also found in and around the Slave House. Whether this reflects scatter during occupation or the result of salvage after the fire is open for discussion, although we are of the opinion that at least some of the Kendal House items were salvaged for reuse by the servants still living on-site in 1919. Comparison of the artifacts from this structure to those recovered from the Kendal House, reveals that some of the items salvaged from the Kendal House made their way here for storage or discard.

In addition, the excavations seem to suggest considerable sheet midden or scatter from the Colonial occupations. Recovered was a small, but varied, collection of early and middle-eighteenth century ceramics.

There is no historic documentation regarding when the structure was abandoned, although we believe it was used to store clay pots purchased by the Orton Nursery in 1943 (Trinkley and Hacker 2016:43). Discussions will reveal that the building was used to store a variety of other farm items, including plow and well pump parts.

At some point after 1943 the building burned. At the time of these investigations the chimney had fallen and it appears that the structure had been at least partially cleaned up, just as the Kendal House had, since there was no evidence of roofing and the chimney stack had largely disappeared.

As a result of the structure's long history and different uses, the resulting artifact pattern must be carefully interpreted. Table 88 compares the pattern from the slave house to a range of others previously defined. The proportion of kitchen and architectural remains is similar to that found in nineteenth century slave structures, called the George Slave Artifact Pattern, as well as what has been defined as a tenant pattern.

If we were to remove the eighteenth century ceramics and architectural items identical to specimens found at the main Kendal House, we would achieve a pattern that far more closely resembles what would be expected from a nine-

Table 87.
Artifacts Recovered from the Nineteenth Century Slave House

	Structural Units						Yard Units								
	200R210	200R220	200R230	215R210	210R220	210R230	180R205	190R205	220R205	230R205	240R205	240R220	Trowel		
Kitchen Group														3061	30.5
Chinese porcelain, undecorated		2	2						1	1	2				
Chinese porcelain, blue hand painted	4	1	1	1			2	1	1		1	1			
Chinese porcelain, poly HPOG	2		1	1			1	1	1	4	3				
White porcelain, undecorated	5	5	5		1			2	9	8	1	4	1		
White porcelain, blue hand painted										1			1		
White SG SW	2						5	3		3		1	1		
White SG SW, slip dipped		1					3								
Delft, undecorated	1	5					6	2	2	1		1			
Delft, blue hand painted	1	2	1							2					
Lead glazed slipware	7	1		1			1			4					
Creamware, undecorated	28	18	19	11	1		21	13	27	91	128	19	18		
Creamware, annular										1					
Creamware, poly hand painted		2	5	1			2	7	2	15	18	2	1		
Creamware, HPOG									1						
Pearlware, undecorated	23	9	6	4	2	1	6	14	29	29	35	14	9		
Pearlware, blue hand painted							1	1	1			1			
Pearlware, poly hand pained	2			2			1	1	2	4	8	2			
Pearlware, mocha										1	10	1			
Pearlware, cable	4							1							
Pearlware, annular	1							1		2	3	1	1		
Pearlware, green edged	8								3	2	4				
Pearlware, blue edged	4	2		1			5	1		5	2		1		
Pearlware, blue transfer printed	15	8	8	6			1	13	14	45	71	14	8		
Whiteware, undecorated	36	26	17	5	8		7	14	29	18	30	33	6		
Whiteware, poly hand painted	1														
Whiteware, annular								2	2		6	3			
Whiteware, green edged		1										1			
Whiteware, blue edged												3			
Whiteware, blue transfer printed	2		1	2	1		2	1	2	2	2	4			
Whiteware, non-blue transfer printed	22	22	4	1	2	1	32	5	4	3	4	5	1		
Yellow ware, undecorated				1					2		1				
Yellow ware, annular				1											
Black basalt										2					
Tortoiseshell		1													
Rockingham												2			
Westerwald										1					
Gray SG SW	1						1		26	4	4	2	1		
Brown SG SW	2						1	1	4	4	2				
Albany slip SW	10				8				4			1			
Bristol slip SW					2				17						
Coarse Red earthenware			2				2	1		8	5	2	1		
Brown SW									1	1	1				
Buckley											1				
Red earthenware													1		
Burnt refined earthenware	3	5	1	2	4		4		7	16	18	12	3		
Glass, black	20	17	10	18	15	1	36	28	20	23	28	11	9		
Glass, aqua	22	24	15	7	5	2	4	9	22	10	8	11	4		
Glass, green		11	2	5	8	2	11	4		6	2	1			
Glass, light green	1	2	4	5	19	14	3		5	4	5	15	5		
Glass, brown	3	16	10	9	13	7	1	4	14	1	18	11			
Glass, other	2		1			10			3	6	3	2			
Glass, clear	43	82	70	33	46	36	17	20	26	15	27	48	38		
Glass, milk		2			1										
Glass, manganese	23	37	22	18	21	11	7	12	2	4		20	1		
Glass, melted			3	12											
Tableware	2	4	7		3	1	3	8	2	1	1	1			
Utensil								1	1			1			
Container handle					2	1			1						
Kitchenware				11	21				2						
Colono ware	1						1			1					
Architecture Group														6588	65.7
Window glass	206	592	286	145	210	99	69	68	232	95	111	113	92		
Spring bolt									1						
Hinge fragments			1	2		3									
Lockbox frags				1	5	2							1		
Doorknob, white porcelain				1	4										
Shutter pintle		1		3	2	1									
Shutter catch	1			2	1					1					
Window hardware				4	1	2			2						
Delft tile	1														
Paver	1											1			
Plumbing pipe					2										
Porcelain sink frags				27											
Marble sink surround				24											
Pipe, clay			4	2	5	5			2	4					
Cup hook			1												
Nails, roofing									1						
Nails, wrought	10	2		4				10			17	5			
Nails, machine cut	112	98	76	577	1026	689	11	20	284	71	43	24			
Nails, wire	11	1		31	85	57			9	5	1				
Nails, UID	75	43	17	99	125	67	27	69	185	77	61	22			
Spike									1	1					
Furniture Group														23	0.2
Brass tacks										1					
Iron tacks					3	1									
Mirror glass		2													
Sink basin					1										
Marble dresser top frag				1											
Hat hook									1				2		
Escutcheon, brass											1				
Oil lamp					1										
Lamp chimney glass												1			
Blinds/curtain rod support									1						
Chair or mattress support					1										
Hinge fragments					1				1						
Caster wheel body	1			1											
Statuette, white porcelain	4														
Arms Group														27	0.3
Gunflint			1								1				
Gunflint flakes				1			2	2	4	1	4	4			
.25 shell, rimfire													1		
Shotgun shell base, brass		1	1		3				1						
Tobacco Group														17	0.2
Pipe stems, 4/64-inch							1								
Pipe stems, 5/64-inch			1							3					
Pipe stems, 6/64-inch										1		1			
Pipe stems, fragments											1				
Pipe bowl fragments							1	2		2		1	1		
Stub stem pipe frag							1	1							
Clothing Group														48	0.5
Buttons		3	2	1	9	5		2	4	2	3	5	2		
Buckles					1						1				
Safety pin				1											
Grommet, brass						1						1			
Collar stay						1									
Collar button											1				
Bead													1		
Scissor											1				
Shoe repair plate												1			
Personal Group														6	0.1
Knife blade/pocket knife					1										
Writing slate													1		
Glass "gem"			1												
Other						1			2						
Activities Group														248	2.5
Construction tools					6										
Farm tools				1	20	1			1			2			
Toys				1						1	2	2			
Fishing gear					1										
Storage items	1			6	20	4									
Stable and barn items	1	1		1	4		1			1					
Misc. hardware	4	5	1	56	53	7	1	2	9	2		2	2		
Other	2			6	4	8	1	1	1	2	1				
TOTAL	731	1055	609	1156	1778	1041	302	348	1031	619	701	435	214	10,020	

Table 88.
Artifact Pattern Identified at the Slave House

	Kendal Slave House	Kendal Slave House Adjusted	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]	Yeoman Pattern[5]
Kitchen	30.4	29.8	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8	40.0 - 61.2
Architecture	65.5	68.1	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2	35.8 - 56.3
Furniture	0.2	0.2	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1	0.4
Arms	0.3	0.3	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2	-
Tobacco	0.2	0.2	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7	-
Clothing	0.5	0.5	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7	1.8
Personal	0.1	0.1	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2	0.4
Activities	2.8	0.8	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4	1.8

[1] Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singleton 1980
[5] Drucker et al. 1984

teenth century slave dwelling. This is shown in Table 88 as "adjusted."

Kitchen Artifacts

There are 3,061 kitchen related artifacts in the slave house assemblage. Most of these are ceramics (53.6%, n=1,640), with glass representing the bulk of the remaining specimens (43.9%, n=1,344). Of the ceramics, the three largest categories are creamware (27.5%, n=451), pearlware (28.9%, n=474), and whiteware (22.7%, n=373), in nearly equal proportions. Earlier wares are only double digits, with only 19 white salt glazed stonewares, 24 delfts, and 14 lead glazed slipwares.

Tablewares, with 205 vessels, represent nearly 95% of the collection, with utilitarian wares comprising the remaining 5%. The tablewares are primarily flat wares, which account for 72.2% of the collection (n=148 items), followed by hollow wares with 26.8% of the collection (n=55) and the remainder utilitarian wares (1%, n=2). If flat and hollow wares are further divided to account for tea wares, then 61% of the collection consists of flat wares, 15% is hollow ware, and 23% of the assemblage consists of tea ware. The percentage of flat ware and tea ware is actually higher than found in the colonial house, suggesting that this is representative of fairly high status refuse.

When the anticipated expense of motifs (ignoring undecorated wares) is examined, we find that both earlier creamwares and later whitewares are dominated by expensive hand painted and transfer printed motifs. The pearlwares are dominated, although just barely, by inexpensive motifs (50.8 to 49.2%).

The abundance of expensive motifs early may be the result of antiquated creamwares being disposed of to favored African American slaves. The prevalence of less expensive motifs among pearlwares may reflect the intentional acquisition of cheaper motifs for slaves during the early nineteenth century. By the mid- to late-nineteenth century more expensive wares were the norm with a wide variety of transfer printed whitewares, including red, black, blue-green, and other colors.

The abundance of high status whitewares may, of course, may be the result of the structure being used by a black cook to prepare meals for the main house (during Kidder's life we have some evidence of this). However, we recovered only two serving vessels from the structure and yard, which certainly calls into question the idea that meals for the planter's table were prepared here.

Eleven vessels, or 5% of the assemblage, are storage containers (and one milk pan). This is consistent with the Colonial Kitchen, as well as most of the excavation units within the Kendal House.

Whether cast-off from the planter's table or acquired specifically for the African Americans living in this structure, it appears that the transfer

Table 89.
Form of Vessels at the Nineteenth Century Slave House

	Hollow Ware		Flat Ware		Serving	Utilitarian	
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Storage/ Jar	Pan
Chinese porcelain, blue hand painted				3			
White porcelain, poly HPOG	1	1	1	1			
White porcelain, undecorated			2	6			
Subtotals	2		13		0	0	
White SGSW	1			3			
White SGSW, slip dipped		2					
White SGSW, scratch blue							
Subtotals	3		3		0	0	
Lead Glazed Slipware		1			1		
Subtotals	1		0		1	0	
Creamware, undecorated	6	6	1	24		1	
Creamware, hand painted		2	1	20			
Subtotals	14		46		0	1	
Pearlware, annular/cable		5					
Pearlware, edged				27			
Pearlware, hand painted		1	2				
Pearlware, transfer printed	9	4	5	10			
Subtotals	19		44		0	0	
Whiteware, undecorated	4	3	10	16			
Whiteware, annular		3					
Whiteware, edged				4			
Whiteware, transfer printed	3	2	1	11			
Subtotals	15		42		0	2	
Other ceramics	1				1	7	1
Subtotals	1		0		1	8	
Totals by Function	55		148		2	11	
%	25.46		68.52		0.93	5.09	

	Totals	%
Flat Ware	125.0	61.0
Hollow Ware	31	15.1
Tea Ware	47	22.9
Serving Wares	2	1.0
Total Table Wares	205	
Utilitarian Wares	11	
Total	216	

printed wares were used by the occupants.

Although there were 43 fragments of white porcelain, none of this material can be ascribed to the Dresden porcelain known to be owned by Kidder. Most of the porcelain, while hard paste, was undecorated, lacking the characteristic designs, painting, colors, and gilding associated with Dresden pieces.

About 44% of the collection consists of container glass, with clear glass representing 30.5% (n=501) of the assemblage. Manganese glass represents about 11% of the collection and is indicative of materials from late nineteenth century.

Although 236 fragments of black glass are present in the collection, only two black glass bottles, with basal diameters of 3¼ and 4-inches, were identifiable. These correspond to a wine style bottle dating from about 1790 to 1850 and an imperial wine style post-dating 1825 (Jones 1986:83).

Two blue glass containers were identifiable. One was for Vicks – a proprietary medicine for which no good history exists. Based on the trade marks, however, Vicks was first used in commerce in 1894 (Trademark No. 867818, 71347246) by both Richardson-Merrell of New York (later Richardson-Vicks and most recently Proctor & Gamble) and Vick Chemical Co. of Philadelphia. The other is attributed to Phillips' Milk of Magnesia. This product, a hydrate of magnesia, received a patent in 1873, granted to Charles Henry Phillips. The blue bottle ceased being used in 1976. Consequently, both bottles date from the late history of the Kendal site.

Table 90.
Embossed Glass from the Slave House

Embossing	Glass Color
"-86 Y-"	Clear
"BRA-"	Aqua
"-CO / -TENN"	Light Green
"-D"	Clear
"-E-"	Aqua
"-ED-"	Clear
"-INS-"	Aqua
"MAS[ON]"	Aqua
"-NT"	Aqua
"[N]URSING / [B]OTTLE"	Clear
"PAIN"	Aqua
"-R YOUR LI[FE] FROM -TERS"	Clear
"[RICH]MOND, VA"	Brown
"S-"	Aqua
"-T-"	Clear
"-TER- LIQUO[R] -ETERS-"	Clear
"W-"	Manganese

A variety of clear, aqua, and light green embossed bottles (many of them panel bottles) are present in the collection. Most, however, represent only small fragments and the contents can no longer be discerned. One, however, includes the word "PAIN" in a panel and another "-CO / -TENN."

One aqua bottle is identifiable to "[Menley] & JAMES/[New] YORK." There is no good history of Menley & James, perhaps because it was a British firm with relatively minor player in the American market. They were present by at least the 1890s, going out of business in 2000. They produced a variety of pharmaceutical drugs, including some prescription items (ANONYMOUS 1912:171; Wilkins 2004:252, 247).

Other partial, and thus far unidentified, examples of embossing are shown in Table 90. Many of these likely represent medicine items; as Howson notes,

> Patent and proprietary medicines were commercial products that bypassed the physician. Vast numbers of such preparations came on the market in the second half of the 19th century, and archaeologists frequently excavate their containers (Howson 1993:145).

She suggests that a variety of factors undermined traditional physicians, including skepticism, Jacksonian leveling tendencies, poor education, and an increase in pharmaceutical advertising. As a result, patients increasingly sought self-treatment and various over-the-counter medicines were the natural choice.

This certainly seems a reasonable assessment of the situation at this structure where perhaps as many as 27 pharmaceutical or medicine bottles were identified.

Also present in the Kitchen collection are three utensil fragments, including a pewter handle fragment, a portion of an iron knife blade, and a fragment of a bone handle.

Pot or container handles include a tea kettle handle, the handle from a pot or skillet, and

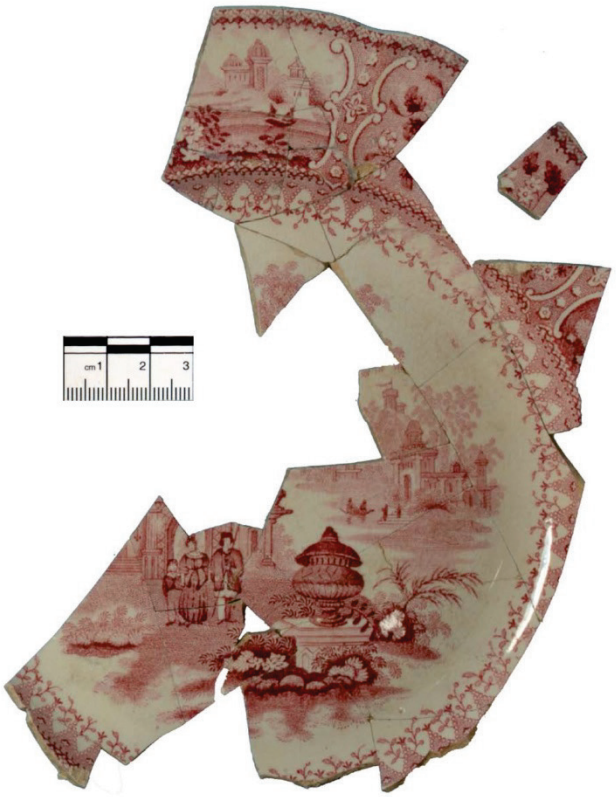


Figure 163. Transfer printed whiteware from the Nineteenth Century Slave House which South (1977) dates from 1826 to 1875. It is a Chinoiserie pattern that Samford (1997:6) dates between 1783 and 1873. The red colors typically date from 1818 to 1880 (Samford 1997:20).

two tub handles. The remaining kitchenware items include the remains of one iron pot, one iron tea kettle lid (perhaps associated with the handle and of a type found as early as the 1897 Sears, Roebuck Company catalog and still produced as late as 1932 when it is shown in the Belknap catalog of that year), two kettle legs, fragments of thin hollow ware that may represent a bucket, and two iron spider fragments. Spiders typically had three legs and a handle and were used for cooking in the coals of a hearth fire.

Two stamped copper tops were originally associated with cans of spices. A wide range of both ground and whole spaces were available in cans with this style top by at least 1918, when they were advertised in the Sears, Roebuck and Company grocery catalogs under the Montclair brand. Spices ranged from black pepper to marjoram.

Architectural Artifacts

Nearly 63% of the 6,588 architectural remains are nails (n=4,146). Only a very few (48) are wrought and these almost certainly represent scatter from the Colonial Kitchen or Colonial House. The vast majority (73%, n=3,031) of the nails from the Slave House are machine cut with machine applied heads. There are 200 wire nails in the assemblage, representing less than 5% of the total nail collection. This suggests either wire nails made an appearance very late in the rural areas of Brunswick County or the Kendal slave house received only very minor repairs after the mansion burned in 1919.

Figure 165 reveals that an abundance of relatively small machine cut nails, likely used for the structure's wood shingle roof seen in period photographs, were recovered. Far less abundant were nails sized to attach cladding – likely because the structure size was so small. Framing nails are more common, consistent with the setting of a foundation, walls, and roof. Heavy framing nails, likely not needed, are essentially absent (six were recovered).

The wire nails barely register on the graph,

Figure 164. Kitchenware items from the Slave House. A, fragments of an iron spider; B, stamped copper spice tin top.

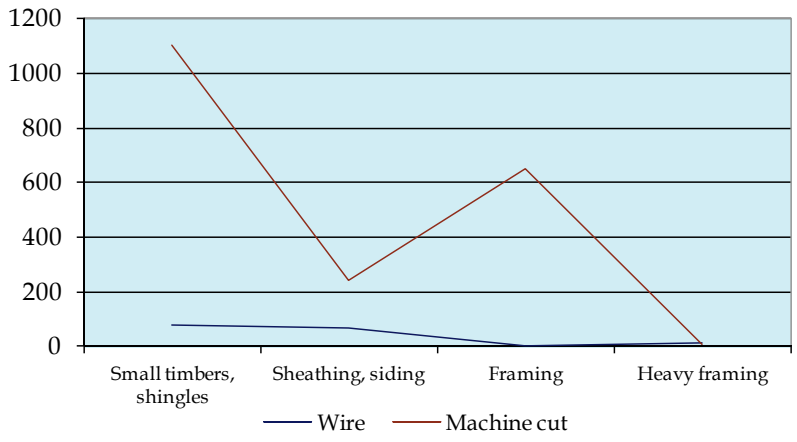


Figure 165. Size distribution of machine cut nails from the Slave House.

although shingle and sheathing nails are most common. Framing and heavy framing nails are nearly absent. This is a pattern we would expect for repairs, since roofing and siding would be far more likely to require maintenance than framing timbers.

Many of the other architectural remains are almost certainly not associated with the slave house, but were salvaged from the Kendal House. For example, items such as plumbing pipe, porcelain sink, and sink surround were almost certainly associated with the Kendal House, although we can't discount their salvage and reuse after the 1919 fire. A spring hinge marked Bommer was recovered from the excavations. This device, a "double acting spring hinge" was first marketed in 1863 and became a staple on screen doors. Period photographs show no screen doors on the slave house, but they were used by the Kendal House. Similarly, the spring bolt and window hardware are identical to items recovered from the Kendal House and seem out of place in an African American cabin. Other items, such as the delft tile and paver are likely scatter from the earlier Colonial House.

This leaves relatively few additional architectural items, including a few hinges and door hardware.

While not likely associated with the structure, the porcelain sink warrants at least a brief mention because of its manufacturer – C.A. Blessing. Blessing began operations in 1873, creating "an unequalled stock of everything coming under the heading of plumbers' good and sanitary earthenware and improved fixtures in brass, iron, copper, nickel, silver and wood-work," including oval and square bottom sinks

Figure 166. Porcelain sink likely salvaged from the Kendal House.

Figure 167. "Double acting spring hinge" stamped Bommer on the reverse.

(Anonymous 1891:181). During the 1876 Philadelphia Centennial Exhibit, a photograph of Blessing's exhibit illustrates one of his wood cabinets with a marble top and inset sink (Free Library of Philadelphia, Centennial Exhibit photo c011056). This was certainly purchased for the Kendal House, eventually finding its way to the remnant servant's quarters.

Furniture Artifacts

The 22 furniture items represent a mixed assemblage of items almost certainly from the Kendal House and items that might reasonably have come from the dwelling or a slave or postbellum servant.

Items with analogs from the main Kendal House include blind or curtain rod supports and white bisque porcelain statuary. Even the hat hooks (identical to an item advertised in the 1865 Russell and Erwin catalog) seem far more likely to have graced the Kendal House than a humble servant's "cottage."

Some of the items reflect "nicer" furnishings that might have been salvaged from elsewhere, such as the caster wheel, the marble table top, the brass escutcheon, and the small butt hinges. Items such as furniture springs, tacks, and chimney lamp glass, however, would have been entirely "at home" in a servant's house.

Arms Artifacts

As elsewhere in this structure, the artifact assemblage includes items that have been introduced into the assemblage, such as the six shotgun shells that, with one exception, were likely deposited as a result of mid-twentieth century hunting.

These shotgun shells include a "PETERS/No./12/REFEREE" which is dated on-line to 1899-1911, although advertising takes the sale of this shell well into the 1920s.

A "PETERS/No./12/TARGET" with their trademark letter P was also recovered and this shell is thought to date from about 1910 through about 1932.

A REM-UMC/No./12/NEW CLUB post-dates the Remington Arms and Union Metallic Cartridge Company merger in 1912.

The REM-UMC/No./10/NITROCLUB is a 10 gauge shell. The headstamp indicates that it post-dates the 1912 merger of the two companies. On-line sources suggest a date of about 1915 through 1937 when it was discontinued.

The most unusual shotgun headstamp is one with "XL [starburst] No. 12" which appears to have been produced by the American Buckle and Cartridge Company between 1885 and 1889. If the identification is correct, this represents one of the earliest shells and would likely have been used by one of the site occupants rather than a later hunter.

Another unusual shell casing is a .25 caliber rim fire usually known as the .25 Bacon & Bliss cartridge. It was introduced about 1865 and used in a variety of pistols made by Bacon, Bliss, Gross Arms Company, and the Reynolds Company,

Table 91.
Gunflints and Flint Flakes from the Slave House.

Provinence	Type	Shape	Origin	Material	Width, mm (heel to edge)	Length, mm (side to side)	Thickness	Comments
200R230, Level 1	Flake	Square	English	Gray Chert	15.97	17.07	5.50	Back and heal is thermally shattered Potlid on back
240R205, Level 1	Flake	Square	English	Gray Chert	16.54	19.17	5.98	Thermal damage along edge and sides
				Black flint, primary		3		
				Black flint, secondary		2		
				Gray flint, primary		1		
				Gray flint, secondary		5		
				Gray flint, tertiary		3		
				Honey flint, tertiary		1		
				UID, burned		3		

among others. It continued in production until 1920.

The remainder of the arms artifacts, including two gunflints and 18 flint flakes are likely much earlier, representing scatter from the nearby colonial settlements. Additional information on these artifacts is provided in Table 91).

Tobacco Artifacts

Tobacco related artifacts are not common at this structure, consisting of only 18 items, including eight ball clay stems, eight ball clay bowl fragments, and two stub stem pipe fragments.

The bowls are primarily plain, although one is ribbed, another is decorated with ribs and dots, and a third has a floral pattern concealing the mold line.

The stub stem pipes are both ribbed examples of red clay.

Clothing Artifacts

Clothing related items are dominated by buttons, which comprise nearly 80% of the clothing assemblage (Table 92). Of these, most (63%, n=24) are Type 23 Prosser buttons and two additional buttons are similar, but have only two, rather than four, holes. Such buttons post-date 1840 (Sprague 2002) and so are expected in this assemblage. In fact, the only early buttons are the two Type 10 cast brass examples; these may represent earlier materials lost during the occupation of the colonial structures.

One of the Type 18 buttons has an eagle and cannon on its face, with "CORPS" at the bottom of the button. There is no backmark. This is Albert's (1969) AY55B style, which is a War of 1812 Artillery Corps button. While there were no known conflicts at Kendal, some artillerists were on the Cape Fear and this button provides evidence of the conflict in Brunswick County.

Table 92.
Buttons from the Slave House

South's Type	Description	Number	Measurements (in mm)
10	Cast brass, domed disc	2	2-15
18	Stamped brass or white metal	4	15, 16, 20, 21
21	Iron with fiber center	2	14, 15
23	Porcelain, convex	24	9, 4-10, 8-11, 2-12, 13, 14, 3-15, 16, 18, 2-UID
24	Fabric covered iron with loose eye	1	17
-	Black glass	1	20
-	porcelain, 2-hole	2	11, 16
-	rubber	2	13, 17

There are two rubber buttons recovered from the slave house. These were first patented by 1851 by Nelson Goodyear. Although almost immediately being produced, they didn't become popular with the public until the

middle of the decade. One of the buttons is fragmentary and has no backmark. The other has molded into it "N.R. Co.," which stands for the Novelty Rubber Co. This company was founded in 1853 and produced buttons until 1886 using Goodyear's patent.

The size of the buttons can provide information on their probable use. This assemblage is evenly divided between those likely used on shirts and pants (7-13mm) and those likely used on coats (Luscomb 1971:121).

This brief discussion parallels the observations of Otto from his work at Cannon's Point Plantation where he associated buttons, slaves, and work clothes (Otto 1984:72, 170).

While this addresses the functional nature of buttons, there is some evidence that buttons served other purposes. At least one elderly African American, Victoria Taylor Thompson, explained that,

> [Daddy] was a herb doctor, that's how come he have the name "Doc." He made us wear charms. Made out of shiny buttons and Indian rock beads. They cured lots of things and the misery too (quoted in Foster 1997:174).

Wilkie argues that African Americans, prevented by owners from body alteration as an expression of a personal aesthetic, turned instead to "personal ornamentation through material items" such as beads and buttons (Wilkie 1994).

Yet another researcher suggests that clothing was used to distinguish not only between free and slave, but also "to signal within an enslaved population differential access to goods and possibly services" (Galle 2004:53).

Elsewhere, Jordan notes that buttons, especially in an African American context, may relate to African American women's laundry activities, especially considering the amount of time spent by both enslaved and freed African American women in this activity. She comments that failing to recognize this issue renders the women "passive" and "leaves their efforts seemingly trivial" (Jordan 2007:349-350).

The precise function or functions the buttons from this dwelling served is unclear, but this brief discussion demonstrates how artifacts may have multiple meanings, some obvious (fastening clothes), some gender-related (the role of women in African American society), some associated with status (the nature of the buttons themselves), and some hidden (ritual).

Many of these issues can be identified in other clothing artifacts found in the Slave House. For example, the presence of a clear, faceted glass bead (Kidd and Kidd 1f) can perhaps speak to the ethnicity of the site (Stine et al. 1996), as well as possible ritualism since while it is not blue, it is clear, like rock crystals (Foster 1997:172-175; Leone and Fry 1999).

The presence of a fragmentary scissor speaks to the issue of sewing as women's work in conjunction with washing and clothes repair (Foster 1997: 115-122).

The shoe "repair" plate, with a patent date of November 2[9], 1859 is of special interest since it is so often found by Civil War relic collectors. Lord (1995:2:11) identifies such items as "brass heel plates," but this seems incorrect. These were toe clips, or toe fenders and they were nailed, pegged, or sewn onto the front edge of the boot or shoe's sole, between the upper and the sole, protecting the toe.

Many, though not all, have stamped patent dates which are unfortunately often misread because of wear and damage. Patent 26,329 for "boot and shoe tips" was issued on November 29, 1859 to Newman Silverthorn and was reissued on September 2, 1860. (United States Patent Office 1873:212).

There are several items present that may

Figure 168. Brass toe clip or fender. At the top is the specimen recovered from the Slave House. Below is an example from a Civil War boot (courtesy Dean Joseph Fine Art and Antiques auction house).

not have been deposited by the African American occupants. For example, two milk glass collar buttons or studs were recovered. Detachable collars were invented in 1827 to help keep collars clean. Made of cotton, linen, paper, celluloid, and a paper/cloth laminate, they were attached to the shirt and held closed by these collar buttons or studs.

Of the two buckles one is an eighteenth century boot or garter buckle and likely represents smear from the nearby kitchen or house. The other buckle, however is an example of a nineteenth suspender buckle and was likely lost by the occupants of this dwelling.

Personal Artifacts

Three of the personal artifacts are U.S. "Indian Head" pennies. Two are dated 1897 and the third is dated 1904. As Figure 169 reveals, none were pierced for wearing (although generally it was silver coinage that was worn by African Americans) and all were likely lost by occupants of the house during the late nineteenth and early twentieth centuries.

Figure 169. Pennies recovered from the Slave House. A-B, 1897; B, 1904.

The other personal items include a pocket knife blade, a fragment of a writing slate, and a glass jewel. The jewel measured 6.03 mm in height and 10.17 mm in diameter. Although there is no remnant evidence of mounting, we presume it was originally mounted in jewelry.

Activities Artifacts

This is a relatively large and varied assemblage and there is absolutely no doubt that some of the items were simply stored in the structure after it was abandoned. A few of the more prominent items will be briefly discussed.

In the tools category are three identical, small, hexagonal wrenches that were likely associated with some farm tool and meant to assist in its adjustment. Also present were three fragments of a saw blade with six points per inch.

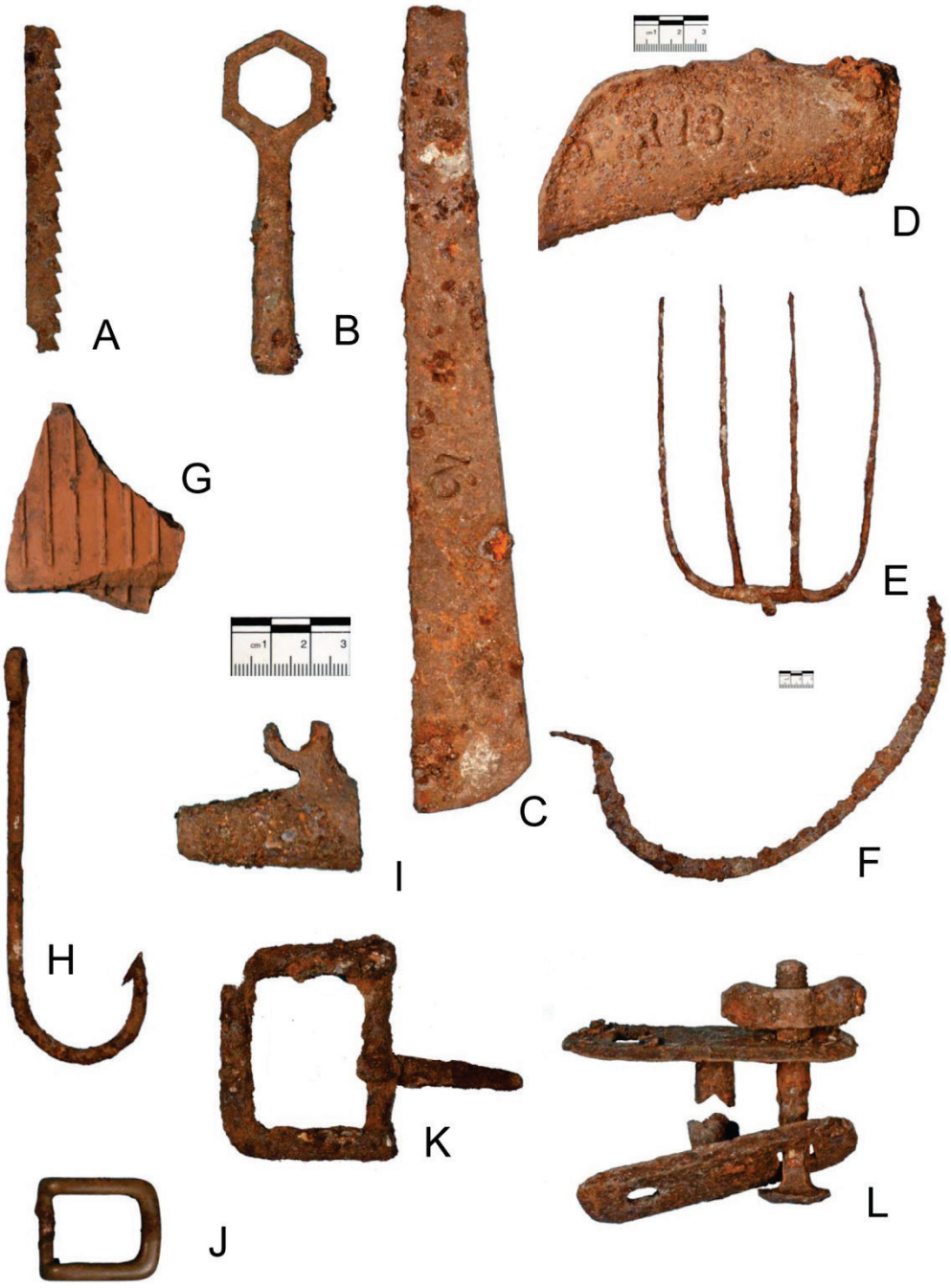


Figure 170. Activity Artifacts from the Nineteenth Century Slave House. A, saw blade; B, hex wrench; C, plow blade; D, well spout; E, manure fork; F, sickle; G. Herty cup (turpentine pot) rim fragment; H, "alligator hook," I, whiffletree hook; J, brass harness buckle; K, iron harness buckle; L, cart bolt with braces.

The farm tool category is a good example of one that we believe reflects the use of the building for storage. Among the items are 10 iron plow blades, all identical, and 10 iron spouts that would be used on well heads. Some items, such as a manure fork and a sickle, were likely used by the site occupants.

An interesting find are two fragmented turpentine pots, providing evidence for the collection of turpentine from Kendal's long leaf pine forests.

The Herty cup-and-gutter system was patented in 1902 by Dr. Charles Herty and quickly replaced the more primitive box method of resin collection. In partnership with C.L. Krager, Herty formed the Herty Turpentine Cup Company in 1909 to manufacture the clay pots in Daisy, Tennessee. About 1914 galvanized tin cups were introduced and they quickly cut into the use of the heavier, and more fragile, Herty cups. Nevertheless, Herty cups were produced until 1942, when the company was dissolved (Anderson and Smith 2003:447; see also Greer et al. 2015 and Prizer 2009).

The presence of female children is suggested by the presence of six porcelain doll fragments, including several portions of a face and an arm.

Fishing is evidenced by a single fish hook, measuring 4½-inches in length and a front length of 1¼-inches. The barb and point are both well defined. Because of the size, this type of hook is commonly called an alligator hook, although it could be used for a variety of very large deep sea fish.

Storage artifacts are dominated by 29 fragments of strap metal, ranging in width from ¾ to 1⅛-inches. These were likely banding on barrels for products ranging from flour to nails. Also present, however, were two keyhole covers with a distinctive "MW Co" insignia on them. These are from locks made by Mallory Wheeler and Company. Hennessy (1978) indicates the company was operating from 1865 to 1910, while Eastwood (1982:121) provides a wider range, from 1834 to 1913.

The stable and barn items are horse or wagon related, including a horseshoe, four harness buckles, a cart bolt and brace, and two whiffletree hooks. The latter are likely from a small cart, rather than a large wagon, perhaps similar to the cart known to operate between the dock and the Kendal House. While it is not unusual for such items to be associated with domestic residences (they have been found across the Kendal site), the plantation's animal pen or barn was never identified during this study.

There are 144 items in the "Miscellaneous Hardware" category and these comprise 58% of the total Activities assemblage. Screws are the most abundant artifact (n=47), followed by staples and L-bolts (16 specimens each), rivets and bolts (each contributing 14 specimens), threaded rods (13 items), brass washers (n=11), and eye bolts (n=5). In spite of the number of bolts and other threaded items recovered, only two nuts are present in the collection. Individual examples of chain, eye screw, corner brace, eyebolt and escutcheon, washer, and ring were recovered. This collection seems consistent with individuals responsible for farming and maintenance activities on the plantation.

The final "other" category includes items that cannot be conveniently placed elsewhere, including unidentified brass and iron objects, slate fragments that are not obviously writing slates, melted lead, twisted wire, and unidentifiable hardware.

Other Items

In this category we include the 213,245 gms of broken planting or flower pots that were stored in the structure prior its loss by fire. Based on the averaged weight of several intact specimens, this represents about 1,838 pots. This represents only a small fraction of the 13,185 pots purchased by the Orton Nursery in 1943 from the Audubon Nursery in Wilmington (Trinkley and Hacker 2016:66). Their presence in the site indicates that the building was standing at least as late as 1943 and was no longer a dwelling.

Figure 171. Examples of the clay flower pots being stored in the Slave House post-1943. The example without a rim (B) is a minority type.

Dating

Hints regarding the age of this structure have been provided throughout these discussions. Many of the transfer print patterns are nineteenth century; several of the bottles clearly date to the nineteenth century; architectural artifacts, such as the screen door hinge and even the nails, are consistent with a nineteenth century date; the buttons are largely nineteenth century; even the coins are all nineteenth century. What we have found that is earlier seems to represent smear and scatter from the two large, nearby colonial structures.

The mean ceramic date for the structure, 1814, is shown in Table 93. While the latest date obtained thus far for the Kendal site, its standard deviation of 55 years extends the date from the mid-colonial to the mid-antebellum. This is clearly the result of materials from earlier occupations.

South's bracket dates encompass much of this range, from about 1790 to 1835. The ceramic probability contributions are shown in Figure 172 and reveal occupation ranging from perhaps as early as 1760 to 1900, with the core or densest occupation after the Revolution through the early antebellum.

These results suggest that the slave house may have been constructed as early as Robert Howe's ownership during the Revolution and extended, of course, through the ownership of Frederic Kidder, since there are photographs of the building from this period.

Although speculative, we are inclined to believe that the dwelling was likely not built until the property was acquired by the Smiths, about 1802. Of course, it doesn't appear that the Kendal House was constructed until the 1840s, probably by Owen D. Holmes. Therefore, it is certainly possible that this dwelling dates from the same period. Regardless, attributing the structure to the nineteenth century appears reasonable.

Table 93.
Mean Ceramic Date for the Slave House

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	14	24220
Underglazed blue porc	1660-1800	1730	13	22490
White porc	1745-1795	1770	43	76110
NA salt glazed stoneware	1826-1905	1866	53	98898
Westerwald	1700-1775	1738	1	1738
White salt glazed stoneware	1740-1775	1758	15	26370
White sg sw, slip dipped	1715-1775	1745	4	6980
Black basalt	1750-1820	1785	2	3570
Lead glazed slipware	1670-1795	1733	14	24262
Decorated delft	1600-1802	1750	6	10500
Buckley ware	1720-1775	1748	1	1748
Creamware, annular	1780-1815	1798	1	1798
Creamware, hand painted	1790-1820	1805	56	101080
Creamware, undecorated	1762-1820	1791	394	705654
Pearlware, mocha	1795-1890	1843	12	22116
Pearlware, poly hand painted	1795-1815	1805	22	39710
Pearlware, blue hand painted	1780-1820	1800	4	7200
Pearlware, blue trans printed	1795-1840	1818	203	369054
Pearlware, edged	1780-1830	1805	38	68590
Pearlware, annular/cable	1790-1820	1805	14	25270
Pearlware, undecorated	1780-1830	1805	181	326705
Whiteware, green edged	1826-1830	1828	2	3656
Whiteware, blue edged	1826-1880	1853	3	5559
Whiteware, poly hand painted	1826-1870	1848	1	1848
Whiteware, blue trans printed	1831-1865	1848	19	35112
Whiteware, non-blue trans printed	1826-1875	1851	106	196206
Whiteware, annular	1831-1900	1866	13	24258
Whiteware, undecorated	1813-1900	1860	229	425940
Yellow ware	1830-1940	1885	5	9425
Total			1469	2666067
Mean Ceramic Date				1814.9
Standard Deviation				54.5

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				1529	
English porcelain	1745-1795	50	43		0.001
Overglazed enameled porc	1660-1800	140	14		0.000
Underglazed blue porc	1660-1800	140	13		0.000
NA salt glazed stoneware	1826-1905	79	95		0.001
Westerwald	1700-1775	75	1		0.000
White salt glazed stoneware	1740-1775	35	15		0.000
White sg sw, slip dip	1715-1775	60	4		0.000
Black basalt	1750-1820	70	2		0.000
Lead glazed slipware	1670-1795	125	14		0.000
Decorated delft	1600-1802	202	6		0.000
Plain delft	1640-1800	160	18		0.000
Buckley ware	1720-1775	55	1		0.000
Creamware, annular	1780-1815	35	1		0.000
Creamware, hand painted	1790-1820	30	56		0.001
Creamware, undecorated	1762-1820	58	394		0.004
Pearlware, mocha	1795-1890	95	12		0.000
Pearlware, poly hand painted	1795-1815	20	22		0.001
Pearlware, blue hand painted	1780-1820	40	4		0.000
Pearlware, blue trans printed	1795-1840	45	203		0.003
Pearlware, edged	1780-1830	50	38		0.000
Pearlware, annular/cable	1790-1820	30	14		0.000
Pearlware, undecorated	1780-1830	40	181		0.003
Whiteware, green edged	1826-1830	4	2		0.000
Whiteware, blue edged	1826-1880	54	3		0.000
Whiteware, poly hand painted	1826-1870	44	1		0.000
Whiteware, blue trans printed	1831-1865	34	19		0.000
Whiteware, non-blue trans printed	1826-1875	49	106		0.001
Whiteware, annular	1831-1900	69	13		0.000
Whiteware, undecorated	1813-1900	87	229		0.002
Yellow ware	1830-1940	110	5		0.000

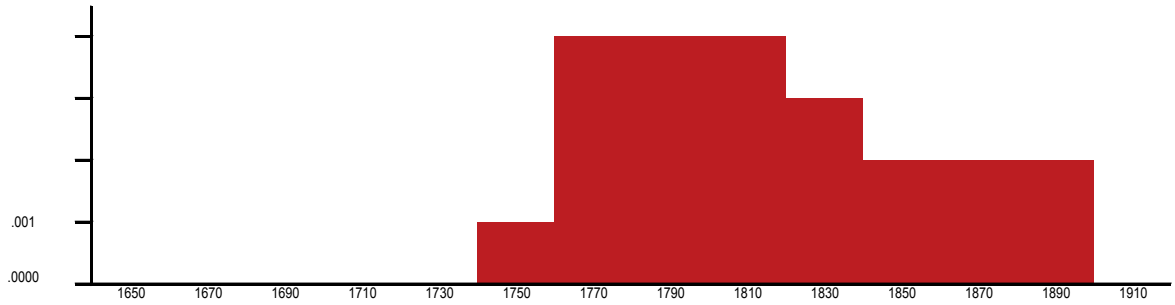


Figure 172. Salwen and Bridges dating for the Slave House.

Nineteenth Century Storehouse

One 10-foot unit (190R110) and five 5 by 10 foot units (185R110, 190R115, 200R105, 200R115, and 200R125) were excavated to expose the remains of what appeared to be a storehouse, based on the absence of a chimney. As previously discussed, the excavations found the remains of two foundations, indicating that the building had been essentially rebuilt during its history.

Excavations were conducted in this area because of slightly higher artifact densities and this work produced 2,138 specimens (Table 94). This yields a density of 6.1 artifacts per square foot or 6.8 artifacts per cubic foot. Thus, while the density of artifacts in this area may not be great, it was nevertheless greater than the surrounding area and the auger testing allowed us to recognize this modest structure.

The artifacts recovered result in an atypical artifact pattern (Table 95). The closest parallel is that of nineteenth century slave dwellings, although the Kendal structure has too few kitchen items and too many architectural remains. There is also some similarity to a pattern developed for tenants. Nevertheless, the absence of a fireplace, or even an obvious hearth, makes this being a residence unlikely. We are inclined to believe that the "odd" assemblage is a result of the mixing of nearby artifacts from the Colonial Kitchen and House. The absence of a clearly defined pattern may further support the use of the building as a storehouse, although the absence of specialized artifacts makes its function uncertain.

Kitchen Artifacts

Excavations produced a modest 879 kitchen artifacts from this block. Ceramics (n=424) and container glass (n=429) are nearly equal in the collection.

A wide variety of ceramics are present, but none are clearly dominant. Creamwares (n=76) account for 19.2% of the ceramics. Pearlwares (n=115) contribute an additional 27.1%, and whitewares contribute 25.2% (n=107). Stonewares contribute only 5.9% of the ceramics present in the block (n=25) and porcelains only 6.1% (n=26). There is nothing in the collection that speaks to the origin or function of this structure and the assemblage appears to present a comingling of ceramics from across the site.

Of the 57 identified vessels in this block, the majority (n=33) or 57.9% are flat wares. Nevertheless, a noticeable percentage (35.1%, n=20) are hollow wares. Two are utilitarian wares and two are serving wares. In terms of function these ceramics, dominated by tablewares, seem more representative of the nearby Colonial Kitchen or House than any sort of specialized building. Missing are utilitarian and storage jugs, crocks, and pans, like those which might be found if this structure served some specialized function.

Inexpensive motifs (including, of course, plain wares) dominate the assemblage, accounting for 100% of the creamwares, 74% of the pearlwares, and 100% of the whitewares. These percentages are unchanged if we ignore the plain wares in each type. This suggests that the major contributor to the assemblage may have been African Americans, which of course is not consistent with either the Colonial House or Kitchen.

The glass, like elsewhere on the site, tends to be highly fragmented. We were, however, able to determine the collection includes three black glass bottles. Although they are in proximity of the Colonial structures and middens, the basal diameters are suggestive of nineteenth century beer

Table 94.
Artifacts Recovered from the Storehouse Block

	185R110	190R110	190R115	200R105	200R115	200R125	Trowel		
Kitchen Group								879	41.1
Chinese porcelain, undecorated					1				
Chinese porcelain, blue hand painted	2	2	3			1			
Chinese porcelain, poly HPOG		1	2						
White porcelain, undecorated		1	2	2	3	1	1		
White porcelain, blue hand painted	1								
White porcelain, HPOG				1	1				
White porcelain, tinted						1			
White SG SW	6	3		2	1	4			
White SG SW, slip dipped		3							
Delft, undecorated	3	3	1	3		3			
Delft, blue hand painted	3				1				
Lead glazed slipware		1	1		2	1			
Creamware, undecorated	15	13	8	11	12	14	2		
Creamware, green edged		1							
Pearlware, undecorated	7	8	7		14	8			
Pearlware, molded				7					
Pearlware, blue hand painted	1	1	2			3	2		
Pearlware, poly hand pained	1	4				4			
Pearlware, cable	1		2						
Pearlware, annular	3	1	1	1	1				
Pearlware, green edged	5	1	1		1				
Pearlware, blue edged	1				3				
Pearlware, blue transfer printed	2	7	5	3	3	4			
Whiteware, undecorated	24	25	3	12	10	3			
Whiteware, poly hand painted	1	2		1	2				
Whiteware, annular	2	1	1	1	1	3	1		
Whiteware, cable		1							
Whiteware, blue edged	2	3							
Whiteware, blue transfer printed		2			1				
Whiteware, red transfer printed	1								
Whiteware, green transfer printed		2							
Whiteware, purple transfer printed				1	1				
Yellow ware, annular		1							
Astbury ware		1							
Jackfield					1				
Clouded ware			1						
Agate ware	1								
Nottingham		1							
Westerwald		1							
Gray SG SW		1							
Brown SG SW	1	5		2	2	1			
UID stoneware						1			
Albany slip SW	1	2	1						
Bristol slip SW	2								
Brown SW	4		1						
Coarse Red earthenware	3	5	3	2	4	2			
Buckley		1				1			
Red earthenware	1				1	1			
Burnt refined earthenware	1	1		1	1				
Glass, black	37	57	14	15	14	3	3		
Glass, aqua	5	11	5	7	15	6	3		
Glass, green	31	12	6			2			
Glass, light green	21	14	9		1	1			
Glass, brown	5	8	4		1	2	1		
Glass, other		7	10	1	6				
Glass, clear	15	16	11	3	18	8	6		
Glass, manganese	5		2		3	5			
Tableware			1	1	5	1			
Kitchenware		3	3	1	1				
Colono ware	3	1	2	2	1		1		
Architecture Group								1213	56.7
Window glass	27	46	33	18	36	65	8		
pintle		1							
Delft tile		1							
Nails, wrought		4		4	2				
Nails, machine cut	15	170	83	47	102	33	4		
Nails, UID	117	144	103	29	89	26	6		
Furniture Group								1	0.0
Brass knob					1				
Arms Group								15	0.7
Lead, sprue					1				
Gunflint	1								
Gunflint flakes	7	1	1	1	1				
.32 shell, rimfire	1								
Shotgun shell base, brass					1				
Tobacco Group								6	0.3
Pipe stems, 5/64-inch	2	1				1			
Pipe bowl fragments	1								
Stub stem pipe frag						1			
Clothing Group								14	0.7
Buttons	3	3	5	1	1				
Collar stud	1								
Personal Group								0	0.0
Activities Group								10	0.5
Farm tools		1							
Storage items			1						
Misc. hardware		3	3						
Other		2							
TOTAL	392	611	341	180	366	210	38	2,138	

bottles, rather than earlier wine bottles. One rectangular black glass bottle was also present, measuring 80 by 64 mm. Two additional bottles, in green and brown, were small with hand applied lips measuring 17mm. These were likely pharmaceutical or medicinal vials. Aqua glass included one pharmaceutical vial 10mm in diameter, one bottle measuring 25mm in diameter, and a fragment of a panel bottled with "-MADE-" molded in the glass. The last identifiable vessel was of manganese glass and measured 83mm in diameter. The manganese glass dates from about 1880, while the hand applied lips pre-date 1900.

Table 95.
Artifact Pattern at the Storehouse

	Kendal Slave House	Store House	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]	Yeoman Pattern[5]
Kitchen	30.4	41.1	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8	40.0 - 61.2
Architecture	65.5	56.7	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2	35.8 - 56.3
Furniture	0.2	0.0	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1	0.4
Arms	0.3	0.7	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2	-
Tobacco	0.2	0.3	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7	-
Clothing	0.5	0.7	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7	1.8
Personal	0.1	0.0	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2	0.4
Activities	2.8	0.5	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4	1.8

[1] Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singleton 1980
[5] Drucker et al. 1984

Tableware includes two 3-inch diameter tumblers, a clear glass handle, a clear glass bowl fragment, and both a foot and portion of bowl, both of manganese glass.

Other kitchenware items were limited to five iron cauldron fragments and a white metal bottle stopper.

Architectural Artifacts

Over 80% of the architectural remains are nails (n=978). Most of these (52.5%, n=514) had to be placed in an unidentifiable category because of their poor and fragmentary condition. However, of those that could be identified, 97.8% (n=454)

Table 96.
Form of Vessels at the Storehouse

	Hollow Ware		Flat Ware		Serving		Utilitarian	
	Cup/Mug	Bowl	Saucer	Plate	Pitcher	Lid	Storage/ Jar	Chamber Pot
Chinese porcelain, blue hand painted	1			2				
Chinese porcelain, poly HPOG			1					
White porcelain			1	1	1			
Subtotals	1		5		1		0	
Delft, undecorated		1		1				
Delft, blue hand painted				2				
Subtotals	1		3		0		0	
White SGSW	1			4				
White SGSW, slip dipped			1					
White SGSW, scratch blue								
Subtotals	1		5		0		0	
SGSW, brown							1	
Subtotals	0		0		0		1	
Coarse Red Earthenware		3						
Subtotals	3		0		0		0	
Creamware, undecorated				3				1
Creamware, annular/cable/mocha				1				
Subtotals	0		4		0		1	
Pearlware, annular		2						
Pearlware, edged				8				
Pearlware, hand painted		2						
Pearlware, transfer printed	1	1						
Subtotals	6		8		0		0	
Whiteware, undecorated	1	1	1	2		1		
Whiteware, annular		4						
Whiteware, edged	1			4				
Subtotals	7		7		1		0	
Other ceramics		1		1				
Subtotals	1		1		0		0	
Totals by Function	20		33		2		2	
%	35.09		57.89		3.51		3.51	

are machine cut with machine applied heads. Only 10 nails were identified as wrought and no wire nails were recovered.

The size of nails recovered suggests that at least one of the structures built on this site was of frame construction, probably with a wood shingle roof. Very few framing nails were recovered, possibly because of the very simple construction and small size of the building.

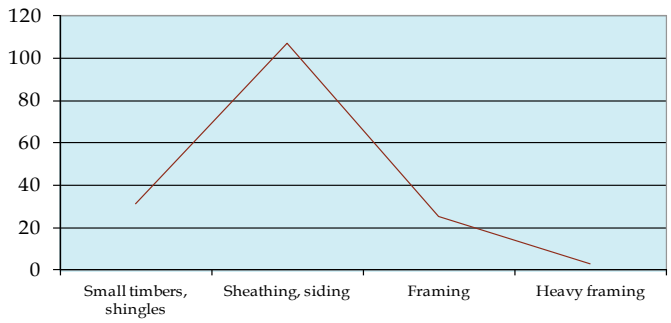


Figure 173. Machine cut nails from the Storehouse.

Although 233 fragments of window glass were found, this provides – at best – ambiguous evidence of glazed windows considering the small fragment sizes and the proximity of structures with abundant windows.

Otherwise, the only architectural item likely associated with the structure was a single pintle. This was probably used for the entrance door.

Furniture Artifacts

The single furniture object, almost certainly originating elsewhere on the site, is a brass knob.

Arms Artifacts

Although a number of arms-related artifacts are present in this assemblage, it is unclear how many are actually associated with the original building. The most common artifact are small flint flakes, found throughout the nearby colonial structures and thought to represent efforts at resharpening or producing gun flints. Nine of the 11 flakes are probable English or black flint. An additional flake is gray chert, also thought to be English.

The one gunflint recovered from the excavations is also black flint, representing a square flake. It measures 20.66mm in width, 19.49mm in length, and 7.83mm in thickness.

Also recovered is a .32 caliber rim fire shell. This caliber is today nearly obsolete, but prior to WWII there were a variety of .32 caliber rifles and handguns. The rifles were recognized as good for small game hunting.

The last arms item is a shotgun shell marked, "U.M.C. CO/No/ 12/XX." Produced by the Union Metallic Cartridge Company, the "XX" mark is thought to mean that it was a low cost second round, used by those who couldn't afford or didn't choose to spend the money on better shells. We have, however, been unable to find a manufacturing date for this item.

Tobacco Artifacts

Tobacco artifacts are uncommon at this structure, consisting of a fragmentary ribbed ball pipe bowl, four pipe stems, and a ribbed stub stem pipe fragment.

Clothing Artifacts

Thirteen of the fourteen clothing specimens represent 12 buttons and the one other item is a fragmentary collar stud. Most of the buttons (Table 97) are Type 23 Prosser buttons, which post-date 1840 are are identical to those found in the nearby slave house. The milk glass button likely dates from about the same time. The remaining two buttons are more likely associated with the colonial occupation of the site.

The buttons are nearly equally divided between the sizes Luscomb (1971:121) indicates

Table 97.
Buttons Recovered from the Storehouse Block

South's Type	Description	Number	Measurements (in mm)
7	Spun brass/white metal with eye cast in place	1	22
9	Brass flat disc, hand stamped face, no foot	1	18
18	Stamped brass or white metal	1	19
21	Iron with fiber center	1	20
23	Porcelain, convex	7	5-11, 17, 18
-	milk glass	1	11

were used on shirts and pants (7-13mm) and those used on coats.

The collar stud or button, also similar to those found in the Slave House, post-dates 1827 when detachable collars were introduced.

Activity Artifacts

Ten artifacts from the Activities Group were recovered, most of them representing miscellaneous hardware items that fail to provide much information concerning the building. The single farm tool is a fragmentary turpentine pot similar to those found in and around the Slave House and dating from the twentieth century. The single storage item is a hasp.

Dating

The Storehouse, based on artifacts such as the turpentine pot, the collar stud, the Prosser buttons, and even the nails, suggests a nineteenth century date.

The ceramics recovered from the block excavations, like all of the other excavations at Kendal, represent a broad range of eighteenth and nineteenth century wares. Table 98, however, reveals that the collection yields a mean ceramic date of 1811.6, with a standard deviation of 55 years (Table 98). This is similar to the date obtained at the Slave House.

South's Bracket Dating provides anomalous results, although if we eliminate those wares pre-dating the Revolution, we can obtain a date range of 1795 through 1830, which closely corresponds to the mean ceramic date just proposed. Finally, the Salwen and Bridges date range is from 1740 to 1900, with the most intensive deposition between 1760 and 1830.

Interpretation

Although ceramics suggest that the structures date perhaps as early as about 1780 and were destroyed in the mid-antebellum, other artifacts might indicate a longer period of use. It is simply impossible with the evidence at hand to know how long the structures stood (although archaeological evidence

Table 98.
Mean Ceramic Date for the Storehouse Excavations.

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	3	5190
Underglazed blue porc	1660-1800	1730	8	13840
White porc	1745-1795	1770	4	7080
NA salt glazed stoneware	1826-1905	1866	24	44784
Nottingham stoneware	1700-1810	1755	1	1755
Westerwald	1700-1775	1738	1	1738
White salt glazed stoneware	1740-1775	1758	16	28128
White sg sw, slip dipped	1715-1775	1745	3	5235
Lead glazed slipware	1670-1795	1733	5	8665
Jackfield	1740-1780	1760	1	1760
Asbury	1725-1750	1737	1	1737
Refined agate ware	1740-1775	1757	1	1757
Clouded wares	1740-1770	1755	1	1755
Decorated delft	1600-1802	1750	4	7000
Plain delft	1640-1800	1720	13	22360
Buckley ware	1720-1775	1748	2	3496
Creamware, undecorated	1762-1820	1791	75	134325
Pearlware, poly hand painted	1795-1815	1805	9	16245
Pearlware, blue hand painted	1780-1820	1800	9	16200
Pearlware, blue trans printed	1795-1840	1818	24	43632
Pearlware, edged	1780-1830	1805	12	21660
Pearlware, annular/cable	1790-1820	1805	10	18050
Pearlware, molded	1800-1820	1810	7	12670
Pearlware, undecorated	1780-1830	1805	44	79420
Whiteware, blue edged	1826-1880	1853	5	9265
Whiteware, poly hand painted	1826-1870	1848	6	11088
Whiteware, blue trans printed	1831-1865	1848	3	5544
Whiteware, non-blue trans printed	1826-1875	1851	5	9255
Whiteware, annular	1831-1900	1866	11	20526
Whiteware, undecorated	1813-1900	1860	77	143220
Yellow ware	1830-1940	1885	1	1885
Total			386	699265
Mean Ceramic Date				1811.6
SD				55.3

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				395	
English porcelain	1745-1795	50	13		0.001
Overglazed enameled porc	1660-1800	140	3		0.000
Underglazed blue porc	1660-1800	140	8		0.000
NA salt glazed stoneware	1826-1905	79	24		0.001
Nottingham stoneware	1700-1810	110	1		0.000
Westerwald	1700-1775	75	1		0.000
White salt glazed stoneware	1740-1775	35	16		0.001
White sg sw, slip dip	1715-1775	60	3		0.000
Lead glazed slipware	1670-1795	125	5		0.000
Jackfield	1740-1780	40	1		0.000
Clouded wares	1740-1770	30	1		0.000
Agate wares	1740-1775	35	1		0.000
Astbury ware	1725-1750	25	1		0.000
Decorated delft	1600-1802	202	4		0.000
Plain delft	1640-1800	160	13		0.000
Buckley ware	1720-1775	55	2		0.000
Creamware, undecorated	1762-1820	58	75		0.003
Pearlware, poly hand painted	1795-1815	20	9		0.001
Pearlware, blue hand painted	1780-1820	40	9		0.001
Pearlware, blue trans printed	1795-1840	45	24		0.001
Pearlware, edged	1780-1830	50	12		0.001
Pearlware, annular/cable	1790-1820	30	10		0.001
Pearlware, molded	1800-1820	20	7		0.001
Pearlware, undecorated	1780-1830	40	44		0.003
Whiteware, blue edged	1826-1880	54	5		0.000
Whiteware, poly hand painted	1826-1870	44	6		0.000
Whiteware, blue trans printed	1831-1865	34	3		0.000
Whiteware, non-blue trans printed	1826-1875	49	5		0.000
Whiteware, annular	1831-1900	69	11		0.000
Whiteware, undecorated	1813-1900	87	77		0.002
Yellow ware	1830-1940	110	1		0.000

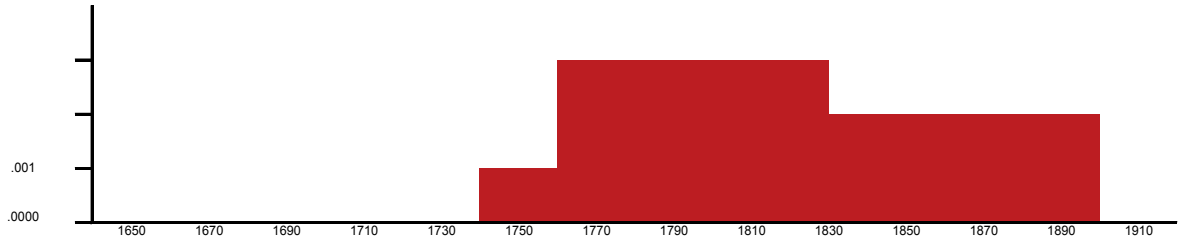


Figure 174. Salwen and Bridges dating for the Storehouse.

reveals that the structure was rebuilt at least once during its history).

The artifacts are equally ambiguous regarding the function of the building. There are no remains that might suggest tool storage. There are no stable or barn items that would suggest a tack or harness room. Nor is there any burning in the center of the floor that would suggest the use of the building for meat preservation.

With the elimination of more obvious choices, we are left with relatively few alternatives. For example, Vlach mentions the presence of square chicken houses such as the Kendal structure (Vlach 1993:95). It also seems

consistent in terms of size with a dairy (Vlach 1993:78-79). Finally, he also acknowledges the presence of storehouses, which seem to have functioned for everything else (Vlach 1993:84-85).

The location of this structure near the kitchen makes a dairy function reasonable. Vlach explains that, "a dairy was basically a clean room where milk sat undisturbed in shallow dishes or "pans for about ten hours, until the cream rose to the surface" (Vlach 1993:78). There is, however, no evidence of a water trough or sunken floor, which is typical of such buildings.

As near as we can determine there is no "special" construction or artifact assemblage that might conclusively demonstrate the Kendal example was either a chicken or storage house.

Moreover, it seems that archaeologists often do not identify or study such structures, focusing instead on the houses of master and slave. Consequently, we have no comparable data to compare or contrast to these findings.

Nineteenth Century Root Cellar

As previously discussed in the excavation section, this structure was initially identified as a depression that we thought might be an icehouse or perhaps even a well. The initial efforts to clean out rubble and define some symmetry, revealed a small brick structure, which was encompassed by two 10-foot units (40R180 and 50R180). The bulk of the structure was defined by unit 40R180 and only a small portion of 50R180 was excavated to remove the last of the structure fill.

The absence of a drain, trough, or other floor feature led us to eventually discount the idea of an ice house and eventually settle on a root cellar as the most likely original function for the space.

It became quickly apparent, however, that it had been some time since the building actually served that function. Instead, it appears to have served as a storage building for miscellaneous plantation tools and items. We believe that the structure's function for trash disposal probably began shortly after the fire, maybe by 1920. This is based on the quantity of Kendal House items found during the excavations. Other items were almost certainly added as trash for some years after the loss of the Kendal House.

While only 4,893 artifacts were recovered from the excavations, these came from only 200 square feet; yielding a density of 24.5 artifacts per square feet. When the depth of the units is considered, artifact density drops to 8.9 specimens per cubic foot. A list of these artifacts by provenience is found in Table 99.

The artifact pattern identified from the structure is illustrated in Table 100, but it reveals no significant resemblance to any previous pattern – or even any of the nearby blocks. Clearly, the artifacts from within the cellar represent some "special" actions or activities. As elsewhere at Kendal, these cultural remains will be briefly explored in an effort to better understand the events which lead to the formation of this deposit.

Kitchen Artifacts

Most of the kitchen items in the root cellar are broken glass containers, accounting for 77.6%, (n=675) of the collection. In contrast, ceramics contribute only 19.7% (n=171).

The ceramics represent a broad range of eighteenth and nineteenth century wares, similar to those found elsewhere on this site. Eighteenth century remains (porcelains, white salt glazed stonewares, lead glazed slipwares, creamwares, etc.) represent a minority of items, accounting for only 21% (n=36) of the ceramics. The majority of the ceramics post-date the Revolution (pearlwares, whitewares, a variety of industrial stonewares, etc.) and represent 78.9% (n=135) of the assemblage.

The ceramics, for the most part, represent relatively small fragments that are suggestive of trash being swept up and tossed in the structure. A nearly intact stoneware jug was found in the block and this specimen was almost certainly crushed by the trash thrown into the cellar hole. The item, 14-inches in height, is a gray saltglazed stoneware crock with an interior brown slip. The item is stamped "NEW YORK / STONEWARE CO. / [FORT] EDWARD, N.Y. / 2" and the stamp is infilled with blue cobalt. A stylized flower is present on the item, which was likely a 2-gallon butter churn. Webster (1971:114) illustrates a somewhat similar item, commenting that the company operated from "about 1870 to sometime after 1890." Broderick documents that the company was formed at least by March 28, 1862, when a newspaper notice

Table 99.
Artifacts Recovered from the Root Cellar Block

	40R180, Lv 1	40R180, Lv 2	50R180, Lv 1	Trowel		
Kitchen Group					869	17.8
Chinese porcelain, blue hand painted			1			
Chinese porcelain, poly HPOG	1		2			
White porcelain, undecorated	1	3	5			
White porcelain, decal			7			
White SG SW, slip dipped		1	2			
Delft, undecorated		1				
Delft, blue hand painted		1				
Delft, sponged		1				
Lead glazed slipware		3	1			
Creamware, undecorated	1	3	1			
Pearlware, undecorated		2	2			
Pearlware, blue hand painted		1	2			
Pearlware, poly hand pained		1				
Pearlware, annular			2			
Pearlware, blue edged		1				
Pearlware, blue transfer printed			1	1		
Whiteware, undecorated	1	19	10			
Whiteware, poly hand painted		1	2			
Whiteware, annular		1	4			
Whiteware, blue edged			1	1		
Whiteware, brown transfer printed			1			
Whiteware, black transfer printed			1			
Yellow ware, undecorated		4	1			
Clouded ware			1			
Westerwald		1				
Gray SG SW		51				
Brown SG SW		13		1		
Bristol slip SW		1		1		
Alkaline glazed stoneware		1				
Coarse Red earthenware			4			
Buckley		1	1			
Glass, black	33	29	7	1		
Glass, aqua	9	52	9			
Glass, green			4	1		
Glass, light green	54	32	8	6		
Glass, brown	36	10	1			
Glass, other	1	7				
Glass, clear	72	95	102	15		
Glass, milk	8	36	3	1		
Glass, manganese	30	5	8			
Tableware	14					
Container handle		2				
Kitchenware		3	2			
Colono ware		1	1			
Architecture Group					3438	70.3
Window glass	831	421	509	64		
Melted roof lead			1			
Shutter hinges		4				
Shutter catch		2				
Shutter catch escutcheon		2				
Glass pole insulator		7				
Clay pipe	1	28				
Faucet handle		1				
Nails, machine cut	80	730	187	10		
Nails, wire		20				
Nails, UID	118	250	165	7		
Furniture Group					146	3.0
Iron tacks			1			
Roller shade bracket		1				
Furniture handle		1				
Lamp glass		18				
Oil lamp, brass		23				
Marble dresser top frags		83		2		
Hinge fragments		2	1			
Statue or vase frags		2	1			
Stove parts, iron	1	11				
Arms Group					6	0.1
Percussion cap containers	2					
Gun flint	1					
Shotgun shell base, brass	1	2				
Tobacco Group					1	0.0
Pipe bowl fragments			1			
Clothing Group					3	0.1
Buttons			3			
Personal Group					0	0.0
Activities Group					425	8.7
Construction tools		1				
Storage items		14				
Stable and barn items	1					
Misc. hardware	1	5	2			
Other	1	400				
TOTAL	1299	2411	1068	111	4,889	

Table 100.
Comparison of the Root Cellar to Various Artifact Patterns

	Root Cellar	Kendal Slave House	Store House	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]	Yeoman Pattern[5]
Kitchen	17.8	30.4	41.1	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8	40.0 - 61.2
Architecture	70.3	65.5	56.7	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2	35.8 - 56.3
Furniture	3.0	0.2	0.0	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1	0.4
Arms	0.1	0.3	0.7	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2	-
Tobacco	0.0	0.2	0.3	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7	-
Clothing	0.1	0.5	0.7	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7	1.8
Personal	0.0	0.1	0.0	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2	0.4
Activities	8.8	2.8	0.5	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4	1.8

[1]Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singleton 1980
[5] Drucker et al. 1984

reported the dissolution of the partnership of Satterlee & Russell and the creation of a new firm, Satterlee & Mory which produced pottery stamped New York Pottery Co. They apparently ran into financial problems in the 1880s, with their inventory being sold by the sheriff in 1891 (Broderick 1991:124-125,128).

Figure 175. New York Stoneware crock from the Root Cellar.

Another intact vessel is a Bristol glazed stoneware ointment jar 1¾-inches in height. Inside are the remains of a cork and brownish-black residue lump (Figure 176).

This material was submitted to Unearthed Solutions in Spokane, Washington for analysis. The residue was examined using stereo-binocular microscopy, polarizing light microscopy (PLM), scanning electron microscopy-energy dispersive spectroscopy (SEM-EDS), Fourier transform infra-red spectroscopy (FT-IR), gas chromatography-mass spectroscopy (GC-MS) and an ignition test. Inorganic analysis revealed the presence of ferric oxide and lead. Other minor elements included calcium, aluminum, and silicon. Organic materials were not detected in the sample using GS-MS.

Figure 176. Ointment jar. To the left (top) is the remnant cork; below is the lump of black material found in the jar.

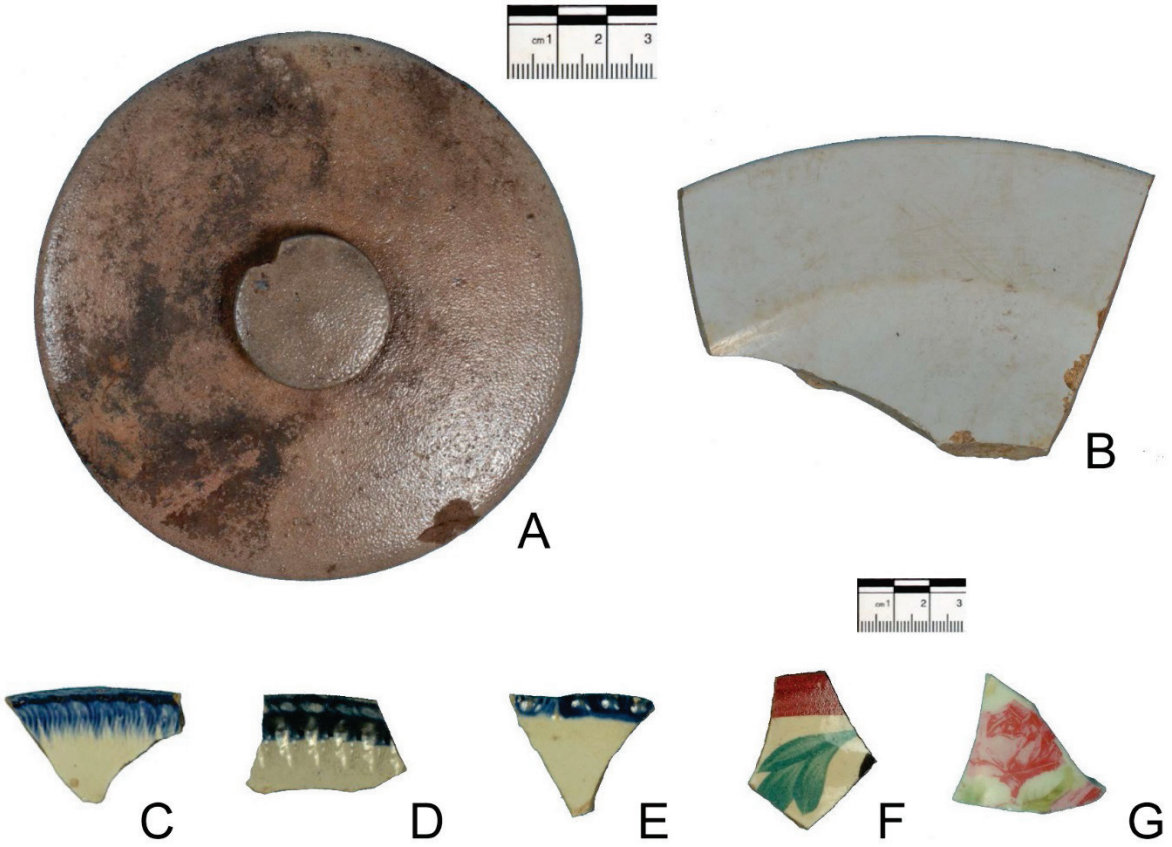


Figure 177. Ceramics recovered from the Root Cellar excavations. A, brown salt glazed stoneware lid; B, undecorated whiteware; C-E, blue edged whiteware; F, polychrome hand painted whiteware; G, decal white (probably American) porcelain.

While we know what was in the container, we have not been successful in determining its function.

The assemblage was evenly divided between hollow wares and flat wares (both represented by eight vessels and representing 33% of the total). Serving vessels (n=2) represent only 8% of the assemblage. Unlike other proveniences at Kendal, utilitarian vessels are common, representing 25% of the total (n=6) and most of these are stonewares. Given that several of these are intact, or nearly so, we suspect that they were being stored in the structure prior to its abandonment.

Fully two-thirds of the pearlwares are low cost motifs, while 89% of the whitewares are annular, edged, or plain motifs.

Nearly 78% of the kitchen assemblage is comprised on container glass, with clear being the most common, followed by light green. A wide variety of forms are present, although as with the ceramics, most of the items are fragmentary and relatively few items were found intact.

The clear glass includes seven identifiable containers, including two ink bottles. One is intact, measuring 1⅝-inches square. The side is embossed "B" inside a diamond. This trademark has not been

Table 101.
Form of Vessels in the Root Cellar

	Hollow Ware		Flat Ware		Serving			Utilitarian	
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Pitcher	Lid	Storage/ Jar	Chamber Pot
Chinese porcelain, blue hand painted	1								
White porcelain, undecorated	1			1			1	1	
Subtotals	2		1			1			1
Stoneware					1			5	
Subtotals	0		0			1			5
Pearlware, annular		1							
Pearlware, edged				1					
Pearlware, hand painted		1							
Subtotals	2		1			0			0
Whiteware, undecorated	1		2	2					
Whiteware, annular		2							
Whiteware, edged				1					
Whiteware, hand painted			1						
Subtotals	3		6			0			0
Other ceramics		1							
Subtotals	1		0			0			0
Totals by Function	8		8			2			6
%	33.33		33.33			8.33			25.00

identified. The other ink bottle is fragmentary, but round. One probable liquor bottle, measuring 3¼ by 2-inches. A 3½-inch diameter jar was recovered; on the base it was marked "PA[TENT]/__E__." Another vessel was a panel bottle without further identification. A probable condiment bottle measuring 5¼-inches in height and 1⅛-inch in diameter was found. Another nearly intact bottle with a basal diameter of 2-inches and a height of 5¼-inches was embossed "CLG CO/4" on its base. This is the mark of the Carr-Lowrey Glass Company of Baltimore, Maryland which began in 1889 and extended into the twentieth century. The company manufactured a wide range of bottles, including prescription, beer, soda, wine, brandy, preservers', and packers' bottles (Toulouse 1971:134; https://sha.org/bottle/pdffiles/**CarrLowreyGlassCo**.pdf). This example also evidences remnant lead foil along and under the rim, indicating that the bottle was originally sealed.

At least three manganese glass containers could be identified in the assemblage. This glass tends to date from about the mid-1870s and continued through 1920 (or until the loss of the Kendal House by fire) (Lockhart 2006). One of these is a pharmaceutical bottle; another, 2-inches in diameter, is embossed on its base "CA__ /MADE [IN] U.S.A." The final example is embossed "__ DURKEE" and represents a product produced by E.R. Durkee, a "Wholesale and Retail Dealer in Drugs, Medicines, Perfumery, Brushes, Fancy Articles, Glassware, Congress Water, Leeches, Cigars, Pure Wines, Liquors, Oils, Camphene, Burning Fluid &c." in Buffalo, New York as early as 1850. Products specifically linked to his name included Durkee's Venetian Liquid Hair Dye, Durkee's Vermifuge, Durkee's Baking Powder, and his still famous salad dressing combination of mustard and mayonnaise. In 1929 – a decade after the loss of the Kendal House – Durkee was bought out by Glidden Foods (Toulouse 1971:182-184; https://sha.org/bottle/pdffiles/ERDurkee&Co.pdf).

Two decanter stoppers were recovered. One is a bright blue blown glass with the stopper ground and measuring ¾-inch. The other is dark aqua and only the ground stopper portion was recovered. The decanters for these stoppers were not identified.

There were, however, two blue bottles

Figure 178. Container glass from the Root Cellar. A, clear glass ink bottle; B, bright blue decanter stopper; C, aqua panel bottle fragment; D, blue glass bottle with pouring spout; E, light green glass condiment or cream bottle; F, clear glass embossed CLG Co. with lead foil; G, soda bottle with crown cap; H, aqua glass bottle.

identified in the root cellar. One was blown in a three-piece mold with a pouring lip and was embossed "__OD'S__." This may represent a lotion, hair dressing, or ink bottle. The other container is a preserve jar fragment, measuring 2½-inches in diameter.

Light green glass included four panel bottles, two fragmentary soda bottles (one with a crown cap still in place). The crown cap was introduced in 1892 (Lief 1965:22). One of the soda bottles was embossed "__AB__." A fragment of light green glass was embossed with "PAR__" while another appears to represent a preserve or canning jar (these post-date1858). A final example is a cream or condiment bottled measuring 6½-inches in height and 2¼-inches in diameter.

Figure 179. Kitchenware items from the Root Cellar. A, pot handle; B, handle.

Three aqua bottles were recovered, including one with a diameter of ⅝-inches and another measuring 4½-inches in diameter. The third bottle is embossed "WO__ / [S]AUCE," and represents a probable Lea & Perrins Worcestershire Sauce bottle. This is a nearly ubiquitous brand at historical sites and while there were a variety of manufacturers, Lea & Perrins apparently outsold them all. Moreover, their trademark was vigorously enforced by Lea & Perrins (Wilson 1981:84; https://sha.org/ bottle/food.htm).

The two black bottles identified include one with a 2¾-inch diameter and another embossed "__N__/__SA__."

There are also two brown bottles, one measuring 2¾-inches in diameter and embossed "__S/62__/MIL__." The other measures 3¼-inch in diameter.

The last identifiable item was a milk glass preserve jar liner. These were introduced as early as 1869 (Toulouse 1969b:350).

Tableware glass was not common, but included six tumbler fragments (four measuring 2-inches in diameter, one measuring 2¾-inches, and one measuring 2-inches). The assemblage also produced a fragment of a rectangular milk glass container, such as a candy dish.

Kitchenwares included two kettle fragments, one can or canister lid, one cooking vessel handle, one agate ware sauce pan fragment measuring 10-inches in diameter and 4½-inches in height, and a handle for a strainer or dish pan.

Architectural Artifacts

The majority of the architectural items (n=1825, 53%) are window glass fragments. Since

at least two elevations lacked windows based on a historic photograph, we suspect this glass is not original to the structure, but may have been salvaged from the main house or otherwise discarded in the root cellar.

Nearly as common (n=1567, 45.6%) are nails, with nearly two-thirds consisting of machine cut specimens. An additional 540 nails were too corroded for additional analysis and only 20 wire nails were recovered.

If the nail sizes are examined, those associated with shingles and siding are nearly equal (n=188 and 168, respectively). When the photograph of the structure is examined carefully, wood shingles are visible, as is plank siding, the abundance of these two sizes seems reasonable and to be expected. Framing nails (n=151) are nearly as common and were likely used in the construction of the structure above the brick subterranean walls. Heavy framing nails are nearly absent since they were likely not needed for this small building. Consequently, the nails are suggestive of a structure that fell in on its self or was intentionally demolished with little salvage. The near absence of wire nails suggests that relatively little repair of this structure ever took place during its lifespan.

Other architectural remains, like the glass, suggest an origin elsewhere on the Kendal site. For example, the four shutter hinges, two shutter catches, and two shutter catch escutcheons are identical to those found at the Kendal House and may represent salvage. Curiously, hardware specifically associated with the root cellar, such as hinges for the south facing entrance door, are absent. This may suggest some degree of salvage at the structure before it was abandoned.

Seven fragments of a glass insulator for telephone or telegraph poles were recovered. The insulator, of aqua glass, was marked "BROOKFIELD." Manufactured by the Brookfield Glass Company, this mark was apparently used in the 1870s through the early twentieth century. The style is identified as CD 101 (McDougald and McDougald 1990:1:24-28, 2:2).

Since the insulator was melted prior to breakage, this suggests that the item was in the Kendal House when it burned in 1919 and may represent a "found object."

Furniture Artifacts

Eighty-five of the 146 furniture objects are fragments of a marble dresser top that was discarded in the root cellar. Reconstructed, this top measures 40½-inches by 17-inches and was ⅞-inch in thickness. Typical of tops that contained some form of mirror or other backstop, the front and 11¾-inches of the sides were beveled. Since other furniture hardware was scarce, it seems likely that the top was discarded without the rest of the dresser.

The single furniture hardware was a brass drop handle 3½-inches in length with a drop of 1¼-inches. Also present were three small brass hinges for a box or other container.

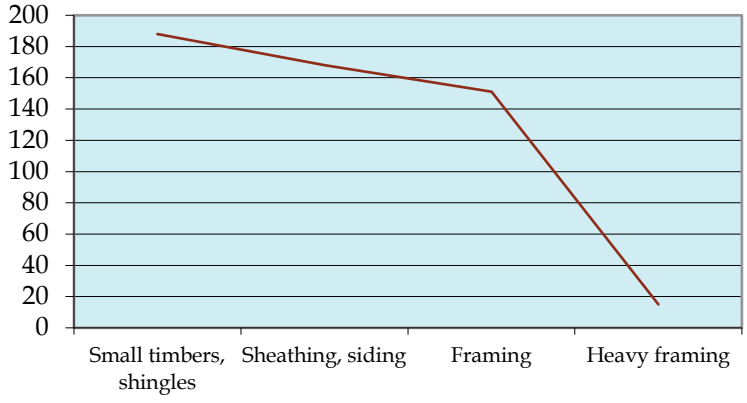


Figure 180. Machine cut nails recovered from the Root Cellar.

Figure 181. Brass furniture handle from the Root Cellar.

Far more common were lamp or lantern fragments, including 23 fragments of fixtures and 18 fragments of clear lamp glass. Several types are present in the assemblage, with the most complete being a nearly intact decorative oil font, with filler hole, wick raiser, and burner (Figure 182A). The stem is partial and the base is missing. This kerosene burning lamp measures 9¾-inches in width and 7¼-inches in height. It is a type known as a central draft burner and used a round wick. It originally would have been shaded. In the center of the burner is the monogram "EM & Co." for Edward Miller and Company.

The central draft burner is characterized by a central air intake tube surrounded by a circular wick. It dates from the last quarter of the nineteenth century into the twentieth. While Edward Miller was a major lamp manufacturer, he also supplied burners to a variety of other companies during the "golden age" of kerosene lighting (from about 1890 to 1900). While the lamp is very similar to "The Miller Lamp" patented in June 1892, there is no identification on the Kendal specimen (http://www.edwardmillerkeroseneoillamps.com/edwardmiller%26co.-abrief history).

One additional central draft burner is present (Figure 182 E, F). Also recovered are two rare rectangular burners using flat wicks. [1] Consequently, at least four kerosene lamps were discarded in the root cellar.

The recovery of 23 globular glass font fragments indicates that at least one of the lamps had a glass font or kerosene reservoir.

We also recovered a variety of parts associated with a tubular lantern, including a base plate, fragmentary handles, circular burner, and a diffuser with glass chimney supports (Figure 182 C, G, I). This would have been a more utilitarian lighting device, primarily intended for exterior use or in drafty locations. Being easily portable they might be used in barns and out-buildings or for outdoor activities (Woodhead et al. 1984:65). In contrast, the previously discussed lamps were fashionable during their period of use and used primarily inside dwellings.

While four lamps and one lantern were recovered, we were able to identify only five fragments of scalloped lamp chimney glass. Woodhead et al. (1984:62) indicates that equipment capable of producing these borders was patented in 1877.

Intermediate between lamps and stoves (the latter discussed below), are what were known as "lamp-stoves." These were small kerosene burning stoves, often with windows to allow light to be produced. They were advertised as a convenient way to heat sad irons or cook small quantities of food without the necessity of building a full wood or coal fire. They were also relatively inexpensive, with at least one manufacturer selling them wholesale for about $1.50 each. One of the predominant producers was the Cleveland FDY Co., although other companies included Central Oilgas Stove Co., B&B Oil & Gas Stoves, and the Adams and Westlake Manufacturing Co.

[1] Rectangular burners are sufficiently rare that they are not mentioned by Woodhead et al. (1984).

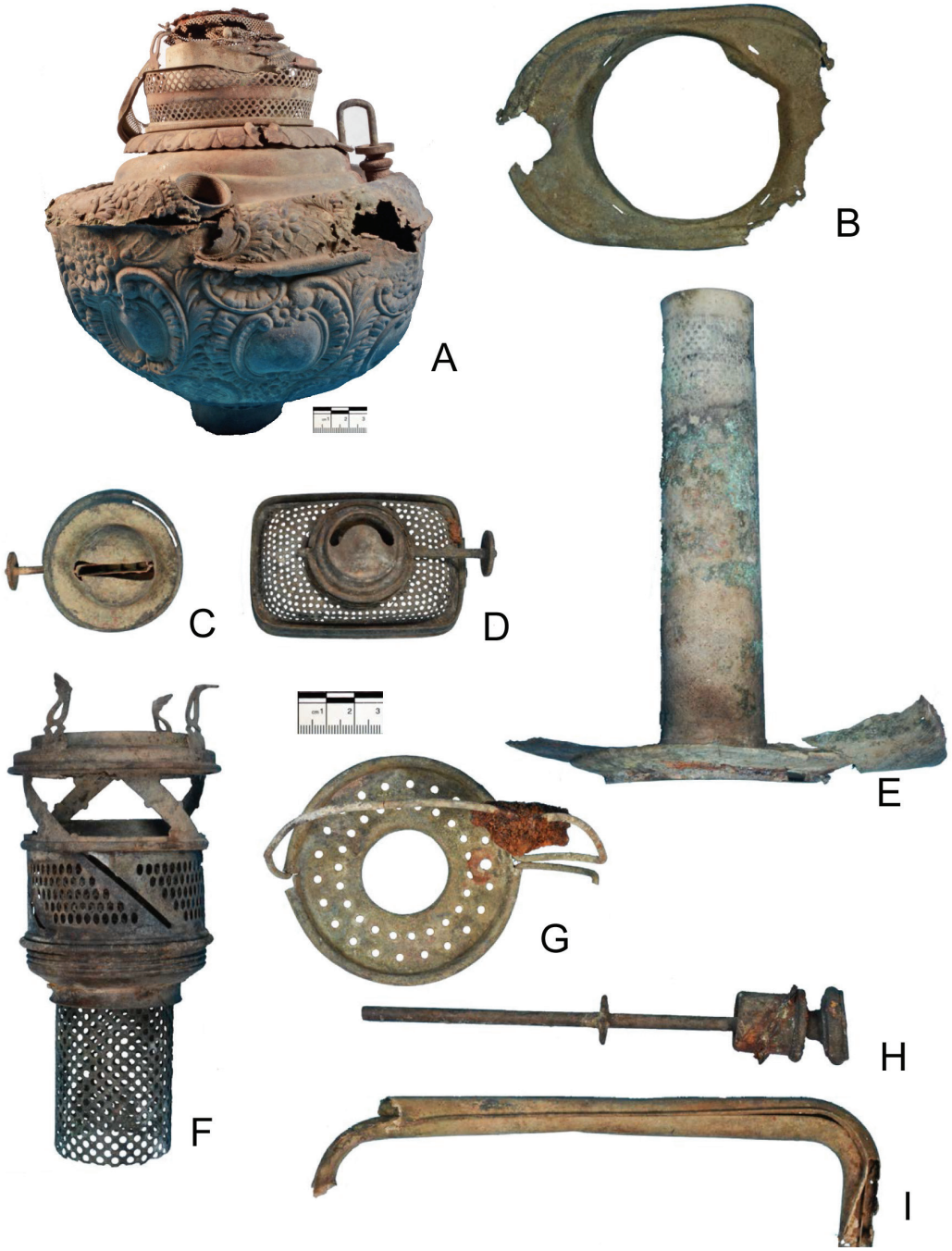


Figure 182. Lantern parts from the Root Cellar. A, decorative oil font; B, brass lantern font; C, round lantern burner; D, rare rectangular lantern burner; E-F, central draft burner; G, lantern diffuser with handles (for glass chimney support); H, wick raiser; I, brass lantern handle fragment.

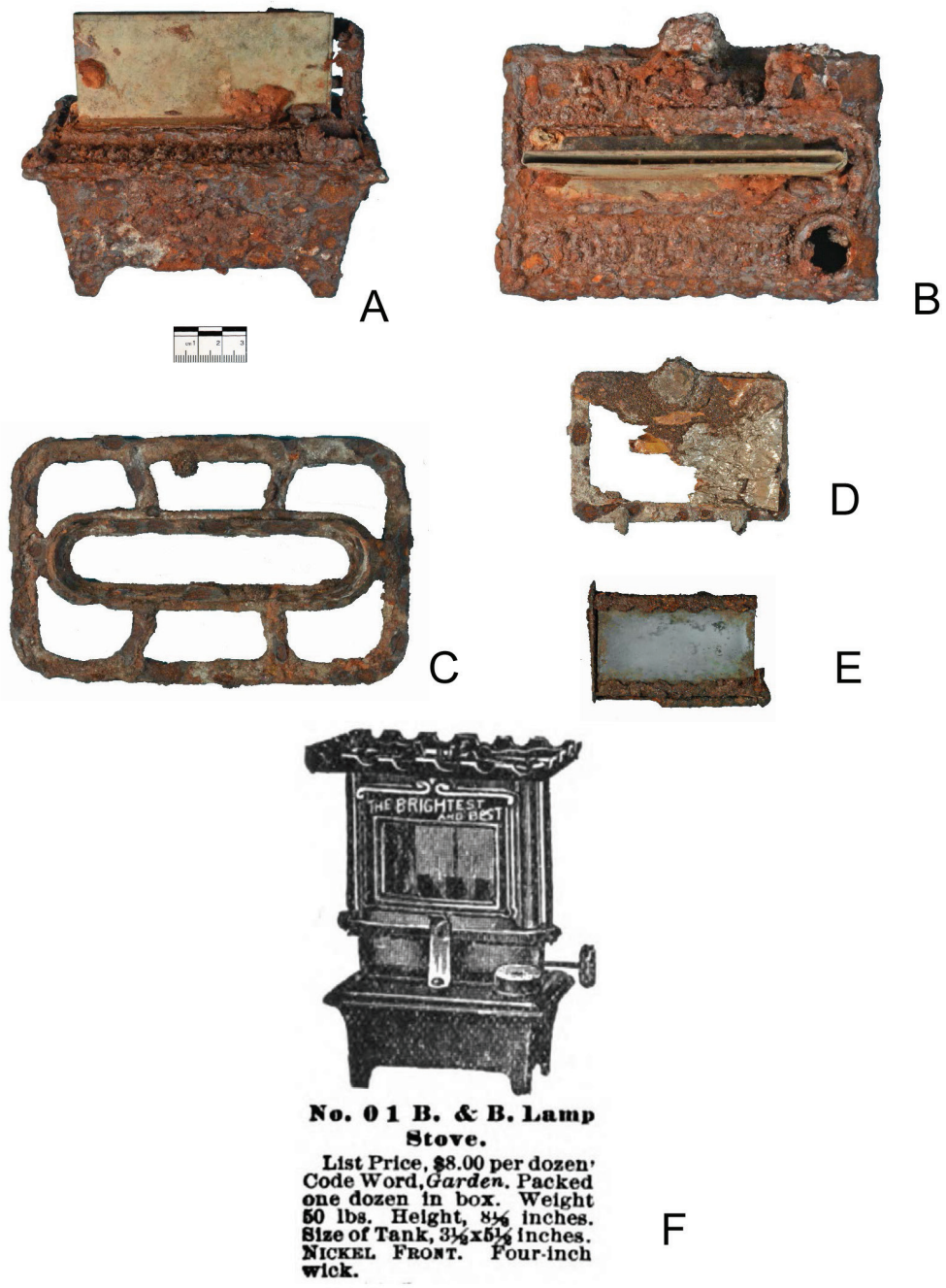


Figure 183. Lamp-stove remains from the Root Cellar. A-B, one of the two burners from the side and from above; C, grate for the top of the lamp-stove; D, reflector on door of housing surround the burner; E, glass plate that allowed the device to be used as a lamp; F, advertisement for a lamp-stove similar to the ones found in the root cellar (*The Metal Worker*, April 14, 1894, pg. 36).

The remains of two such lamp-stoves are present in the root cellar, along with a glass panel, reflector, and stove grating (Figure 183).

Eight fragments of iron cooking stoves were recovered. These include primarily "short center" and ½ long center parts – portions of the stove top that formed surrounds of the cooking holes. These were common repair parts for several brands of cook stoves, including the Red Bird (for wood only) and the Blue Bird (for wood and coal). A shelf that could have been added to one end of the stove to provide additional work space for hot skillets and pan was also found in the assemblage. None of these stove parts appear to have been used and may have been replacement parts discarded after the Kendal House fire.

Arms Artifacts

Five arms-related artifacts were recovered from the Root Cellar, including two percussion cap containers. One container, of stamped brass, measured 1½-inches in diameter and ⅞-inch in height. Stamped on the lid is "250 / U.M.C. / PRIMERS / NO. 2." Inside the container are 173 brass percussion caps, indicating that at least some had been used prior to the container being discarded. The other container measures the same, but is of stamped tin and heavily corroded. Damage to one side reveals that it is filled with percussion caps.

Percussion caps were introduced about 1820 and while still in use by some enthusiasts today, were largely obsolete by the 1860s, when breech-loading metallic cartridges became widely available. The percussion cap is a small cylinder or cap of copper or brass filled with shock-sensitive explosive material such as fulminate of mercury. The percussion cap would be placed over a hollow metal nipple at the rear of the gun barrel and, when struck, would fire the black powder charge.

The presence of these items in the Kendal Root Cellar suggests that in the first decades of the twentieth century there were still percussion cap weapons at Kendal. Alternatively, they may have been discarded because there were no weapons on-site still using them.

U.M.C. was Union Metallic Cartridge Company, which was organized in 1867 and bought by Remington in 1911. Nevertheless, "U.M.C." continued to be used throughout the twentieth century.

Figure 184. Percussion cap containers from the Root Cellar.

The single gun flint in the assemblage is a dark gray English flake flint, measuring 22.46 by 17.38 by 5.86. The edge shows use, suggesting that the flint may have been discarded.

Also present were three shotgun shells. One has the headstamp "U.M.C. Co. / No / 12 / CLUB." This was the first generation of CLUB shells sold by the Union Metallic Cartridge Company and at least one authority dates the shells between 1885 and 1891 (http://www.headstamps.x10.mx/umcco.html).

Another Union Metallic Cartridge product is the "U.M.C. Co. / No. 8." While a few of these are found in collections and in auctions, we have been unable to obtain a specific date.

The last shotgun shell has the headstamp "PETERS/NO/10/REFEREE." This shell likely dates from the turn of the century to about 1911 (http://www.headstamps.x10.mx/peters.html).

Table 102.
Brass Objects Found in the Root Cellar
(not including connected objects and loose thumb screws)

Figure 185	Number	F/R	Length (in.)	Width (in.)	Thickness (in.)
C	33	Flat	6.4375	0.25	0.025
D	82	Flat	5.25	0.25	0.02
E	78	Flat	3.75	0.1875	0.02
F	79	Flat	2.75	0.1875	0.01
G	37	Round	4.125	-	0.07
H	30	Round	6.4375	-	0.07
I	9	Round	4.125	-	0.07

Clothing Artifacts

For all of the large trash items present, clothing represents only 0.1% of the total assemblage and consists of three buttons. Two of these are white Prosser 4-hole buttons (South's Type 23), post-dating 1840 (Sprague 2002). The third button is the front of a South's Type 27 button. While the button originally was gilded, little remains and there is no design.

Activities Artifacts

Activities-related artifacts represent 8.7% of the total assemblage, with most of these remains (n=400) found in the "Other" category.

A single construction tool was recovered from the Root Cellar, a curved drawknife, typically used to debark trees. The single stable and barn item is a horseshoe.

Thirteen of the fourteen storage items are buckets or bucket parts, including one complete bucket, two fragmentary buckets, three ears or lugs, and six handle fragments. In addition, there is the base of a square bucket or can. The intact bucket measures 8¾-inches in diameter at the base and 11½-inches at its rim, with a height of 9¾-inches. The two fragmentary buckets are very nearly the same size, while the square bucket or container measures 9¼-inches on a side.

Miscellaneous hardware includes three screws, one bolt, one length of chain, and three staples.

As mentioned, the largest category is that of miscellaneous items. Most of this collection consists of 355 brass items illustrated in Figure 185. Seven distinct forms can be identified, broadly divided into flat and round rods and itemized in Table 102.

In spite of extensive efforts to identify the original function of these objects, we have been unable to determine their purpose. Hopefully a reader will recognize the objects and contact us.

These were not, however, the only oddities recovered from root cellar. Figure 186 illustrates one lead surround and six of the eight different stamped copper or brass inserts. The inserts are all 2⅞-inches by 2½-inches and have notches at the top and bottom which appear to have originally matched openings in a molded lead frame, perhaps for tack attachments.

As with the brass rods previously discussed

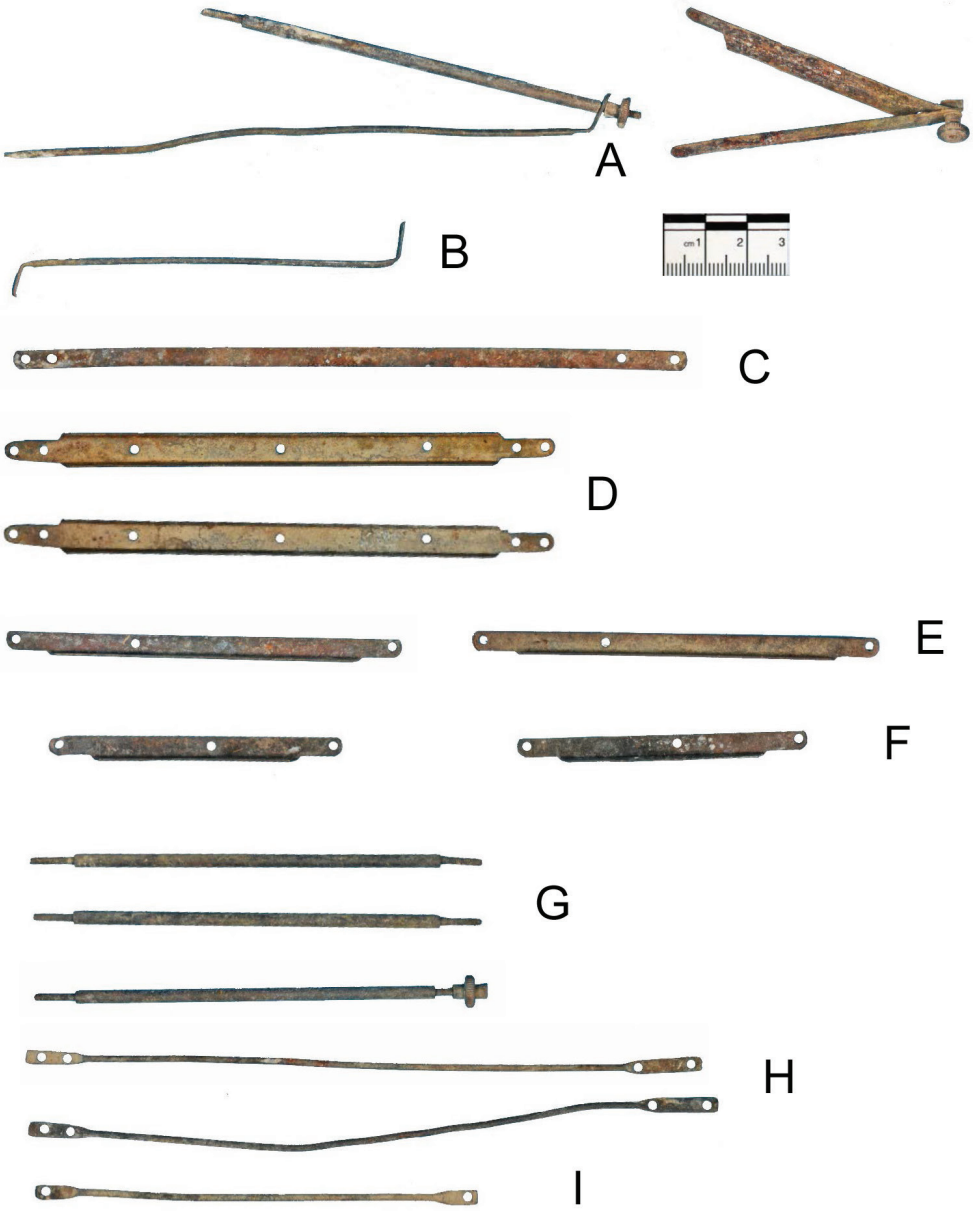


Figure 185. Range of brass strips found in the Root Cellar. A, connected items; B, round rod with bent ends; C, flat rod with four holes; D, large flat rods and worked edges with seven holes; E, medium flat rods and one worked edge with three holes; F, small flat rods and one worked edge with three holes; G, round rods with threaded ends (thumb screw on one); H, long, thin round rods with flattened ends and four holes; I. short. thin round rods with flattened ends and two holes.

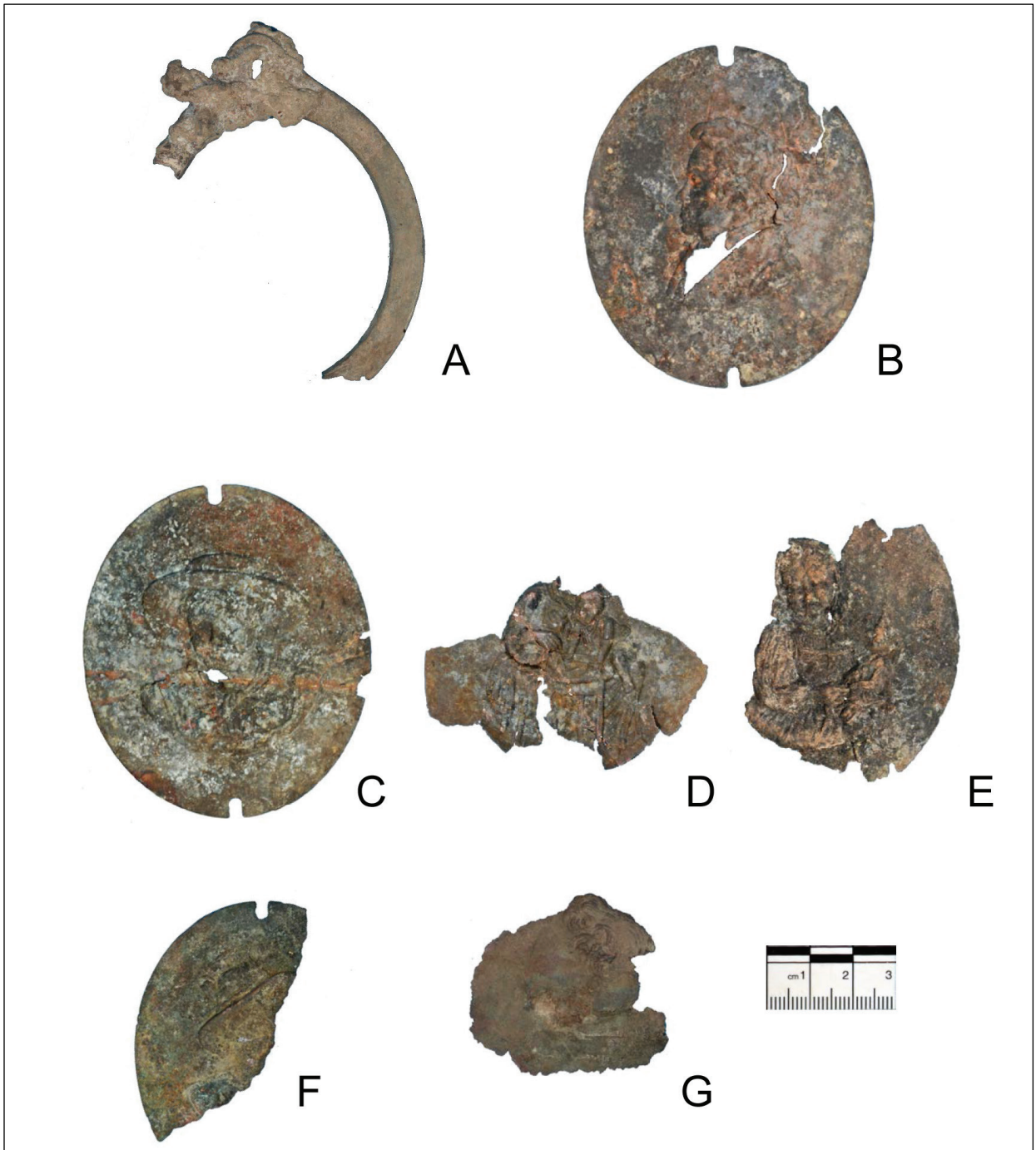


Figure 186. Lead surround and stamped copper images from the Root Cellar. A, partial lead surround (the opening at the top matches notches in the copper disks); B, man's face looking left; C, young man with hat; D, mother and child at table; E, child holding Punch puppet; F, man with hat; G, windows with ivy.

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				92	
American porcelain	1838-1919	81	9		0.001
Overglazed enameled porc	1660-1800	140	3		0.000
Underglazed blue porc	1660-1800	140	1		0.000
Westerwald	1700-1775	75	1		0.000
White sg sw, slip dip	1715-1775	60	3		0.001
Lead glazed slipware	1670-1795	125	4		0.000
Clouded wares	1740-1770	30	1		0.000
Decorated delft	1600-1802	202	2		0.000
Plain delft	1640-1800	160	1		0.000
Buckley ware	1720-1775	55	2		0.000
Creamware, undecorated	1762-1820	58	5		0.001
Pearlware, poly hand painted	1795-1815	20	1		0.001
Pearlware, blue hand painted	1780-1820	40	3		0.001
Pearlware, blue trans printed	1795-1840	45	2		0.000
Pearlware, edged	1780-1830	50	1		0.000
Pearlware, annular/cable	1790-1820	30	2		0.001
Pearlware, undecorated	1780-1830	40	4		0.001
Whiteware, blue edged	1826-1880	54	2		0.000
Whiteware, poly hand painted	1826-1870	44	3		0.001
Whiteware, non-blue trans printed	1826-1875	49	2		0.000
Whiteware, annular	1831-1900	69	5		0.001
Whiteware, undecorated	1813-1900	87	30		0.004
Yellow ware	1830-1940	110	5		0.000

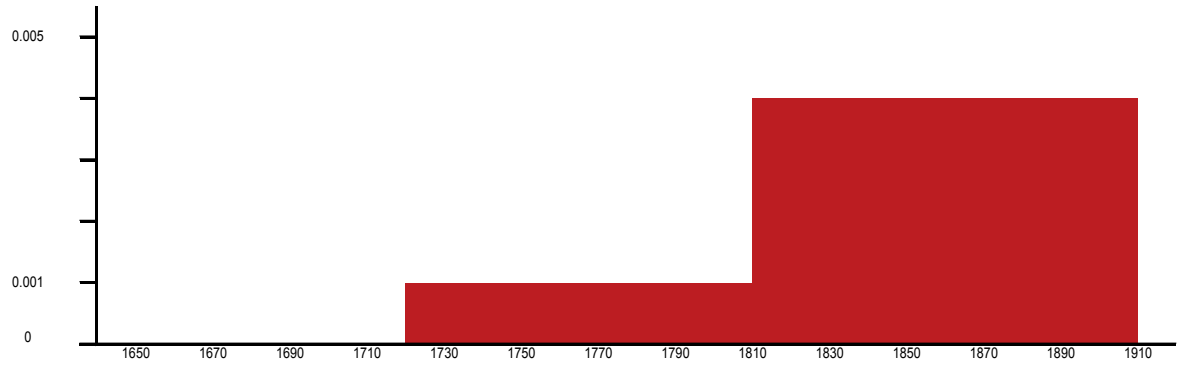


Figure 187. Salwen and Bridges dating for the Root Cellar.

Table 103.
Mean Ceramic Date for the Root Cellar

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	3	5190
Underglazed blue porc	1660-1800	1730	1	1730
American porc	1838-1919	1878	9	16902
Westerwald	1700-1775	1738	1	1738
White sg sw, slip dipped	1715-1775	1745	3	5235
Lead glazed slipware	1670-1795	1733	4	6932
Clouded wares	1740-1770	1755	1	1755
Decorated delft	1600-1802	1750	2	3500
Plain delft	1640-1800	1720	1	1720
Buckley ware	1720-1775	1748	2	3496
Creamware, undecorated	1762-1820	1791	5	8955
Pearlware, poly hand painted	1795-1815	1805	1	1805
Pearlware, blue hand painted	1780-1820	1800	3	5400
Pearlware, blue trans printed	1795-1840	1818	2	3636
Pearlware, edged	1780-1830	1805	1	1805
Pearlware, annular/cable	1790-1820	1805	2	3610
Pearlware, undecorated	1780-1830	1805	4	7220
Whiteware, blue edged	1826-1880	1853	2	3706
Whiteware, poly hand painted	1826-1870	1848	3	5544
Whiteware, non-blue trans printed	1826-1875	1851	2	3702
Whiteware, annular	1831-1900	1866	5	9330
Whiteware, undecorated	1813-1900	1860	30	55800
Yellow ware	1830-1940	1885	5	9425
Total			92	168136
Mean Ceramic Date				1827.6
SD				53.9

discussed, we have been unable to find any similar artifacts in either museum or archaeological collections.

Dating

The mean ceramic date for the ceramic assemblage is 1827.6. This is earlier than anticipated because of the abundant eighteenth century ceramics that were incorporated in the trash associated with the structure (Table 103).

The shell edged whitewares reflect a long period of occupation, with embossed patterns (Figure 177 D, E) having dates from 1823-1835 and impressed patterns (Figure 177 C) being dated from 1813 to 1834. Clearly these remains date from the antebellum period when the plantation was owned by Gabriel Holmes, Jr. and likely reflect ceramics used by his African American slaves. In contrast, specimens such as the intact butter churn date from about 1870 or 1880, when Kendal was being operated by Frederic Kidder.

This is reflected by South's Bracket Dates which suggest a beginning date perhaps as early as 1800 and extending to at least 1900. Almost the same results are provided by the Salwen and Bridges dates shown in Figure 187.

Although these analyses don't provide an entirely complete picture of events at the root cellar, they do pretty clearly indicate that the cellar was constructed during the antebellum, probably in conjunction with the Kendal House, which we have suggested was built about 1820.

We suspect that later in life it was converted from the storage of root crops to the storage of farm and plantation supplies. Examples of such storage may include the numerous lamps and lanters, a sack of Portland cement, and perhaps some of the stoneware items. Eventually, however, the building was abandned.

When this abandonment occurred is more difficult to ascertain. There is a large amount of glassware and other trash deposited in the cellar that appears to late from the last decades of the nineteenth century. One explanation is that these remains date from the death of Kidder in 1908 as the house was being cleaned up and his estate being settled. In other words, this structure served the same function as many eighteenth century and early nineteenth century wells, being filled with

trash as property was sold.

Nineteenth Century Midden

Early on this block was called Eighteenth and Nineteenth Century Midden, based on field observations of the materials present. As the analysis was completed, we realized that while there were certainly eighteenth century ceramics and other objects (such as buttons and gunflints), the assemblage was dominated by nineteenth century materials – as will become clear when the assemblage is dated. We suspect that the earlier materials are present by virtue of scatter and mixing across the site; although no stratigraphic separation was evident during excavation.

Readers will recall that excavations were conducted in this area because of the slightly higher artifact density revealed during auger testing. Consequently, a series of six units, 185-190R110, 190R115, 200R105-125, including one 10-foot unit, three 5 by 10-foot units, and two 5-foot units were excavated to form the block. A total of 6,354 artifacts were recovered from this area (Table 104), yielding a density of 21 artifacts per square foot or 26 specimens per cubic foot.

This density is very similar to the single unit excavated in the front yard of the Colonial Kitchen, although that unit was placed in proximity of a road which likely received sheet midden trash. Nevertheless, the density of this antebellum midden is considerably less than the dense colonial middens associated with the kitchen. One possibility is that the antebellum and postbellum occupation at Kendal was less significant than the occupation which occurred during the colonial period.

At the base of these units were several large trash pits which included architectural rubbish, almost certainly reflecting repairs associated with the nearby antebellum Kendal House.

The artifacts recovered result in a pattern that resembles the Revised Carolina Artifact Pattern and is an almost perfect match with the Carolina Elite Pattern (where only the furniture remains reflect a lower than anticipated percentage of the collection) (Table 105). Thus, it seems likely that the bulk of these materials originated from the owner's residence with relatively few items being contributed by the nearby slave settlement.

Kitchen Artifacts

Excavations produced a 3,571 kitchen artifacts from this block. Ceramics (n=2,603) dominate the collection, representing 72.9% of the kitchen items.

Although a wide variety of ceramics are present, only about 5% of the datable ceramics represent items popular prior to the American Revolution. In contrast, fully 91.6% (n=2,058) are ceramics found in the last several decades of the eighteenth century through the late nineteenth century. This is the backbone of our observation that the midden appears primarily composed of antebellum items.

The three major ceramic groups dating from after the Revolution include creamwares (n=484, 23.6%), pearlwares (n=981, 47.8%), and whitewares (n=585, 28.5%).

A minimum of 216 vessels are present in the midden, with 116 (53.7%) being flat wares, 70 (32.4%) being hollow wares, 12 (5.6%) being serving vessels, and 18 (8.3%) representing utilitarian vessels, such as storage containers and chamber pots. The low incidence of bowl forms is suggestive of a situation where one-pot meals were not the norm and the dominance of plates is certainly

Table 104.
Artifacts Recovered from the Nineteenth Century Midden

	190R160, Lv 1	190R165, Lv 1	195R165, Lv 1	190R175, Lv 1	190R180, Lv1	190R185, Lv 1	Trowel		
Kitchen Group								3571	56.2
Chinese porcelain, undecorated	1	2	1	6		3			
Chinese porcelain, blue hand painted	4	1		4		10			
Chinese porcelain, poly HPOG				8	7	5	1		
English porcelain, undecorated	1								
English porcelain, gilt		1							
English porcelain, poly hand painted		1							
English porcelain, decal			1			3			
American porcelain, undecoratred	2		1						
White porcelain, undec		4			3	5			
White porcelain, blue hand painted					1				
White SG SW	10	9	4	6	5	9	4		
White SG SW, scratch blue				1					
White SG SW, slip dipped				1	1	5	1		
Delft, undecorated	9	1	1	1	1		1		
Delft, polychrome hand painted	1								
Delft, blue hand painted	3		1	1		5			
Delft, sponged	1		2			4			
Lead glazed slipware	1	2		2	2	6			
Creamware, undecorated	82	68	35	88	40	153	18		
Pearlware, undecorated	102	69	37	67	46	140	5		
Pearlware, blue hand painted	14	17	2	4	3	21			
Pearlware, poly hand pained	7	6	3	8	9	34	1		
Pearlware, mocha	2			2					
Pearlware, cable	5	1			3		1		
Pearlware, annular	11	3	4	1	1	17	1		
Pearlware, HPOG					1	1			
Pearlware, green edged	10	5	2	3	5	22			
Pearlware, blue edged	11	6	2	9	6	20			
Pearlware, blue transfer printed	35	22	9	46	23	94	2		
Whiteware, undecorated	119	33	13	32	48	99	9		
Whiteware, poly hand painted	7	4	6	2	13	19	4		
Whiteware, blue hand painted			1						
Whiteware, HPOG			2						
Whiteware, annular			2	1	2	4			
Whiteware, cable			2		2				
Whiteware, blue edged	1	2	2	3		6			
Whiteware, blue transfer printed	30	9	2	6	10	16	4		
Whiteware, green transfer printed	1			1					
Whiteware, purple transfer printed	1				3				
Whiteware, red transfer printed					1	1			
Whiteware, brown transfer printed	1		1		1	2			
Whiteware, black transfer printed	14		1	3	12	21	2		
Whiteware, decal				4					
Yellow ware, undecorated					1	1			
Yellow ware, annular		1							
Black basalt		3		1	1				
Jackfield			2			2	1		
Clouded ware	2		3			2			
Elers ware	1		1			2	1		
Tortoiseshell	1			4	2	1			
Westerwald	2	1		1	1	2			
Gray SG SW			1	4	1	15	2		
Brown SG SW	5	2	2	4	7	23			
Albany slip SW		1			3				
Bristol slip SW						2			
Coarse Red earthenware	26	8	5	19	7	23	1		
Buckley	1	1	1						
Red earthenware	2				1	1	1		
Burnt refined earthenware	36	10	3	23	19	75	1		
Glass, black	112	32	44	35	52	219	14		
Glass, aqua	14	3	16	17	3	20			
Glass, green	1	3	5	7		3			
Glass, light green	12	12		4	18	29	3		
Glass, brown	1	1		2		5			
Glass, other				1	1				
Glass, clear	43	10	15	32	14	61	5		
Glass, manganese	2			16	4	2	1		
Glass, melted	4			6		6			
Utensil	1			1					
Tableware	24		4	6	2	14	1		
Kitchenware	2	1				1			
Colono ware						1			
Architecture Group								2666	42.0
Window glass	301	80	165	110	76	241	35		
Staple frag	1								
Nails, wrought	178	51	75	55	60	149	5		
Nails, machine cut	124	53	36	99	54	206	10		
Nails, wire	3	14	6						
Nails, UID		61	28	99	87	173	31		
Furniture Group								2	0.0
Drawer pull						1			
Fire tong tip					1				
Arms Group								15	0.2
Lead shot					1				
Gun lock			1						
Gunflint				1	1				
Gunflint flakes	3		1	5	1				
.22 shell, rimfire	1								
Tobacco Group								36	0.6
Pipe stems, 4/64-inch	3	1		1	1				
Pipe stems, 5/64-inch	7		2			3			
Pipe stems, 6/64-inch					1				
Pipe bowl fragments	3	1	3	1	3	2			
Stub stem pipe frag	2	1				1			
Clothing Group								33	0.5
Buttons	9	4	1	2		9			
Buckles			1		1	1			
Thimble		1							
Scissor						1			
Brass eye	2								
Beads			1						
Personal Group								9	0.1
Mirror frag							1		
Writing slate						1			
Toothbrush frag	1								
Coin				1					
Key					1	2			
Umbrella parts					1	1			
Activities Group								22	0.3
Toys	1			2					
Storage items						1			
Stable and barn items						1			
Misc. hardware	1		1	3	2	1			
Other	2			2	1	4			
TOTAL	1,420	622	560	874	678	2,033	167	6,354	

suggestive of a planter's table. The motifs present provide another aspect to the analysis. Expensive hand painted and transfer printed dominate both the pearlware and whiteware assemblages, but only barely with 52.2 and 51.7% respectively. When Table 106 is examined, we find 36 edged plates, far surpassing the presence of the annular ware motif.

Table 105.
Comparison of the Nineteenth Century Midden Assemblage to Various Artifact Patterns

	Nineteenth Century Midden	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	56.2	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	42.0	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.0	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.2	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	0.6	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.5	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.1	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.3	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1] Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singleton 1980

Miller and Hunter explain that edged wares were the "cheapest tableware available with color decoration" (Miller and Hunter 1990:201). Representing just over a third of the tablewares purchased in 1783, its popularity increased to where it represented well over half of all tablewares in the 1820s. By the 1850s, its popularity had declined, but it still represented about 40% of consumer purchases (Miller and Hunter 1990:111). They note that in the late eighteenth century it "had a fair level of social prestige," although it declined to a more middling status after the War of 1812 as transfer printed wares became more affordable. By the 1840s its use had spread to slaves (Miller and Hunter 1990:114).

Taken with other components in the assemblage, we believe that the ceramics are representative of discard by the planters at the Kendal House during the early nineteenth century. Given the quantity of remains, they may reflect the sale of the property and discard of old items. The timing seems to fit perfectly with the 1823 sale of Kendal by James Smith to Gabriel Holmes, Jr. Given the economic distress of Smith, it doesn't seem unreasonable that he might have stocked his kitchen with edged ware, a "respectable product . . . used by people of middling status" (Miller and Hunter 2990:114).[1]

If we remove tea equipment from flat ware, hollow ware, and serving vessels, we find that it accounts for slightly over 20% of the collection. This represents a relatively high proportions, since the Colonial House collection included 27% tea wares, the Colonial Kitchen included 19% tea wares, and Colonial Middens 1 and 2 contained 25% and 19% tea wares respectively. Thus, while the nineteenth century midden seems to suggest a middling status occupation, the individuals depositing the midden still participated enthusiastically in tea drinking.

Lemon notes that tea prices became less prohibitive after 1750 (Lemon 1967:66) and Walsh reports that by the Revolution at least two-thirds of those in colonies were able to drink tea daily (Walsh 1992:239). Regardless of price, tea remained "a metaphor for refined behavior." Thus, it should be no surprise that tea drinking was still well documented at Kendal during the antebellum.

[1] Of course there is also whiteware in the assemblage, so this midden could not have been exclusively deposited during the transition from Smith to Holmes.

Table 106.
Form of Vessels in the Nineteenth Century Midden

	Hollow Ware		Flat Ware		Serving				Utilitarian		
	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Tea Pot	Lid	Storage/ Jar	Chamber Pot	Pan
Chinese porcelain, undecorated			5								
Chinese porcelain, blue hand painted	1			3							
Chinese porcelain, poly HPOG	1										
White porcelain, undecorated			2	2							
Subtotals	2		12			0				0	
Delft, sponged		1									
Delft, blue hand painted				1				1		1	
Subtotals	1		1			1				1	
White SGSW				2							
White SGSW, slip dipped		1							1		
Subtotals	1		2			0				1	
Lead Glazed Slipware		3		1							1
Subtotals	3		1			0				1	
Clouded Ware	1						1				
Subtotals			0			1				0	
Elers Ware									1		
Subtotals	0		0			0				1	
SGSW, brown									2		
Subtotals	0		0			0				2	
Coarse Red Earthenware		2		1							1
Subtotals	2		1			0				1	
Creamware, undecorated	1	2	1	14						7	
Subtotals	3		15			0				7	
Pearlware, undecorated	1			2							
Pearlware, annular		10									
Pearlware, edged				29	1						
Pearlware, hand painted	6	6	1	7		2		2			
Pearlware, transfer printed	4	4	2	12		1					
Subtotals	31		53			6				0	
Whiteware, undecorated	3	8		7		1			1		
Whiteware, annular		2									
Whiteware, edged				7							
Whiteware, hand painted	5	4	1	10		1					
Whiteware, transfer printed	2	1		6			1				
Subtotals	25		31			3				1	
Other ceramics	2						1		3		
Subtotals	2		0			1				3	
Totals by Function	70		116			12				18	
%	32.41		53.70			5.56				8.33	

	Totals	%
Flat Ware	104	52.5
Hollow Ware	46	23.2
Tea Ware	40	20.2
Serving Wares	8	4.0
Total Table Wares	198	
Utilitarian Wares	18	
Total	216	

The analysis also reveals that while utilitarian wares accounted for over 8% of the ceramics in this midden, serving vessels represented only 4%. Compared to elsewhere at Kendal, this is also suggestive of a more middling status.

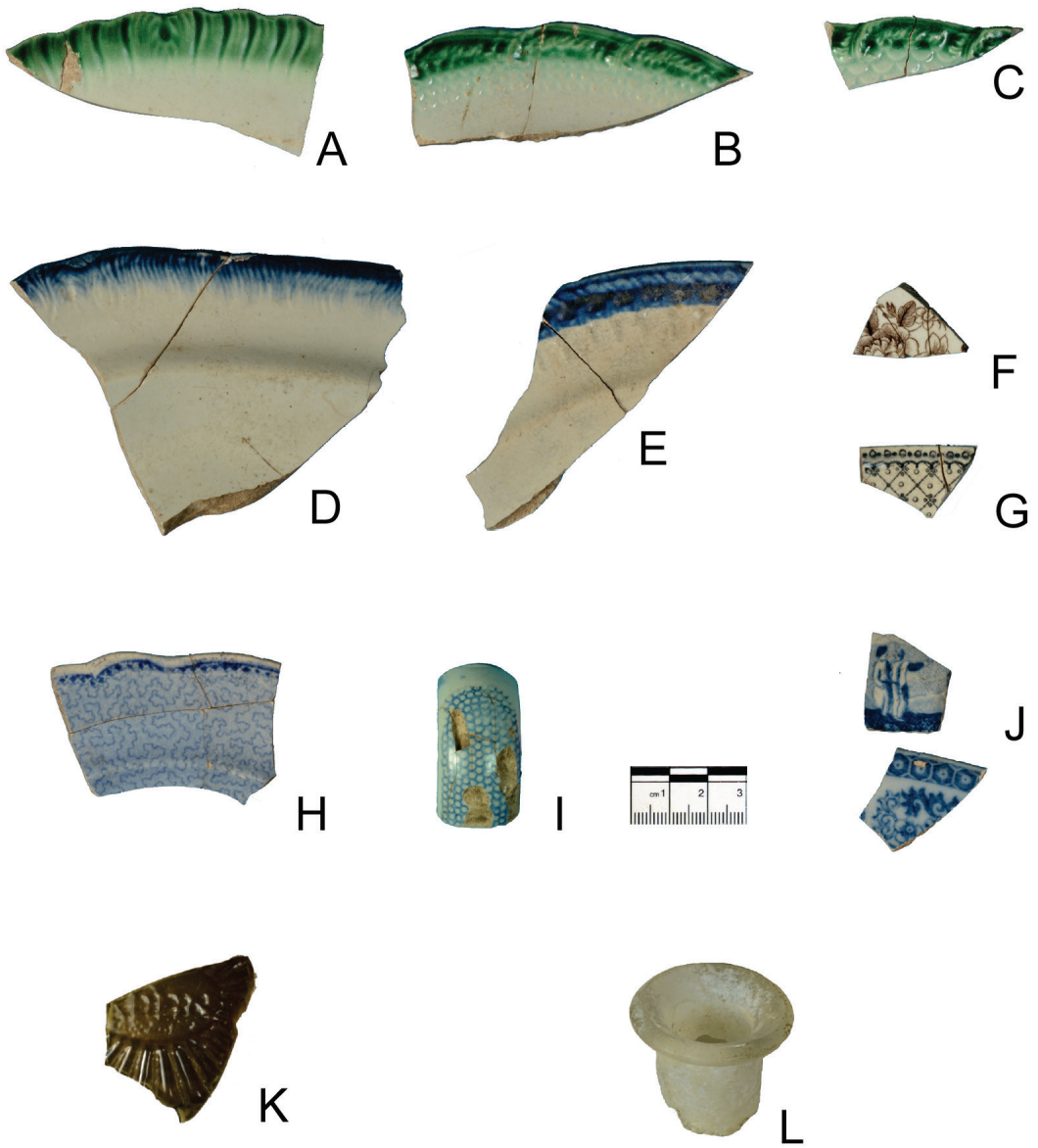


Figure 188. Kitchen Artifacts. A, edged whiteware, neoclassically-inspired, 1800-1830s; B, edged whiteware, embossed rim, 1820-1830s; C, edged pearlware, embossed rim, 1820-1830s; D-E, whiteware, unscalloped rim with impressed, simple pattern, 1840s-1860s; F, brown transfer printed whiteware, 1873-1895; black transfer printed whiteware, 1879-1890; blue transfer printed whiteware; blue transfer printed white, field dots, 1816-1841; J, blue transfer printed pearlware; K, "Keen" bottle; L, light green bottle glass, hand applied lip.

Container glass in the midden represents only 25.5% (n=910) of the assemblage and most (55.8% or 508 fragments) are black glass. Clear glass represents 19.8% (n=180), while light green and aqua contribute 78 and 73 fragments respectively.

Of the black bottles, five are cylindrical beer or wine style bottles. One may represent a wine or undersized beer from the last half of the eighteenth century; two are probable Imperial wine style bottles, post-dating 1825; and the last two are likely very large onion-style early eighteenth century wine bottles (Jones 1986). Also present are three probable square case bottles of indeterminate size. Most of these samples, therefore, represent eighteenth century wine consumption or perhaps the re-use of existing bottles into the nineteenth century.

There are several examples of dark green glass with the oval molded logo of rays surrounding "KEEN." This is possibly a non-soda product distributed by James Keen and his bottling company which dates from 1906 (http://www.kocanola.com/History%20Tennessee%20Keen/Default.htm); however, we have been unable to document a similar logo and consequently this bottle remains something of a mystery.

Several additional bottles provide partial embossing. For example, an aqua panel bottle includes the letters "-EL-", a light green bottle contains the word "-TE-", and a manganese bottle includes the word "ALEXA-", possibly a reference to Alexandria, Virginia.

Two utensils were recovered from the midden. One is a small fragment of a pewter handle, semi-circular in cross-section and just over 2-inches in length. The other item is a fragmentary iron knife with a portion of the bolster.

Tablewares include seven stemware items, ranging in diameter from 2¼ to 3-inches and seven tumblers ranging in diameter from 2 to 3¼-inches. At least one of the wine glasses or goblets was engraved. Three of the tumblers included engraved designs and one is manganese glass. Also present was a clear glass bowl, 5-inches in diameter. While perhaps not as elaborate as the colonial tableware found at Kendal, this assemblage still documents the presence of wine drinking and fancy table settings.

Kitchenware items include two kettle or cauldron fragments, one documenting a kettle about 10-inches in diameter, and two kettle legs.

Architectural Artifacts

Most of the architectural items from this midden are nails, representing 62% of the assemblage (n=1657). Of these, however, 29% are unidentifiable as to type. Of those still sufficiently intact to allow analysis, 34.6% (n=573) are wrought nails and 35.1% (n=582) are machine cut nails. The remainder (n=23) are wire nails.

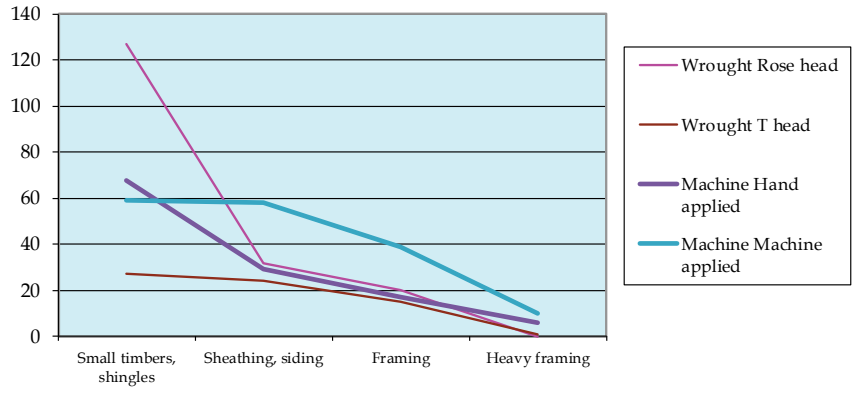


Figure 189. Size distribution of machine cut nails from the midden.

If the machine cut nails are further examined, it is noticed that both hand applied

and machine applied heads are present, with the latter slightly more common (n=120 and 166 respectively). This is suggestive of building activities post-dating 1820.

Table 107.
Gun Flints and Flakes from the Midden

Provinence	Type	Shape	Origin	Material	Width, mm (heel to edge)	Length, mm (side to side)	Thickness, mm	Comments
190R175, Lv 1	Flake	Square	English	Dark Gray	17.00	17.90	5.25	Broken across edge
190R180, Lv 1	Flake	Square	English	Black	21.04	22.75	8.62	Extensive damage, appears to have been used as a strike-a-light

Black flint, primary	2
Black flint, secondary	1
Gray flint, secondary	3
UID, burned	4

This assemblage does not match that found at other nineteenth century deposits, such as the Kendal House, the Slave House, the Storehouse, or the Root Cellar. In each of these other assemblages, cut nails are dominant with a large proportion of wire nails, documenting building and repair extending into the twentieth century. No other nineteenth assemblage exhibits so many wrought nails. In fact, this midden most closely resembles the nail collection from the Colonial House, which we know was built in the colonial period with occupation extending into the early antebellum.

When nail sizes are examined, clearly most of the specimens are associated with small timbers and shingles, regardless of the type of nail being used. Equally as clear, very few nails of any description were of sizes associated with heavy framing.

When nails typically used for sheathing and framing are considered, machine cut nails with machine applied heads, post-dating about 1820, seem to be the most common. This suggests that while many of the nails in the collection might have been associated with repair efforts on the earlier Colonial House, a sizeable portion of the assemblage is likely associated with the antebellum Kendal House, perhaps reflecting repair episodes.

Otherwise, window glass is really the only other significant architectural item present in the midden, representing 37.8% of the collection (n=1,008). The only other item is a single wrought hook. So if the middens reflect repair episodes, it would appear that nothing on the house required repair other than wood elements and window glazing.

Furniture Artifacts

There were few furniture items incorporated into this midden. Present are only a single fragmentary brass drawer pull, probably reflective of the eighteenth century and a small fragment of an iron fire tong.

Arms Artifacts

Arms related items are more common and appear to be primarily eighteenth century in origin. The only gun part found at Kendal, the right hand lock appears to be for a colonial flint lock and includes the main spring and tumbler. Also present are two gun flints, both English, and 10 flakes (Table 107). Both of the gun flints are a size that would likely have been used in trade guns – the most common arm found at Kendal. A single lead .64 caliber ball was recovered and was likely associated with an American or French musket (British muskets generally used ball diameters of 0.69 inch).

The only clearly post-colonial arms item was a .22 caliber rim fire shell casing stamped “U.” The headstamp is typically associated with the Union Metallic Cartridge Company of Bridgeport, Connecticut, and appears to have been used after

about 1885. It continued to be used long after the company merged with Remington Arms in 1912.

Tobacco Artifacts

Tobacco artifacts include a small quantity of ball clay stems (n=19), with 5/16-inch bore diameters accounting for 63%. Nearly as common are broken ball clay pipe bowls (n=13). Seven of these bowl fragments (54%) are plain, three are ribbed, one has leaves to camouflage the mold seam, one is decorated with a spread eagle, and one is cross hatched. None of these are particularly time sensitive, although the eagle motif may date from the first quarter of the nineteenth century when foreign manufacturers played on American patriotism.

Table 108.
Buttons Recovered from the Midden Deposits

South's Type	Description	Number	Measurements (in mm)
7	Spun brass/white metal with eye cast in place	9	2-14, 15, 17, 2-18, 22, 2 frag
15	Bone disc, 1-hole	1	17
18	Stamped brass or white metal	6	18, 2-19, 20, 21, 22
19	Bone disc, 5-hole	1	14
21	Iron with fiber center	1	18
22	Shell, 4-hole, flat back, sunken panel	1	8
27	Brass, domed, machine embossed	1	24
-	1-piece domed brass, eye soldered inside dome	1	15
-	milk glass with iron eye	1	11
-	black glass, eye missing	1	11
-	flat brass, soldered eye, military	1	15

There are also four stub-stem pipes from the midden excavations. All of the pipes are ribbed. One is made from ball clay, two are made of red clay, and one is manufactured from tan clay. One of the red clay pipes exhibits a black lead glaze.

These pipes are often assumed to be Moravian, although recent work is identifying other North Carolina potters, including Solomon Loy (Carnes-McNaughton 2010; Jones et al. 1998:49-51). Orihuela and Viera (2016) also document the presence of Mediterranean stub-stem pipes at Spanish sites in Cuba. Regardless, most seem to date from the mid-eighteenth through late nineteenth century.

Clothing Artifacts

Clothing artifacts are relatively common, accounting for about 0.5% of the midden assemblage. Most of these clothing items are buttons, accounting for 25 of the 33 specimens (75.7%).

The buttons with South type designations are evenly divided between eighteenth and nineteenth century styles, although the most commonly occurring form is South's Type 7, a brass or white metal button with an eye cast in place. However, a nineteenth century button, South's Type 18, is the next most common.

Seven of the buttons (six Type 18 and one Type 27) have back marks. Two indicate that three times the legal requirement of gold was applied ("LONDON TREBLE GILT" and "treble gilt * LON-DON*"). The remaining examples were marketing attempts by the manufacturer to promote the quality of their buttons ("BEST," "BEST PLATED," "BEST QUALITY," and "BEST PLATED EDGE"). All were adopted after Parliament enacted laws concerning the minimum amount of gold required for gilt buttons (1/ 96th of an ounce of gold to cover a 1-inch button) (Anonymous 2011).

One of the buttons is one-piece, 14.75 mm in diameter, showing an eagle standing on a cannon with a pile of six cannon balls under the right facing muzzle, and the inscription "CORPS" below. There is no backmark. With oval, not round wheels and a straight cannon stock, Albert (1969:55) identifies this as his style AY 55 Av for the U.S. Artillery Corps from 1814 until 1821 (although Albert's button has a backmark for Leavenworth Hayden & Scovill).

Figure 189. Other artifacts from the Nineteenth Century Midden. A, gun lock; B, red clay stub stem pipe fragment; C, military button; D, child's thimble; E, blue bead; F, brass shoe buckle; G, 1881 penny; H-I, keys; J, toy cast train; K, Jew's harp.

Unfortunately, Tice (1997:117, 174) begins his discussions of Artillery buttons in 1821 and relegates earlier buttons to militia service. None of those, however, match the Kendal button. A somewhat similar button is illustrated by Wyckoff (1984:41-42), although only the larger button with 10 cannon balls is shown and he reports it as a two-piece button.

South recovered what we assume is an identical button from Brunswick Town (South 1964:120), assigning its use to "the enlisted men of the artillery corps between 1814 and 1821". The recovery from two nearby sites suggests that federal troops may have been present in the area at the end of the War of 1812.

Another probable military item is a domed brass button (no South type number) measuring 15 mm in diameter with a soldered eye. On the face of the button is an eagle with its wings spread upward, facing right, grasping three arrows in its left talon and an olive branch in its right talon. There is possibly a very faint A on the shield. On the reverse is cast "L * H & * S," which we believe stands for Leavenworth, Hayden and Scovill, a firm manufacturing buttons between 1811 and 1827.

This button is generally that of Albert's GI 79, which was apparently used from 1821 through at least 1864 (Albert 1968:35). The date is consistent with the backmark and was likely from Federal artillery troops in the area after the end of the War of 1812.

The three buckles present in the midden excavations are all eighteenth century specimens. One is a brass shoe buckle face that was originally silvered, another is an iron roll and pin from a chape, and the third is a probable spur buckle.

Sewing items include not only a fragmentary pair of scissors, but also a very small thimble, with a diameter and height of only 14mm. It is of a form that was common from the late seventeenth century until the present. Hill comments that these small, child sized thimbles were identical to the larger versions of their mothers. The small thimbles such as this help to not only document the presence of female children, but also their domestic education and place in the household.

A final item (which some would place in the Personal Group) is a blue translucent bead, Kidd and Kidd type W1d. It has an exterior diameter of 7.54mm and a thickness of 3.51mm. Beads of this sort are often associated with enslaved African Americans (Stine et al. 1996).

Personal Group

The most abundant personal artifacts recovered are keys. One is substantial, measuring over 4-inches in length and likely intended for a door lock. The other two are smaller and, in fact, one is represented by the brass bow alone. The other is only 2⅝-inches in length and was likely intended for cabinets of some sort.

There are two fragments of umbrellas. One is a strut and the other is a brass connector that served to connect the ribs to the center ring (see Deagan 2002:222).

The mirror fragment is not especially thick, only 1.78mm, and does not exhibit any beveling. Nevertheless, mirrors of any sort reflect high status occupants and fragments could have been integrated into African American rituals.

The single coin recovered is an 1881 U.S. penny.

The bone toothbrush head is a style dated by Mattick (1993:164) to post-1875.

Activities Artifacts

The 22 artifacts in this group represent five sub-groups.

Toys include a bisque doll fragment, an iron jew's harp, and a fragment of a cast metal train engine.

The jew's or jaw harp is a very old musical

instrument. De Cunzo notes that they may be made of brass or iron and consist of a slender metal tongue fixed at one end to the base of the pear-shaped frame. When placed between the teeth and plucked, the tongue produces a single note which is then modulated by changing the shape and size of the mouth cavity (De Cunzo 1977:14).

Of the 15 types found in the UK, the Kendal specimen appears to be the Gloucester type which originated in the late 1400s and is still made today (Wright 2005).

The toy engine likely dates from the mid to late nineteenth century, based on its similarity to engines of that period. It is today missing its wheels and only half of the casting is present, but it is otherwise in good condition.

A single padlock is found in the Storage Items category. Measuring 3⅜-inch in width and with the lock measuring 3½-inches in height, this specimen likely dates from the mid- to late-nineteenth century.

An iron harness buckle is the single item in the stable and bar category. This buckle measures 1 by 1¼-inches.

Miscellaneous hardware includes four brass rivets, one wrought iron hook, one chain link, and two brass nails. In the other category are two brass strips, four UID brass items, two lead fragments, and one fragment of worked bone.

The brass nails, similar to others found at Kendal and was likely used to attach hull coverings to ships. This practice became more popular in the nineteenth century and we assume the finds at Kendal are from this later period.

Table 109.
Mean Ceramic Date for the Midden Block

Ceramic	Date Range	Mean Date (xi)	(fi)	fi x xi
Overglazed enameled porc	1660-1800	1730	21	36330
Underglazed blue porc	1660-1800	1730	32	55360
English porc	1745-1795	1770	7	12390
NA salt glazed stoneware	1826-1905	1866	66	123156
Westerwald	1700-1775	1738	7	12166
White salt glazed stoneware	1740-1775	1758	47	82626
White sg sw, slip dipped	1715-1775	1745	8	13960
White sg sw, scratch blue	1744-1775	1760	1	1760
Black basalt	1750-1820	1785	5	8925
Eler's ware	1690-1715	1702	5	8510
Lead glazed slipware	1670-1795	1733	13	22529
Jackfield	1740-1780	1760	5	8800
Clouded wares	1740-1770	1755	7	12285
Decorated delft	1600-1802	1750	18	31500
Plain delft	1640-1800	1720	14	24080
Buckley ware	1720-1775	1748	3	5244
Creamware, undecorated	1762-1820	1791	484	866844
Pearlware, poly hand painted	1795-1815	1805	68	122740
Pearlware, blue hand painted	1780-1820	1800	61	109800
Pearlware, blue trans printed	1795-1840	1818	231	419958
Pearlware, edged	1780-1830	1805	101	182305
Pearlware, annular/cable	1790-1820	1805	52	93860
Pearlware, undecorated	1780-1830	1805	466	841130
Whiteware, blue edged	1826-1880	1853	14	25942
Whiteware, poly hand painted	1826-1870	1848	55	101640
Whiteware, blue trans printed	1831-1865	1848	77	142296
Whiteware, non-blue trans printed	1826-1875	1851	76	140676
Whiteware, poly decalcomania	1901-1950	1926	4	7704
Whiteware, annular	1831-1900	1866	13	24258
Whiteware, undecorated	1813-1900	1860	353	656580
Yellow ware	1830-1940	1885	3	5655
Total			2317	4201009
Mean Ceramic Date				1813.1243
Standard Deviation				56.4

Dating

The mean ceramic date for the collection from the midden area is 1813 (Table 109), although the standard deviation indicates the date could span the last half of the eighteenth century through the late antebellum.

The Salwen and Bridges date range is from 1740 to 1900, with the most intensive deposition

Ceramic	Date Range	Duration (Dj)	# sherds (fj)	Total # sherds (F)	Partial Prob. Cont. (Pj)
				2317	
English porcelain	1745-1795	50	7		0.000
Overglazed enameled porc	1660-1800	140	21		0.000
Underglazed blue porc	1660-1800	140	32		0.000
NA salt glazed stoneware	1826-1905	79	66		0.000
Westerwald	1700-1775	75	7		0.000
White salt glazed stoneware	1740-1775	35	47		0.001
White sg sw, scratch blue	1744-1775	31	8		0.000
White sg sw, slip dip	1715-1775	60	1		0.000
Black basalt	1750-1820	70	5		0.000
Eler's ware	1690-1715	25	5		0.000
Lead glazed slipware	1670-1795	125	13		0.000
Jackfield	1740-1780	40	5		0.000
Clouded wares	1740-1770	30	7		0.000
Decorated delft	1600-1802	202	18		0.000
Plain delft	1640-1800	160	14		0.000
Buckley ware	1720-1775	55	3		0.000
Creamware, undecorated	1762-1820	58	484		0.004
Pearlware, poly hand painted	1795-1815	20	68		0.001
Pearlware, blue hand painted	1780-1820	40	61		0.001
Pearlware, blue trans printed	1795-1840	45	231		0.002
Pearlware, edged	1780-1830	50	101		0.001
Pearlware, annular/cable	1790-1820	30	52		0.001
Pearlware, undecorated	1780-1830	40	466		0.005
Whiteware, blue edged	1826-1880	54	14		0.000
Whiteware, poly hand painted	1826-1870	44	55		0.001
Whiteware, blue trans printed	1831-1865	34	77		0.001
Whiteware, non-blue trans printed	1826-1875	49	76		0.001
Whiteware, poly decalcomania	1901-1950	49	4		0.000
Whiteware, annular	1831-1900	69	13		0.000
Whiteware, undecorated	1813-1900	87	353		0.002
Yellow ware	1830-1940	110	3		0.000

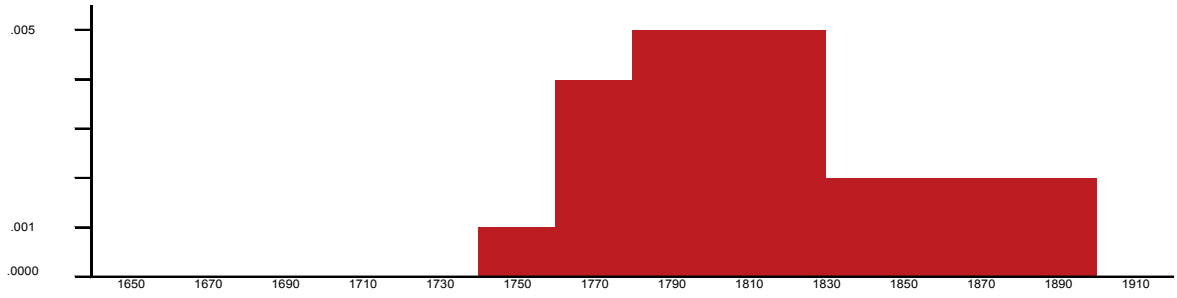


Figure 191. Salwen and Bridges dating for the Kendal Nineteenth Century Midden.

between 1780 and 1830 (Figure 191).

Consequently, the ceramic assemblage tends to support a collection of materials that incorporates both the eighteenth and nineteenth centuries. Other artifacts, however, are less generous and reflect a tighter nineteenth century date. For example, items such as the 1881 penny, the Keen bottle, the panel bottles, the padlock, over half of the buttons, over half of the nails, and even the James and Ralph Clews ceramic mark are nineteenth century.

Miscellaneous Yard Units

These five units include 220R140 (5-foot square), 210R165 (5-foot square), 235R180 (5-foot square), 275R230 (5 by 10-foot unit), and 255R280 (a 10-foot square). All were placed more-or-less randomly to the north, northeast, and northwest of the Kendal Slave House. Auger testing failed to identify any concentrations; instead, these units were intended to simply explore the yard and look for evidence of any activity areas. We thought that spaces behind structures and at the edge of the plantation yard might have been used for specialized activities.

However, artifact density at all of the units was rather low and unimpressive (Table 110). For example, only 10 specimens per square foot were recovered from 220R140 and 210R165; 7 specimens per square foot were found at 275R230. Only 4 specimens per square foot were recovered from 235R180 and 255R280.

One conclusion is that while the Kendal occupants had much yard area, trash appears to have been confined to specific areas and not randomly scattered across the landscape. The backyard of the slave settlement was not heavily used for any identifiable purpose. Were future research possible, it might be useful to examine soil chemistry for evidence that night soil or animal blood was deposited in these areas.

Samples are so small in several cases that we wonder if it is reasonable to examine the resulting artifact patterns. Nevertheless, they are provided in Table 111.

At 220R140, about 150 west of the Slave House and 150 feet north of the Colonial Kitchen, artifacts most closely resemble the Carolina Slave Artifact Pattern – a pattern associated with eighteenth century slaves.

The same pattern was discovered in 255R280, situated at the bluff edge and about 400 feet northwest of the Slave House.

In both areas, kitchen remains account for about 75% of the assemblage, with architectural remains contributing only 20 to 24%. Otherwise, other artifacts account for less than 1% of the assemblage. The one exception, at 255R280, is the Arms category, which contributes 3.7% of the collection. This is the result of finding a small number of flint flakes in this unit, perhaps suggesting that someone sat at the edge of the bluff, perhaps for the breeze, while resharpening gun flints.

The remaining three units, 210R165, 235R180, and 275R230, each reveal a pattern that is most similar to Beaman's Carolina Elite Pattern. Since all of these units are closer to the African American structure than any high status dwelling, this finding is surprising. In each case, however, kitchen items account for 53 to 65% of the assemblage, representing the entire spread for the Carolina Elite Pattern. Similarly, architectural remains represent 20 to 43% of each unit, again well within what is expected for the Carolina Elite Pattern. Otherwise, there are some few divergences, but they appear very minor (especially considering the small sample sizes).

This may suggest that high status refuse was normally (as opposed to during extraordinary events, such as the change of property owner) removed to the edges of the property and scattered. These secondary refuse deposits (i.e., artifacts discarded away from their place of use), while sparse, can help us better understand the behaviors that formed the deposits. They suggest that under the watchful eye of the owner, refuse was taken further away from the dwellings than it

Table 110.
Artifacts Recovered from Miscellaneous Yard Units

	220R140, Lv 1	210R165, Lv 1	235R180, Lv 1	275R230, Lv 1	255R280, Lv 1	255R280, Lv2		
Kitchen Group							950	66.0
Chinese porcelain, blue hand painted	1	1						
Chinese porcelain, poly HPOG	1							
White porcelain, decal		1						
White porcelain, undec	1			5				
White SG SW, slip dipped				1				
Delft, undecorated					1			
Lead glazed slipware			1		1			
Creamware, undecorated	40	23	10	5	4			
Creamware, HPOG				1				
Creamware, mocha				1				
Pearlware, undecorated	15	7	3	6	13	6		
Pearlware, blue hand painted	1	3	2					
Pearlware, poly hand pained	5	7				1		
Pearlware, mocha	1							
Pearlware, cable	1							
Pearlware, annular	3	1		8	2			
Pearlware, green edged	1	1				1		
Pearlware, blue edged	3	1						
Pearlware, blue transfer printed	16	18	9	6	9	1		
Whiteware, undecorated	45	29	1	41	29	4		
Whiteware, poly hand painted	24	9	2		1			
Whiteware, blue edged				1				
Whiteware, blue transfer printed				1				
Whiteware, green transfer printed				1	2			
Whiteware, brown transfer printed				13	8			
Whiteware, black transfer printed		1		1	2			
Whiteware, red transfer printed		1	1		1			
Whiteware, tinted				9				
Whiteware, decal					5			
Ironstone, undecorated				3				
Yellow ware, undecorated	1							
Black basalt			1					
Westerwald		1						
Brown SG SW	2							
Albany slip SW	1		1	1				
Bristol slip SW				5	2			
Coarse Red earthenware		2			12	1		
Red earthenware		1						
Burnt refined earthenware	8	9	4		6			
Glass, black	8	8	8	5	8			
Glass, aqua		2		16	18	2		
Glass, green				2	2	2		
Glass, light green	2	4	3	8	13			
Glass, brown			2	15	32	2		
Glass, other		1	1	4				
Glass, clear	9	4	9	37	33	1		
Glass, milk					1			
Glass, manganese	1	1		26	96	1		
Glass, melted	1		3	1	1			
Tableware	3	1		6				
Kitchenware	1				3			
Colono ware				1				
Architecture Group							438	30.4
Window glass	15	44	11	63	34	5		
Hinge fragments				1				
Glazed fireplace tile				1				
Nails, wrought	20	23	12	8				
Nails, machine cut	13	17	6	44	23	3		
Nails, wire		9		3	3			
Nails, UID	15	18	14	13	20			
Furniture Group							3	0.2
Brass tacks	1		1					
Lamp glass				1				
Arms Group							20	1.4
Gunflint			1					
Gunflint flakes				1	11	4		
Shotgun shell base, brass		1		1	1			
Tobacco Group							12	0.8
Pipe stems, 4/64-inch		1						
Pipe stems, 5/64-inch	1	1		1	1	1		
Pipe stems, 6/64-inch		1						
Pipe bowl fragments		2	2					
Stub stem pipe frag					1			
Clothing Group							2	0.1
Buttons		2						
Personal Group							1	0.1
Baby braclet		1						
Activities Group							13	0.9
Toys			2					
Misc. hardware		1		2	1			
Other		1	1	5				
TOTAL	260	259	111	374	400	35	1,439	

Table 111.
Artifact Patterns for the Yard Units

	Kendal 220R140	Kendal 210R165	Kendal 235R180	Kendal 275R230	Kendal 255R280	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[4]
Kitchen	75.0	52.9	55.0	64.8	75.2	51.8-65.0	42.1-64.2	58.4	70.9-84.2	20.0-25.8
Architecture	24.2	42.9	38.7	32.1	20.2	25.2-31.4	26.5-55.8	36.0	11.8-24.8	67.9-73.2
Furniture	0.4	0.0	0.9	0.3	0.0	0.2-0.6	0.1-0.8	0.2	0.1	0.0-0.1
Arms	0.0	0.4	0.9	0.6	3.7	0.1-0.3	0.1-1.0	0.3	0.1-0.3	0.0-0.2
Tobacco	0.4	1.9	1.8	0.3	0.7	1.9-13.9	0.2-4.7	2.8	2.4-5.4	0.3-9.7
Clothing	0.0	0.8	0.0	0.0	0.0	0.6-5.4	0.1-0.3	0.9	0.3-0.8	0.3-1.7
Personal	0.0	0.4	0.0	0.0	0.0	0.2-0.5	0.1-1.1	0.2	0.1	0.1-0.2
Activities	0.0	0.8	2.7	2.0	0.2	0.9-1.7	0.2-1.6	1.1	0.2-0.9	0.2-0.4

[1] Garrow 1982
[2] Beaman 2001
[3] Zierden et al. 1988
[4] Singleton 1980

might otherwise have been. This may reflect the general health of the site occupants (see, for example, Trinkley and Hacker 2015:136). Even at the large piles of butchered animal bone in proximity to the dwellings, we have found no evidence of rodent gnawing, indicating that such dumps were covered over quickly after deposit.

Since there is considerable diversity, each unit will be briefly discussed.

220R140

While Kitchen artifacts comprise 75% of the assemblage, there are only 170 ceramics and 25 container glass fragments. The ceramics are dominated by whitewares (n=69), closely followed by pearlwares (n=46) and creamwares (n=40). Identifiable vessels include five hollow wares (27.8%) and 13 flat wares (72.2%). Absent are both serving and storage vessels.

In addition, two-thirds of the pearlwares and over 71% of the whitewares reflect high status motifs, such as transfer printed and hand painted. Consequently, while the artifact pattern most closely resembles that generated by slaves, the ceramic collection is actually more likely from the planter's table.

The only recognizable container glass fragment is that of a light green panel bottle, with the partial embossing of "__RK__."

Tableware in the collection include fragments of three clear glass goblets with blown feet. Kitchenware consists of a kettle fragment.

Wrought nails are slightly more common than cut nails and all of the items are under 10d in size, suggesting use for shingles or siding – typically the most common repair activities on any building.

The mean ceramic date for the unit is 1824.7, although certainly the nails and a few of the ceramics are suggestive of earlier activities. Nevertheless, the dominance of pearlware and whiteware clearly document early to mid-nineteenth century activities.

210R165

Kitchen and architectural items comprise 53% and 43% respectively. Kitchen items include primarily ceramics (n=116), followed by container glass (n=20). As with 220R140, the dominant ceramics are pearlwares and whitewares, in about equal numbers.

A minimum of 20 vessels were identified in the collection, including two serving vessels (10%), five hollow wares (25%), and 13 flat wares (65%). Expensive motifs are the most common among both pearlwares (62.5%) and whitewares (70%). Thus, the assemblage from this unit, like

that from 220R160, is most similar to what might be expected from the planter's table. The artifact pattern from this unit, as previously discussed, is most similar to the Carolina Elite Pattern, so these findings are not surprising.

The container glass includes at least one black bottle with a basal diameter of 3½-inches. The clear glass represents two pharmaceutical bottles.

The one tableware item is a clear glass tumbler with a basal diameter of 3½-inches.

The architectural items include 44 fragments of window glass, as well as 67 nails. These nails are (with three exceptions) 12d or smaller – sizes that would be used for shingles and siding. Seven wire nails were recovered; wrought and cut nails are nearly equal in numbers.

The only arms item is a brass shotgun shell base stamped "REMINGTON UMC NEW CLUB NO. 12" with a star around the primer. On-line sources suggest a fairly narrow date range of 1911-1914. This is likely intrusive – an artifact left from hunting during the last period of the Kendal House's existence.

The two buttons include a white porcelain Prosser button (South's Type 23) and a 4-hole shell button (South's Type 22). Venovcevs notes that shell buttons were first introduced in the 1820s and were generally used for "shirt buttons and are usually found as small, four-holed specimens" (Venovcevs 2013:4).

Without doubt, the most interesting artifact recovered from this unit was a copper and turquoise or fossilized dentine, also known as odontolite, bracelet with a diameter of only 1-1/16-inches (and a length of 2⅞-inches). The bracelet is flat brass, 0.02-inch in thickness with a rolled edged to form a width of 0.28-inch. Originally three turquoise stones were set into the brass – one central larger stone and an additional smaller stone on each side. One of these stones and its setting has been lost. The bracelet had a clasp that is still partially intact.

Baby bracelets are common in the nineteenth century, often being given as baptism gifts. A variety of on-line sources discuss the prevalence of coral, which was thought to ward off both evil and disease (see, for example, http://www.historicnewengland.org/collections-archives-exhibitions/online-exhibitions/Jewelry_History/themes/Childhood.htm).

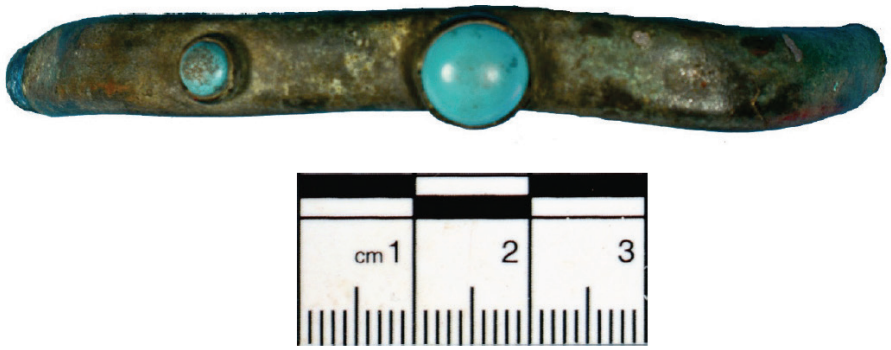


Figure 192. Infant's bracelet recovered from 210R165.

In contrast, turquoise was first introduced into Europe through Turkey and wasn't extensively mined in the United States until the late nineteenth century. It became fashionable during the late eighteenth and early nineteenth centuries, at which time imitations and substitutes, such as odontolite were extensively used (Bennett and Mascetti, 2003; Krzemnicki et al. 2011). Turquoise has been associated with friendship, remembrance, and good fortune during the Victorian era.

This unit has a mean ceramic date of 1823, just two years more recent than 220R140. This is consistent with the abundance of pearlware and whiteware in the collection. Even the copper and

turquoise bracelet and the two buttons are suggestive of an early nineteenth century occupation.

235R180

This unit produced very few artifacts; however, of the few present, 55% are kitchen items (n=61) and 39% (n=43) are architectural. As a result, this assemblage most closely resembles the Carolina Elite Pattern.

Although pearlwares are most common, they are represented by only 14 specimens. Creamwares account for an additional 10 sherds, and whitewares contribute only four specimens. It is therefore not surprising that only four vessels could be identified in the assemblage – three flat wares and one hollow ware. Both of the whiteware examples were either hand painted or transfer printed, representing high status decorations, consistent with the artifact pattern.

Container glass included one blue pharmaceutical bottle, one clear glass rectangular bottle, and one light green bottle exhibiting molded letters "__E S__."

Architectural remains are equally sparse, with 11 fragments of window glass and 32 nails. Wrought nails are most common and all of the nails, with one exception, are 6d or smaller – primarily suggesting of nailing shingles.

There is a single gun flint in the collection: a dark gray English flint spall that is square in shape and exhibits remnant cortex. It measures 23.67 by 24.44 by 6.70 mm with very heavy use, perhaps as a strike-a-lite after it was no longer effective as a gun flint.

Two toys are present in the Activities Artifacts, including a white porcelain poly hand painted overglaze toy saucer rim and a bisque doll part.

This unit produced the earliest mean ceramic date, 1807, although the unit also produced the smallest ceramic assemblage. Nevertheless, the remains are consistent with a nineteenth century deposit.

275R230

About 65% of the 355 artifacts from the unit are kitchen items, with architectural remains being the next most common, at 32%.

Whiteware dominates the collection, accounting for 64% of the ceramics (n=70). Pearlwares are far less common (n=20) and creamwares are only minimally represented (n=7).

The whiteware assemblage includes a broad range of motifs, including green tinted wares. In fact, this unit was the only place at Kendal where these very late wares were found. Tinted glaze was briefly mentioned by Bartovics and Adams (1980) as a result of their work at Waverly Plantation. Occurring only in twentieth century contexts, the Waverly examples included light brown, blue, green, pink, and yellow (Bartovics and Adams 1980:515). A few years later Orser and his colleagues called this wares "slip-glazed," explaining that "these vessels are decorated with tinted glazed over the entire vessel surface," generally in yellow, red, and blue (Orser et al. 1982:910). When not overlaid with decal decoration, they identified a date range of 1820 to 1925, with a mean date of 1872 (Orser et al. 1982:642). There seems to still be some uncertainty regarding the date range of these wares. We have adopted a date range that excludes the nineteenth century; other researchers may prefer the range proposed by Orser and his colleagues.

This unit also produced three classic Ironstone ceramics. This term is used here to denote a common (at sites other than Kendal) nineteenth century utilitarian ceramic. It is sometimes called granite ware and the term comes from Mason's Patent Ironstone China, which was a specific brand of stone china patented in 1813. Ironstone was originally produced in England during the period stretching between 1840 and

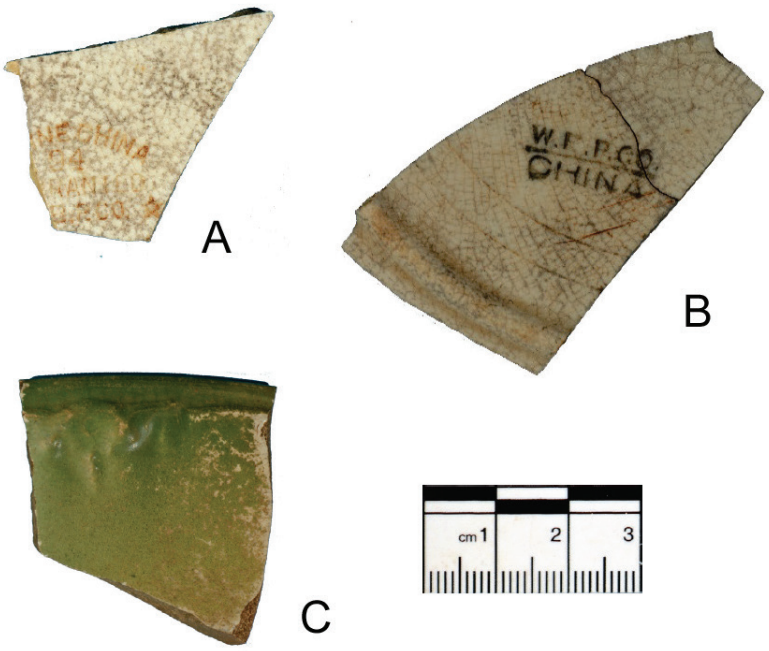


Figure 193. Ceramics. A-B, makers' marks; C, tinted whiteware.

1930. The ware has a thick, white paste that ranges from vitrified to nearly so. Miller, however, warns that vitrification alone is an unsatisfactory criterion since, "if one defines white granite on the basis of vitrification, then much of what the potters and merchants would have called white granite in the post-1870 period would be classified as a white ware" (Miller 1993).

One of the ceramics from the unit has the partial mark "W.E.P. CO." with a line over "CHINA" (Figure 193B). This is the mark for West End Pottery in East Liverpool, Ohio and was used from 1893 through 1938 (Lehner 1988:512).

The assemblage is dominated by flat wares (n=8), with only four hollow ware vessels present. Also identified was one pitcher. Two-thirds of the whiteware motifs are low-cost edged or tinted examples. This stands in contrast to the artifact pattern suggesting high status occupants.

At least three panel bottles are identifiable in the glass collection at this unit, although none can be specifically identified to a product.

The tableware items include one decorative bottle and one tumbler.

The most common architectural items are nails (n=68) and window glass (n=63). Machine cut nails are the most common type present, with sizes ranging from 3d to 20d. This unit represents a far greater range in nail sizes than previously found. Nevertheless, the relatively small number likely suggest repair episodes, probably of either the nearby Slave House or the Kendal House. The presence of a fireplace tile from the Kendal House certainly documents that at least some household trash has found its way to this unit.

The shotgun shell recovered from this unit is stamped "U.M.C. CO No 10 BLACK CLUB." On-line dates include a very narrow range of 1894-1896, although another source suggests a range of 1891-1905. In either case, it appears that this specimen was likely deposited on the site during Kidder's lifetime and likely represent hunting activities.

The mean ceramic date for the unit is 1850, although these discussions indicate a variety of artifacts date later than this.

255R280

This unit produced 435 artifacts, although on a square foot (or cubic foot) basis, density is very low. Kitchen items, however, dominate the collection, contributing 75% of the collection. Architectural items account for only 20% of the assemblage. The artifact pattern from this unit most closely resembles the Carolina Slave Pattern.

Nearly twice as many container glass fragments were recovered than ceramics (212 compared to 112). The container glass is

dominated by manganese glass (n=97), but the sherds are so small only one vessel could be confidently identified – a small bottle with a ½-inch interior diameter.

One intact pharmaceutical bottle was identified in brown glass. The clear glass produced a fragmentary sauce bottle marked, "H.J. HEINZ CO." Another pharmaceutical bottle was identified in the light green collection. This is an oval bottle embossed "DEAD SHOT / DR. H. A. PEERY'S / VER[MI]FU[G]E."

Henry John Heinz found his company in 1869, although the fragmentary bottle is likely later.

The "DEAD SHOT" bottle is something of an enigma in that its history is poorly documented. Generally, bottles and paper labels show "PEERY," although we have identified at least one report of "PERRY" as a pontil mark. It may be that the individual was Dr. Herman F. Perry (1823-1878) who received his medical degree in 1855 from the University of Maryland and who practiced in Maryland until his death. Regardless, Fike (1987:176, 179) indicates that the product was being advertised by 1846 and Baldwin (1973:381) shows a date of at least 1848. Agents included A. & B. Sands of New York and Edmund Ferret, proprietor of Wright's Indian Vegetable Pill Co. of New York. At least one broadside for Wright's Indian Vegetable Pill published in 1914 includes an advertisement for Peery's (Figure 194).

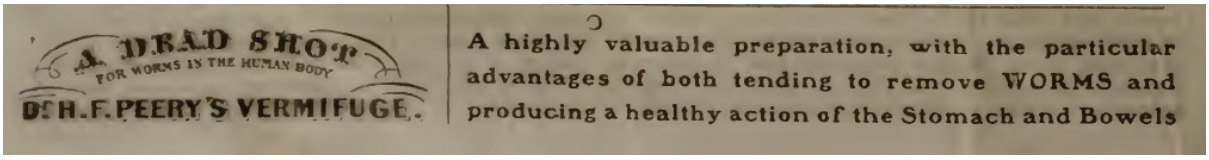


Figure 194. Advertisement for Peery's Vermifuge in a 1914 broadside for Wright's Indian Vegetable Pill (courtesy U.S. National Library of Medicine, Bethesda, Maryland).

In terms of ceramics, whitewares dominate the collection, accounting for 46% (n=52), followed by pearlwares (n=33, 33%).

This is one of the few units that produced decalcomania whiteware (n=5). Called "polychrome decal transfer printed" by Bartovics and Adams, they explain that it was, "a distinctive style of polychrome transfer print . . . common throughout most of the twentieth century" (Bartovics and Adams 1980:514). Patented in 1852, it was commercially successful by 1863. Nevertheless, Bartovics and Adams (1980:536) suggest a date range of 1901 through 1950. Orser and his colleagues have instead used a much longer range, from 1860 to 1925 (Orser et al. 1982:642).

Also present were transfer printed whitewares in black, green, red, and brown.

The ceramic collection from the unit includes several makers' marks. One, for the West End Pottery, is identical to a mark recovered from 275R230 and was in use from 1893 through 1938 (Lehner 1988:512). The other is for W.E.B. Co., identified as the William Brunt Pottery Company, which was incorporated in 1892 (Gates and Ormerod 1982:19; Lehner 1988:60). The firm was producing primarily whitewares, consistent with finding the mark on undecorated whiteware in this unit.

Although the artifact pattern is suggestive of low-status slaves, flat wares are common (n=5, 83%) and hollow wares, often associated with one-pot meals, are uncommon (n=1, 17%). Moreover, the bulk of the collection exhibits relatively expensive decorative motifs, primarily transfer prints.

The architectural collection consists of 49 nails and 39 window glass fragments. The nails are primarily fragmentary or unidentifiable, leaving

Table 112.
Mean Ceramic Dates for the Miscellaneous Yard Units

Ceramic	Date Range	Mean Date (xi)	220R140 (fi)	220R140 fi x xi	210R165 (fi)	210R165 fi x xi	235R180 (fi)	235R180 fi x xi	275R230 (fi)	275R230 fi x xi	255R280 (fi)	255R280 fi x xi	Combined (fi)	Combined fi x xi
Overglazed enameled porc	1660-1800	1730	1	1730	0	0	0	0	0	0	0	0	1	1730
Underglazed blue porc	1660-1800	1730	1	1730	1	1730	0	0	0	0	0	0	2	3460
Westerwald	1700-1775	1738	0	0	1	1738	0	0	0	0	0	0	1	1738
White sg sw, slip dipped	1715-1775	1745	0	0	0	0	0	0	1	1745	0	0	1	1745
Black basalt	1750-1820	1785	0	0	0	0	1	1785	0	0	0	0	1	1785
Lead glazed slipware	1670-1795	1733	0	0	0	0	1	1733	0	0	1	1733	2	3466
Plain delft	1640-1800	1720	0	0	0	0	0	0	0	0	1	1720	1	1720
Creamware, cable	1790-1820	1805	0	0	0	0	0	0	1	1805	0	0	1	1805
Creamware, hand painted	1790-1820	1805	0	0	0	0	0	0	1	1805	0	0	1	1805
Creamware, undecorated	1762-1820	1791	40	71640	23	41193	10	17910	5	8955	4	7164	82	146862
Pearlware, mocha	1795-1890	1843	1	1843	0	0	0	0	0	0	0	0	1	1843
Pearlware, poly hand painted	1795-1815	1805	5	9025	7	12635	0	0	0	0	1	1805	13	23465
Pearlware, blue hand painted	1780-1820	1800	1	1800	3	5400	2	3600	0	0	0	0	6	10800
Pearlware, blue trans printed	1795-1840	1818	16	29088	18	32724	9	16362	6	10908	10	18180	59	107262
Pearlware, edged	1780-1830	1805	4	7220	2	3610	0	0	0	0	1	1805	7	12635
Pearlware, annular/cable	1790-1820	1805	4	7220	1	1805	0	0	8	14440	2	3610	15	27075
Pearlware, undecorated	1780-1830	1805	15	27075	7	12635	3	5415	6	10830	19	34295	50	90250
Whiteware, blue edged	1826-1880	1853	0	0	0	0	0	0	1	1853	0	0	1	1853
Whiteware, poly hand painted	1826-1870	1848	24	44352	9	16632	2	3696	0	0	1	1848	36	66528
Whiteware, blue trans printed	1831-1865	1848	0	0	0	0	0	0	1	1848	0	0	1	1848
Whiteware, non-blue trans printed	1826-1875	1851	0	0	2	3702	1	1851	15	27765	13	24063	31	57381
Whiteware, poly decalcomania	1901-1950	1926	0	0	0	0	0	0	0	0	5	9630	5	9630
Whiteware, tinted glaze	1911-1970	1941	0	0	0	0	0	0	9	17469	0	0	9	17469
Whiteware, undecorated	1813-1900	1860	45	83700	29	53940	1	1860	44	81840	33	61380	152	282720
Yellow ware	1830-1940	1885	1	1885	0	0	0	0	0	0	0	0	1	1885
Total			158	288308	103	187744	30	54212	98	181263	91	167233	480	878760
Mean Ceramic Date by Provenience				1824.7		1822.8		1807.1		1849.6		1837.7		1830.8
Standard Deviation				43.1		39.9		39.9		48.4		55.1		59.1

only eight that are identifiable and measurable.

As previously mentioned, the unit produced a small assemblage of flint flakes, suggesting that someone was refreshing or attempting to make serviceable gun flints from the available ballast stone at the site. These flakes include two primary flakes and two secondary flakes of probable English flint and one secondary flake of probable French flint. In addition, there are six burned flakes.

Another arms-related item is a shotgun shell with the headstamp for "MANCHESTER NUBLACK No. 12." This was produced by Winchester and is thought to date from 1905 to 1938.

The mean ceramic date for the assemblage is 1838, although as with the other units discussed here, we have a variety of much later ceramics and other remains in the collection.

Observations

It has been difficult in several units to reconcile the seemingly high status ceramics with artifact patterns resembling collections generally associated with slaves. We suspect that at least one reason is that there is much mixing of trash from both the main Kendal House and the nearby Slave House. Certainly there would be no motivation for separating trash piles.

Of course, we are hard pressed to ignore or dismiss all of the artifact pattern data, since several of the units have patterns that do, in fact, correspond with other evidence, suggesting that they come from the main house.

All of the mean ceramic dates suggest early antebellum occupation, likely associated with the Kendal House. However, each unit also exhibits materials with much later terminus post quem (or

tpq) dates. This indicates that each of the units received sheet midden for a relatively long period of time.

It is also worthy of note that these units, unlike those discussed as the Nineteenth Century Midden, were areas of light sheet refuse, all in a secondary context.

Perhaps the most interesting observation is how quickly artifact density declines as one moves away from either the colonial or antebellum structures at Kendal. While there is ample evidence of trash disposal out back doors and windows – the so-called Brunswick Pattern identified by South – there is also evidence that sheet accumulations of very low density cover what we view as the entire site area identified by antebellum fencing.

Features

The feature discussions are divided into two sections: those features associated with the colonial settlement at Kendal and those associated with the nineteenth century settlement, including the wood frame Kendal House. Finally, a third section discusses those features identified during the stripping of the site at the conclusion of block excavation (identified simply as "Other Features"). These feature associates are based on location – not on the feature's temporal association.

Features Associated with the Colonial Settlement

Seven features are associated with the block excavations at the colonial settlement. These include two at the Colonial Midden 1 block, four at the Colonial Kitchen, and one at the Colonial House.

Feature 6

This feature was a trash filled gully identified at the base of Colonial Midden 1, with 313 artifacts recovered during excavations. The artifacts are almost entirely colonial, with only 16 machine cut nails (primarily with hand attached heads) post-dating the colonial period. These, we believe, may have been intrusive or accidental inclusions during excavation. The mean ceramic date for the feature is 1740 – consistent with the dates obtained for the overlying midden.

The artifacts are similar to those previously discussed for the midden. The minimum number of vessels count includes one delft hand painted plate, one white salt glazed slip dipped stoneware cup, a lead glazed slipware plate, cup, and bowl, and a coarse red earthenware pan. The tableware include a tumbler with cut panels and a blown foot for a salt or punch cup.

The contents of the feature offer no surprises and are consistent with remains from Kendal's occupation during the first half of the eighteenth century.

Feature 8

As previously discussed, this feature post-dates the colonial midden and was excavated through the midden for a deposit of architectural debris, including abundant plaster and brick. Recovered nails are primarily machine cut with hand applied heads (the two wire nails are likely intrusive from the overlying plowed soil). Twenty-one of these nails are a size intended for sheathing or siding, while an additional nine are smaller and generally used for shingles. Only five nails are a size typical of framing. Combined with the plaster, it seems likely that the pit was intended to dispose of recent repair debris.

Included in the feature was a pen nib marked, "J.W. DUNN'S / NON CORRSIVE / NO. 1." While we have been unsuccessful identifying the firm, metal pen nibs were popularized after John Mitchel established his Birmingham, England factory in 1822.

Only one ceramic – a white salt glazed stoneware – was recovered. Nevertheless, other artifacts, including machine cut nails, a tin can fragment, and a percussion cap, provide a very good TPQ date. The machine cut nails were introduced about 1790 to 1820, while the percussion cap became commonly used in the 1840s. The process for stamped/flanged can ends, however, was patented in 1847 (Rock 1984:102), providing a TPQ. This indicates that the feature post-dates the colonial structures and represents activities taking place at the Kendal House during the late antebellum.

Table 113.
Artifacts Recovered from Features

	Features Associated with Colonial Settlement							Features Associated with 19th c Settlement					Features Associated with Stripped Areas									
	Fea 6	Fea 8	Fea 9	Fea 10	Fea 11	Fea 12	Fea 14	Fea 1	Fea 2 N½	Fea 5	Fea 7	Fea 13	A	B	C	D	E	F	G	H	I	J	K
Kitchen Group																							
Chinese porcelain, undecorated	1		3	2		1	1		1									2		1	2		
Chinese porcelain, blue hand painted	4		11			1	1		1											1			
Chinese porcelain, poly HPOG	2					1	2		2					1				1		4	7		
White porcelain, undecorated													1										
White SG SW	1	1	4			1	3		2											1			
White SG SW, scratch blue			2	1																			
White SG SW, slip dipped	5		4						4														
White SGSW, slip dipped, brown rim	1																						
Delft, undecorated	2		7	1			2		1	1								1		1	1		
Delft, polychrome hand painted																				3			
Delft, blue hand painted	4		1				1		1														
Delft, sponged									1														
Lead glazed slipware	9		5	1			1							1						1			
Creamware, undecorated			9			8	3		44	3	3		2				3	5	1	22	18		3
Creamware, annular														1				1					
Creamware, blue hand painted						1																	
Creamware, transfer printed			1																				
Creamware, mocha																				1			
Creamware, cauliflower							1																
Pearlware, undecorated			2			10			78	23	3		1	1		2	4	12		18	7	1	
Pearlware, blue hand painted						1			6								2	4		3			
Pearlware, poly hand pained						1			35											1			
Pearlware, mocha																				1	1		
Pearlware, annular			1						7									3		6	1		
Pearlware, green edged						1			15														
Pearlware, blue edged									5		2									5	1		
Pearlware, blue transfer printed						8			19	2			1				4	3	1	18	14		
Whiteware, undecorated						2			6				3	1				6	2	3	20	1	
Whiteware, poly hand painted						1			11				1	3						1	19	3	
Whiteware, blue hand painted																		1					
Whiteware, mocha									1									3					
Whiteware, blue edged													1										
Whiteware, blue transfer printed									11									1	1				
Whiteware, non-blue transfer printed									4														
Whiteware, black transfer printed																		3					
Ironstone													2										
Yellow ware, undecorated													2										
Clouded ware							2																
Tortoiseshell	5								1														
Westerwald	1																	3					
Gray SG SW	2			1					4				2			1		2					
Brown SG SW	1			2					5				1					6		2			
Albany slip SW				1					1											2			
Alkaline glazed stoneware																		1					
Coarse Red earthenware	13								7		1									1			
Buckley	3						1											1		1			
Red earthenware							1																
Burnt refined earthenware	1					6			17				1	1				3		2	1		
Glass, black	69	2	76	5	1	22	7		65	1	2		2	4			1	13		31	11		
Glass, aqua			1						5				8							1			
Glass, green													1								1		
Glass, light green	3	3	3			2	3		16											2	1		
Glass, brown													2										
Glass, other																				1			
Glass, clear	4		3			3	1		16		1		9		1					5	3		
Glass, manganese									1				1										
Glass, melted									4				2								3		
Tableware	4		6			7			4									4		2	10		1
Kitchenware		1							1				2					1		14			
Colono ware	5		1															1		1			
Architecture Group																							
Window glass	36	14	78	2		30	4	10	36	2	7		22	1	1	3		5		8	15	1	
Cistern filter, brass								27															
Cistern filter, iron								5															
Cistern box								7															
Strap hinge																				1			
Shutter hinge														1									
Door latch																		1					
Lock box parts																				2	1		
Slide bolt																				1			
Agate door knob																		1					
Worked marble																				1			
Delft tile									1														
Paver	3	1	2				2																
Nails, wrought	45	1	28			9	10		93	2			23				5	22		57	26	1	
Nails, machine cut	16	51	6			4		11	235		3		170		11	4		69		49	28		
Nails, wire		2				3		2								1							
Nails, UID	31	3	22	9	1	7	22	4	121	1			95				6	55		45	27		
Furniture Group																							
Handle, iron																				1	1		
Handle, brass																				1			
Candle stick																				1			
Arms Group																							
Lead shot	2																						
Gunflint									2			1											
Gunflint flakes	2								2	4	8		35										
Percussion cap		1											1										
Tobacco Group																							
Pipe stems, 4/64-inch	1					1			1											1			
Pipe stems, 5/64-inch	16			1					2									1		2			
Pipe stems, 6/64-inch	3																						
Pipe bowl fragments	13				1	1	1		2				2					1			2		
Stub stem pipe frag		1							1				4								2		
Clothing Group																							
Buttons		1											1			1							
Buckles			1																				
Pins	2																						
Scissor									1											1			
Personal Group																							
Perfume bottle stopper																					1		
Writing slate									3														
Slate pencil									1														
Bone toothbrush									1														
Pen nib		1																					
Jewelry bead			1																				
Umbrella strut																				1			
Activities Group																							
Farm tools											1												
Toys			1																				
Fishing gear													1										
Storage items			1						2						6								
Stable and barn items	1																						
Misc. hardware	1	1				1			2			2								1			
Other	1								2		1				2								
TOTAL	313	84	280	26	3	133	69	66	910	39	32	3	399	15	21	12	25	236	5	329	224	7	4

Feature 9

Feature 9 represents a robbed wall segment in the Colonial Kitchen and the artifacts are similar to those recovered in this structure. Unusual items include a fragment of a black glass plate, platter, or possibly salver with a diameter of approximately 21 inches. Another item of black glass is a faceted, molded jewelry "bead." This is an item that might have been used in mourning dress.

The mean ceramic date for the ceramics in the feature is 1751, a date that is entirely consistent with the dates from the structure excavation. The presence of the pearlwares suggests a TPQ in the last decade of the eighteenth century and provides support that the colonial structures were used – or at least standing – until the end of the eighteenth century and perhaps into the very early nineteenth century.

Feature 10

This feature represents a portion of the builder's trench in the Colonial Kitchen. Only 26 artifacts were recovered, but this only suggests that very little was present on the site prior to the kitchen construction; therefore, the items in the trench should help date the construction of the kitchen.

The mean ceramic date for the feature is 1735. This corresponds well with the historic evidence, including the 1734 report of Roger Moore living in a "brick house" and the several deeds from the 1730s indicating that Moore was living in North Carolina.

Feature 11

Feature 11 was another builder's trench associated with the Colonial Kitchen. This feature, however, produced only three artifacts and none of them are datable. About all this feature can contribute is the suggestion that there was very little present on the site of the Colonial Kitchen which got incorporated into the backfilled trench.

Feature 12

Feature 12 was a robbed wall section excavated at the Colonial House. It produced 133 artifacts, including a range of ceramics, reinforcing previous suggestions that this structure was used longer that the associated kitchen.

The mean ceramic date is 1801, a few years later than the mean ceramic date of 1794 obtained for the house assemblage. The TPQ for the feature is 1826 and this, too, is consistent with other findings that suggest the Colonial House was still standing and likely occupied during the early nineteenth century.

Otherwise, the assemblage in the robbed wall feature is very similar to the house excavations. The minimum number of vessels includes three plates, one each of an undecorated creamware, a green edged pearlware, and a poly hand painted whiteware. Also present were four cups: one blue hand painted pearlware and three blue transfer printed pearlware. Tableware included a light green glass bowl with a diameter of 2¾-inches.

Feature 14

The last feature from the colonial blocks is Feature 14, a robbed wall section from the Colonial Kitchen.

Ceramics are the bulk of the 69 recovered artifacts, excluding the nails which are either unidentifiable or wrought. The mean ceramic date for the assemblage is 1754, only three years later than the robbed wall section identified as Feature 9. However, unlike Feature 9, this wall section did not produce any ceramics later than creamware. Curiously, like Features 6, 8, and 9, this feature also produced fragments of clay pavers, indicating that these items were found throughout the Colonial Kitchen.

Figure 195. Feature artifacts. A-B, brass and iron screens from Feature 1, the cistern catch basin; C, scissor fragment from Feature 2; D, iron padlock from Feature 2; E, red transfer printed whiteware from Feature 2; F, wine bottle from Feature 2; G, pearlware chamber pot from Feature 5; H, two pins from Feature 6.

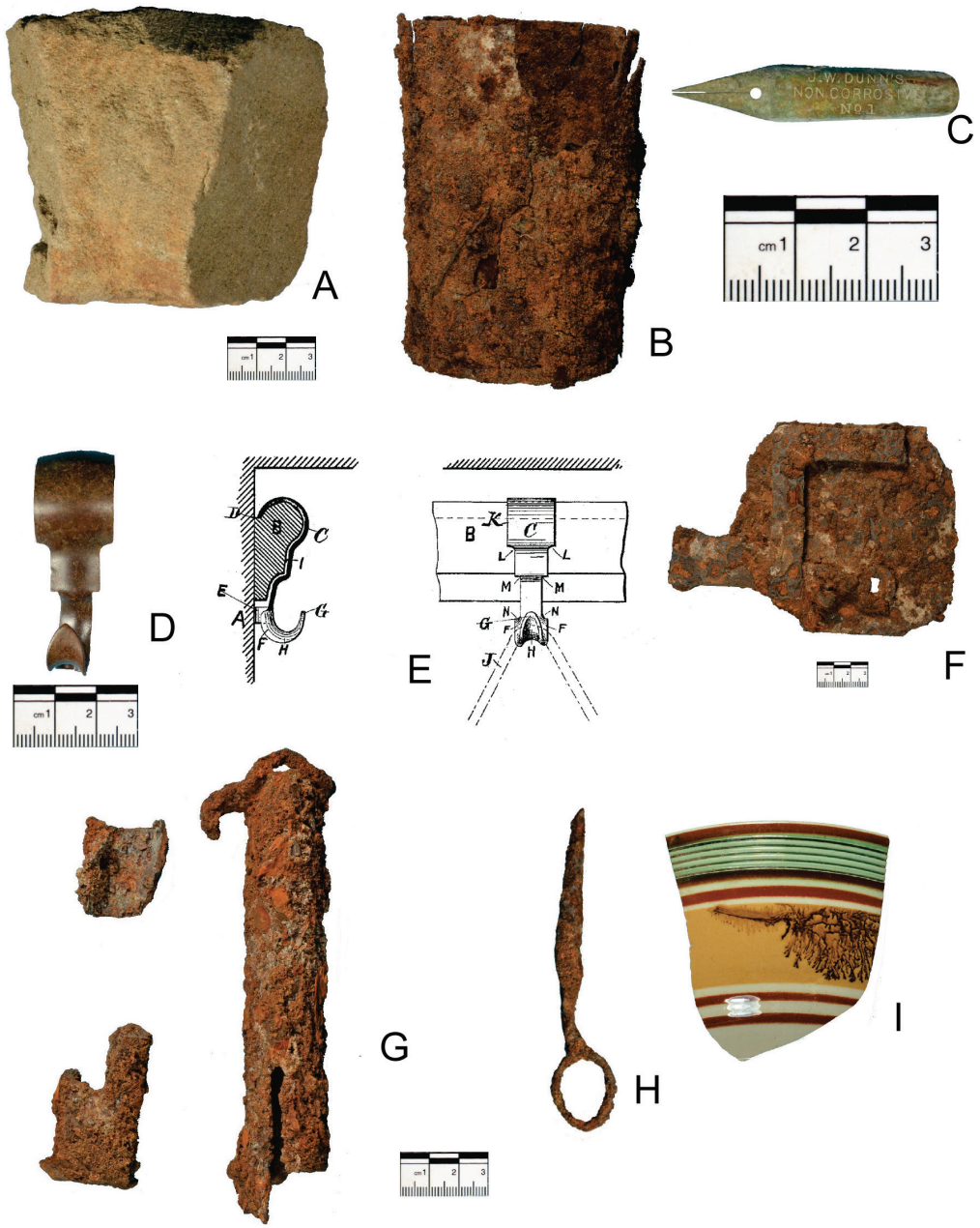


Figure 196. Feature artifacts. A, fragment of a quern or hand millstone from Feature 7; B, can with stamped/flanged can ends from Feature 8; C, brass pen nib from Feature 8; D, brass picture-molding hook from Feature C; E, drawing from patent showing the use of the picture molding hook; F, door latch from Feature F; G, fragments of candlestick holder from Feature H; H, scissor fragment from Feature H; I, mocha creamware bowl fragment from Feature H.

Figure 197. Feature artifacts. A, brass lock box plate from Feature H; B, brass escutcheon from Feature H; C, brass umbrella strut from Feature H; D, iron two-tine fork from Feature K; E, brass padlock from stripping north of the Colonial House; F, pewter utensil handle with touch marks from north of the Colonial House; G, blue transfer printed whiteware from stripping; H, hoe from stripping north of the Colonial House; I, iron padlock from stripping north of the Slave House.

Features Associated with the Nineteenth Century Settlement

Six features are associated with the block excavations at the nineteenth century Kendal settlement, although only five of these produced artifacts. The five include two associated with the Kendal House and five associated with various yard units. The one feature (Feature 4) not producing artifacts was the Kendal cistern.

Feature 1

This feature was the cistern filter at the corner of the Kendal House and its fill is primarily fire debris, including 39 fragments of brass and iron filter screen and brass from the box, and 17 nails, primarily cut specimens with machine applied heads.

Table 114.
Form of Vessels in Feature 2

	Hollow Ware		Flat Ware		Serving	Utilitarian
	Cup/Mug	Bowl	Saucer	Plate	Pitcher	Pan
Chinese porcelain, blue hand painted				1		
Subtotals	0		1		0	0
Delft, sponged				1		
Subtotals	0		1		0	0
Coarse Red Earthenware						1
Subtotals	0		0		0	1
Creamware, undecorated	1	1		5		
Subtotals	2		5		0	0
Pearlware, undecorated		1				
Pearlware, annular					1	
Pearlware, edged				5		
Pearlware, hand painted	1		3	2		
Pearlware, transfer printed		1	1	1		
Subtotals	3		12		1	0
Whiteware, hand painted		2		4		
Whiteware, transfer printed		1	1	1		
Subtotals	3		6		0	0
Totals by Function	8		25		1	1
%	22.86		71.43		2.86	2.86

Feature 2

This feature, found at the base of the nineteenth century midden, was filled with dense architectural rubble and 910 artifacts. These included a very wide range of trash, with ceramics comprising about 28% (n=255) of the assemblage. In contrast, the nails account for 49% of the collection (n=449).

There were at least 35 vessels represented in this feature (Table 114). Most of these vessels (nearly 72%) were flat ware, typically associated with high status occupants. In addition, over half of the pearlware and all of the whiteware were expensive, high-status motifs such as hand painted or transfer printed. This suggests that the remains from the feature were originally associated with the antebellum Kendal house.

The assemblage includes one fragmentary goblet and one tumbler, as well as three body fragments with a delicate floral motif engraved into the glass – another indication of the occupant's wealth. At least two black glass wine bottles are present in the collection, along with a portion of a scissor, a slate pencil, two English gun flints, a stub stem pipe fragment, an intact hand wrought padlock, and a fragmentary bone tooth-brush.

The architectural remains include a portion of a delft tile – which has only been found associated with the colonial structures. Otherwise, the nails are primarily machine cut and most of those exhibiting machine applied heads, indicating a likely post-1820 TPQ.

The mean ceramic date for the feature is 1806, seven years earlier than the mean date for the associated units. The whiteware TPQ for the feature is 1831. In addition, wrought nails are more common in the units than in the feature.

Taken together, it seems probable that the feature, dating from the early antebellum, represents a repair episode during the Kendal House's early existence.

Feature 5

Thought to be a trash pit in one of the miscellaneous yard units (255R280), this feature produced only 39 artifacts. Most of these are ceramics which provide a mean ceramic date of 1801 and the presence of blue transfer printed pearlware indicates a TPQ of 1795. The unit in which the feature is found produced a mean ceramic date of 1838. Consequently, this feature spans the period when the colonial structures were being abandoned and the antebellum structures were being created.

Feature 7

This is another low density feature, found merged with Feature 5 discussed above. This feature produced only 32 specimens. Only seven of the ceramics were datable and they yield a mean ceramic date of 1799. Nails (n=3) include only cut specimens with hand applied heads, suggesting a late eighteenth or early nineteenth century period of use.

The feature did yield a fragment of a small millstone which when intact would have had a diameter of 7-inches and a thickness of 3⅛-inches. This was part of a quern or hand mill which consisted of two stones set one on the other. The lower stone was fixed and the upper had a funnel-shaped hole in the center into which grain would be poured. Close to the edge of the upper stone was another hole to set a handle for rotating the stone. The ground grain worked out from the center between the two stones to the outside (Tunis 1999:36). Querns were an alternative to paying a miller and were used by many colonial families into the nineteenth century (and, in fact, they can still be purchased today).

Feature 13

This feature consists of the mill shaft recovered from the front of the Kendal House and the few artifacts retained from the fill.

Features Associated with Stripped Areas

Feature A

This feature contained black soil and shell. It measured about 3 by 2 feet in diameter and about 0.5 foot in depth. While the feature produced 399 artifacts, 72% (n=299) were nails and most of these (n=170) were machine cut with hand applied heads. Of the 18 ceramics 13 are datable, yielding a mean ceramic date of 1839. There is, in addition, one marker's mark for George Jones. Since it lacks the "& Sons" which was added in 1871, this mark was most likely used from 1862 to 1873, thereby providing a good TPQ of 1862 (Gibson 2011:94-95).

Four fragments of ribbed stub stem pipes were present, along with a fragment of a percussion cap, a black glass button (very fancy and perhaps associated with mourning dress), and a fishing weight.

The abundance of architectural materials, however, suggests the dumping of a repair episode. While the fill suggests burning, very few of the artifacts evidence heat damage, so the fill itself may have come from elsewhere.

Regardless, the assemblage suggests a late antebellum date for the feature.

Feature B

This very large feature was filled with soft Colonial bricks and is thought to represent a dump of bricks thought unsatisfactory for use in the construction of the colonial structure. None of the brick exhibit any adhering mortar. Very few artifacts are present, although what was recovered provides a mean ceramic date of 1809 and the polychrome hand painted whiteware provides a TPQ of 1826. In addition, a fragment of a shutter hinge like those used on the Kendal House was

recovered. Therefore, this feature represents an early antebellum, not colonial, deposit. It may still, however, represent brick rejected for use.

Feature C

This was a shell filled pit – the only one identified at Kendal. Artifacts were sparse, with only 21 specimens recovered.

This feature contained a brass picture-molding hook stamped "M.B. FRANKLIN / PAT. JUNE 14 188_." This was patent 242, 913, granted on June 14, 1881. Also present in the feature were six fragments of flower pot fragments identical to those found in the Slave House and thought to have been stored there in the mid-twentieth century. Consequently, this is likely a very recent pit, although its function is unknown.

Feature D

Containing only 12 artifacts, this feature may have been a post hole. The two undecorated pearlware ceramics provide a TPQ of 1780.

Also present was a Type 18 brass button stamped on the reverse, "DOUBLE GILT / NEWBOULDS." Surprising little is available concerning this manufacturer, although the September 29, 1812 *London Gazette* announced that with the death of William Newbould, the business of "Merchants and Button-Manufacturers" was being dissolved but the business would be carried on by his sons, Thomas, William, and George Newbould.

Apparently this was William Newbould, Sr. (1749-1802), who married Sarah, the daughter of Thomas Holy, a button manufacturer. The two were in business together. Other members of the Newbould family were edge tool manufacturers (http://www.gracesguide.co.uk/Samuel_Newbould_and_Co). Another source, however, suggests that Sarah was the wife of Thomas Holy and the two ran his button manufacturing business until his death in 1758 and her subsequent death in 1768. A partnership formed between Thomas Newbould, George Woodhead, a merchant, and Sarah's son Thomas Holy. This partnership operated between 1771 and 1793 (http://www.sheffieldhistory.co.uk/forums/index.php?/topic/7301-button-industry-in-sheffield/).

It seems that the feature was deposited sometime in the late eighteenth century or perhaps early nineteenth century.

Feature E

Only 25 items were recovered from this feature, including 13 ceramics and 11 nails (five of which were hand wrought). The ceramics provide a mean ceramic date of 1805, which is reasonable for the replacement of wrought nails. This was likely a small trash pit filled with materials from a small architectural repair.

Feature F

This was a very large feature and artifacts were dense with 236 recovered from the small portion sampled. Only 59 of those, however, were ceramics (25% of the total assemblage) and 51 were datable, providing a mean ceramic date of 1806.

While only seven vessels were identifiable, Table 115 reveals that most were flat wares and there were no serving or utilitarian vessels identified. Most of the motifs (two-thirds of the pearlwares and all of the whitewares) were expensive hand painted or transfer printed styles.

The assemblage also included an agateware doorknob. Ericson and Hunter (2001) report that American potteries began to produce these doorknobs covered with a Rockingham glaze in the nineteenth century.

Also present was a door latch described by Teller as being,

> operated by a drop handle. . . . These are usually found on the Dutch door which is built in two halves and fitted with one of these drop handles near lower edge of

Table 115.
Form of Vessels in Feature F

	Hollow Ware		Flat Ware	
	Cup/Mug	Bowl	Saucer	Plate
Delft, undecorated	1			
Subtotals	1		0	
Buckley ware		1		
Subtotals			0	
Creamware, undecorated				1
Creamware, annular/cable/mocha		1		
Subtotals	1		1	
Pearlware, undecorated			1	
Pearlware, hand painted				1
Pearlware, transfer printed				1
Subtotals	0		3	
Whiteware, transfer printed	1			
Subtotals	1		0	
Totals by Function	3		4	
%	42.86		57.14	

the upper half. A spindle looped over the handle passed through the door and at the end of spindle a cam was fitted to lie under the bar of the latch, one end resting in the latch guide. A twist of the handle raised the latch and disengaged it from the catch pin. After the upper half was opened, one could reach over and lift the latch of the lower door from the inside (Myron S. Teller, South Carolina Historical Society File 26-32-10; see also Nash 1913).

Nails found in the feature include primarily machine cut, although wrought nails are also present.

It seems likely that this is yet another "trash pit" in which materials dating from the late eighteenth and early nineteenth century were discarded. The TPQ is 1831 (blue transfer printed whiteware) and it is likely that the remains were generated by the Kendal House, although the hardware may be left over from the Colonial House.

Feature G

This feature was unremarkable upon discovery, being only 0.3 foot in depth. It was thought to represent a natural deposit. Only five artifacts were present, all ceramics. The mean ceramic date for the feature is 1835.

Feature H

Although well-defined and exhibiting abundant artifacts, no function was identified for this feature. The southern half of the feature produced 329 specimens, including 99 ceramics (30% of the total assemblage). Of these 91 were datable and yield a mean ceramic date of 1797. The presence of polychrome hand painted whiteware, however, indicates a TPQ of 1826.

Table 116.
Form of Vessels in Feature H

	Hollow Ware		Flat Ware		Serving	
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Lid
Chinese porcelain, poly HPOG		1	1			
Subtotals	1		1		0	
Delft, polychrome		1				
Subtotals	1		0		0	
White SGSW				1		
Subtotals	0		1		0	
Creamware, undecorated				2	1	
Creamware, annular/cable/mocha		1				
Subtotals	1		2		1	
Pearlware, annular		3				
Pearlware, edged				4		
Pearlware, transfer printed	1	1		1		1
Subtotals	5		5		1	
Whiteware, undecorated				1		
Subtotals	0		1		0	
Totals by Function	8		10		2	
%	40.00		50.00		10.00	

A minimum of 20 vessels are represented in the feature (Table 116) with 50% consisting of

flat wares, suggestive of the planter's table – an interpretation supported by the presence of Chinese porcelains and Buckley tea ware. However, two-thirds of the pearlwares and all of the whitewares have inexpensive motifs, such as annular and edged decorations.

The remains of at least one wine bottle were present in the features. Tableware include a fragmentary table knife and a single clear glass tumbler. Kitchenware included at least one heavy cast iron baking pan and one cauldron.

Table 117.
Form of Vessels in Feature I

	Hollow Ware	Flat Ware		Serving	Utilitarian
	Bowl	Saucer	Plate	Bowl	Chamber Pot
Chinese porcelain, poly HPOG				1	
Subtotals	0	0		1	0
Creamware, undecorated			2		1
Subtotals	0	2		0	1
Pearlware, annular	1				
Pearlware, edged			1		
Subtotals	1	1		0	0
Whiteware, hand painted	1	1	5		
Subtotals	1	6		0	0
Totals by Function	2	9		1	1
%	15.38	69.23		7.69	7.69

A variety of architectural items were present, include wrought and machine cuts nails (with both hand and machine applied heads), a worked marble fragment (perhaps from a mantle), a strap hinge, two lock box fragments, and a brass escutcheon for a slide bolt.

Furniture hardware was also present, including an iron drawer handle and a brass handle. A sheet metal candlestick, virtually identical to a specimen illustrated by Lindsay (1964:Figure 275), was identified. Lindsay attributes the specimen to the early nineteenth century, consistent with the TPQ date.

Clothing items included a portion of a scissor, as well as a sad iron. The single personal item was a brass umbrella strut.

This feature, more than many identified during stripping, appears to include a broad range of artifacts gathered up and disposed of during the first quarter of the nineteenth century – about the time that the Colonial House was abandoned and the Kendal House was built.

Feature I

This feature was also large, containing lensed fill to a depth of 1.5 feet below grade. It produced 224 artifacts, so density was not as great as Feature H.

Ceramics represent 41% of the collection (N=92), with nails accounting for an additional 36% (N=81). All but one of the ceramics is datable and the collection yields a mean ceramic date of 1817. A minimum of 13 vessels were identified, most of which are flat wares.

The single serving vessel is a hand painted overglazed Chinese porcelain punchbowl. Punch was widely drunk by "leisured gentlemen" (Thompson 1989:551). During this period the punch bowl was typically ceramic, most commonly Chinese export porcelain (it is therefore no surprise that Jones and Smith [1985] illustrate no glass versions). In fact, Benjamin Franklin penned a short verse about punch that began, "Boy, bring a bowl of china here" (Thompson 1989:552). These bowls are found in five traditional sizes, ranging from less than a quart to a capacity of several gallons.

The one utilitarian vessel is a plain creamware chamber pot, partially reconstructable.

While all of the pearlwares are inexpensive motifs, all of the whitewares are of expensive designs. Whether social conditions changed or the sample is simply too small can't be determined.

Another item of very high status is the diminutive glass stopper from a perfume bottle.

Table 118.
Mean Ceramic Dates for the Features

Ceramic	Date Range	Mean Date (xi)	Feature 6 (fi)	Feature 6 fi x xi	Feature 9 (fi)	Feature 9 fi x xi	Feature 10 (fi)	Feature 10 fi x xi	Feature 12 (fi)	Feature 12 fi x xi	Feature 14 (fi)	Feature 14 fi x xi	Feature 2 (fi)	Feature 2 fi x xi	Feature 5 (fi)	Feature 5 fi x xi	Feature 7 (fi)	Feature 7 fi x xi	Feature A (fi)	Feature A fi x xi	Feature B (fi)	Feature B fi x xi	Feature E (fi)	Feature E fi x xi	Feature F (fi)	Feature F fi x xi	Feature G (fi)	Feature G fi x xi	Feature H (fi)	Feature H fi x xi	Feature I (fi)	Feature I fi x xi	Feature J (fi)	Feature J fi x xi
Overglazed enameled porc	1660-1800	1730	2	3460	0	0	0	0	1	1730	2	3460	2	3460	0	0	0	0	0	0	1	1730	0	0	1	1730	0	0	4	6920	7	12110	0	0
Underglazed blue porc	1660-1800	1730	4	6920	14	24220	2	3460	2	3460	2	3460	2	3460	0	0	0	0	0	0	0	0	0	0	2	3460	0	0	2	3460	2	3460	0	0
Westerwald	1700-1775	1738	1	1738	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5214	0	0	0	0	0	0	0	0
White salt glazed stoneware	1740-1775	1758	5	8790	4	7032	0	0	1	1758	3	5274	2	3516	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1758	0	0	0	0
White sg sw, slip dipped	1715-1775	1745	5	8725	4	6980	0	0	0	0	0	0	4	6980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White sg sw, scratch blue	1744-1775	1760	0	0	2	3520	1	1760	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lead glazed slipware	1670-1795	1733	9	15597	5	8665	1	1733	0	0	3	5199	0	0	0	0	0	0	0	0	1	1733	0	0	0	0	0	0	1	1733	0	0	0	0
Clouded wares	1740-1770	1755	0	0	0	0	0	0	0	0	2	3510	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decorated delft	1600-1802	1750	4	7000	1	1750	0	0	0	0	1	1750	2	3500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5250	0	0	0	0
Plain delft	1640-1800	1720	2	3440	7	12040	1	1720	0	0	2	3440	1	1720	1	1720	0	0	0	0	0	0	0	0	1	1720	0	0	1	1720	1	1720	0	0
Buckley ware	1720-1775	1748	3	5244	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1748	0	0	1	1748	0	0	0	0
Creamware, cable	1790-1820	1805	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	9025	0	0	0	0
Creamware, annular	1780-1815	1798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1798	0	0	1	1798	0	0	0	0	0	0	0	0
Creamware, hand painted	1790-1820	1805	0	0	0	0	0	0	1	1805	1	1805	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Creamware, blue trans print	1765-1815	1790	0	0	1	1790	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Creamware, undecorated	1762-1820	1791	0	0	9	16119	0	0	8	14328	3	5373	44	78804	3	5373	3	5373	3	5373	0	0	3	5373	5	8955	1	1791	22	39402	18	32238	0	0
Pearlware, mocha	1795-1890	1843	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1843	1	1843	0	0
Pearlware, poly hand painted	1795-1815	1805	0	0	0	0	0	0	1	1805	0	0	33	59565	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1805	0	0	0	0
Pearlware, blue hand painted	1780-1820	1800	0	0	0	0	0	0	1	1800	0	0	6	10800	0	0	0	0	0	0	0	0	2	3600	4	7200	0	0	3	5400	0	0	0	0
Pearlware, blue trans printed	1795-1840	1818	0	0	0	0	0	0	8	14544	0	0	19	34542	2	3636	0	0	1	1818	0	0	4	7272	3	5454	1	1818	18	32724	14	25452	0	0
Pearlware, edged	1780-1830	1805	0	0	0	0	0	0	1	1805	0	0	20	36100	0	0	2	3610	0	0	0	0	0	0	0	0	0	0	5	9025	1	1805	0	0
Pearlware, annular/cable	1790-1820	1805	0	0	1	1805	0	0	0	0	0	0	7	12635	0	0	0	0	0	0	0	0	0	0	3	5415	0	0	6	10830	1	1805	0	0
Pearlware, undecorated	1780-1830	1805	0	0	2	3610	0	0	10	18050	0	0	78	140790	23	41515	2	3610	1	1805	1	1805	4	7220	12	21660	0	0	18	32490	7	12635	1	1805
Whiteware, blue edged	1826-1880	1853	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1853	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Whiteware, blue hand painted	1780-1820	1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3600	0	0	0	0	0	0	0	0
Whiteware, poly hand painted	1826-1870	1848	0	0	0	0	0	0	1	1848	0	0	11	20328	0	0	0	0	1	1848	3	5544	0	0	0	0	0	0	1	1848	19	35112	3	5544
Whiteware, blue trans printed	1831-1865	1848	0	0	0	0	0	0	0	0	0	0	11	20328	0	0	0	0	0	0	0	0	0	0	1	1848	1	1848	0	0	0	0	0	0
Whiteware, non-blue trans printed	1826-1875	1851	0	0	0	0	0	0	0	0	0	0	4	7404	0	0	0	0	0	0	0	0	0	0	3	5553	0	0	0	0	0	0	0	0
Whiteware, mocha	1831-1900	1866	0	0	0	0	0	0	0	0	0	0	1	1866	0	0	0	0	0	0	0	0	0	0	3	5598	0	0	0	0	0	0	0	0
Whiteware, undecorated	1813-1900	1860	0	0	0	0	0	0	2	3720	0	0	6	11160	0	0	0	0	4	7440	1	1860	0	0	6	11160	2	3720	3	5580	20	37200	1	1860
Yellow ware	1830-1940	1885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3770	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total			35	60914	50	87531	5	8673	37	66653	19	33272	253	456958	29	52244	7	12593	13	23907	8	14470	13	23465	51	92113	5	9177	96	172561	91	165380	5	9209
Mean Ceramic Date by Provenience				1740.4		1750.6		1734.6		1801.4		1751.2		1806.2		1801.5		1799		1839		1808.8		1805		1806.1		1835.4		1797.5		1817.4		1841.8
Standard Deviation				12.0		30.7		17.1		40.2		29.0		47.9		43.7		8.1		33.4		55.2		11.3		48.7		31.0		43.8		49.2		28.9

Nearly equal number of wrought and machine cut nails were recovered from the feature. Among the machine cut nails, nearly equal numbers have hand applied and machine applied heads. The nails span the colonial and early nineteenth century, consistent with the mean ceramic date.

Feature J

The feature represents a probable pier, although because much of the feature was lost during stripping, little more can be said about it. Five ceramics were recovered, yielding a mean ceramic date of 1842. The polychrome hand painted whiteware provides a TPQ of 1826 for the feature.

Feature K

This was also likely a pier. Materials recovered include three undecorated creamwares, providing a TPQ of 1762. Also recovered was a two-tine iron fork that had a wood or bone handle, now missing.

Archaeological Eggshell

Eggshell was recovered from only one provenience at Kendal, Feature 12. This was a robbed wall section of the Colonial House. The feature produced a mean ceramic date of 1801, a few years later than the mean date for the structure itself, 1794.

Fresh shell is comprised of both organic and inorganic materials. The central portion, itself made up of inorganic calcium carbonates, has two organic membranes on either side. The internal membrane is adjacent to the albumin of the developing embryo and is the thin, transparent membrane so easily removed when one cracks open a shell. The external membrane is a cuticle so firmly attached to the core of the shell that it cannot be mechanically removed (Sidell 1993:6).

The inorganic core of eggshell is made up of two main structures. The mammillae layer forms on the outer shell membrane from small crystal cells. They grow upward and outward until they meet, forming hexagonal structures. The other layer, the palisade layer, forms directly upon the mammillae layer. It is this material that makes up the bulk of the shell.

Eggshell also has pore canals running through the thickness of the structure to provide for the exchange of gases and water vapor to the exterior. These are seen more frequently at the blunt end of the shell to access an air sac which supports the embryo. While the external cuticle plugs the outside passage of the pores, it does not seem to prevent the passage of air and gases.

Sidell (1993) outlines four techniques to identify the species of poultry producing eggshell:

1. *Thickness range*. This may be done with either a light microscope with an eyepiece reticule or, carefully, with digital calipers. Several readings should be done on each fragment to get a range of thicknesses.

2. *Mean pores/mm^2*. This is a count taken of the average number of pores per square millimeter on the external surface of the eggshell using a light microscope.

3. *Mammillae range/mm^2.* This is a count made with a Scanning Electron Microscope (200X) of the average number of whole mammilla on the SEM screen. Parts of mammillae on the edge of the screen are not counted. Counts are converted to an average per square millimeter.

Table 119.
Selected Metric Data for Poultry Eggs
(based on Sidell 1993:13)

Bird	Thickness (mm)	Mean Pores (mm^2)
Chicken	0.325-0.35	2.8
Domestic Duck	0.35-0.4	1.1
Domestic Goose	0.525-0.65	1.0
Turkey	0.325	1.6
Quail	0.175-0.2	1.6
Pigeon	0.15-0.2	0.2

4. *Ratio (mammillae/palisade layer)*. This is a ratio taken from either the SEM screen or micrographs.

More recently Stewart and his colleagues have developed a technique to use mass spectrometry and peptide mass fingerprinting (Stewart et al. 2013).

Obviously, the most definitive analysis involves combining all of the different approaches.

However, for the Kendal sample only the first two techniques were used since the cost SEM was beyond our budget. Table 119 provides comparative data.

Analysis and Results

As seen in Table 119, there is sufficient variation in eggshell morphology and microstructure (shell color and size, pore, mammillae, and palisade appearances, counts, and shell thickness, etc.) from species to species to usually allow for identification. However, some intra-species variation does occur - indeed, a single clutch of eggs from the same bird will range considerably in color and size (Gutierrez et al. 1997:30).

Several factors are known to affect the composition of eggs and the appearance of eggshell. Levels of nutrients in the egg are directly effected by the species of hen. Younger hens produce smaller eggs and smaller eggs have higher proportions of yolk. The older the laying hen, the higher the levels of lipids, or fats, in the egg. Ambient temperatures also play a role - hens exposed to higher temperatures will produce smaller eggs. Also, maternal nutrition affects the thickness of the shell when the bird is laying (Gutierrez et al. 1997:30).

Biological and mechanical factors should be taken into account when examining eggshell. Eggshell does not preserve well in acidic soil (its recovery in this sample is likely the result of the large quantity of animal bone neutralizing soil acidity). Also, while it is known for its incredible strength, eggshell - even the extremely robust ostrich species - cannot stand up to the pressure from years of overburden at archaeological sites. Acidic soils will leach out the original color of eggshell. Often the shell takes on the color of the surrounding matrix which then has to be differentiated from its true color. However, once the shell is fragmented and the soil pH is not excessively acidic, the inorganic shell will preserve indefinitely (Sidell 1993:8).

While eggshell is often recovered from archaeological sites in the United States, certain factors may preclude the study of this material, allowing valuable information to be lost. Often eggshell is not recognized as such and may be misclassified as bone. If it is recognized it may be simply thrown away or recorded as merely 'avian eggshell' with no other comments attempted.

The eggshell is first soaked briefly in a 1:4 bleach-water bath to remove dirt residue and any remaining organic cuticle. The samples are then rinsed with water and allowed to dry slowly. The material is counted and weighed. Next, measurements of each individual eggshell thickness are done using a Mitutoyo digital caliper and were taken to one one-hundredth of a millimeter.

Staining of the exterior of the shell was then attempted to facilitate viewing and counting the pores under a light microscope. A standard 10% iodine solution was tried first, but it was discovered that the stain was too similar to the already brownish color of the shell. After several attempts with other common inks and pigments, it was found that a blue watercolor marker (Staedtler™ brand) worked best. The watery ink seeped into the pores better than the iodine and the bright color stood out against the light brown shells.

Only one eggshell fragment weighing 0.11 grams was recovered. The shell was found to be 0.53mm in thickness with one pore per millimeter. This is almost certainly an eggshell of the domestic goose (*Anser anser domesticus*).

Conclusions

While this small sample documents the presence of geese at the Kendal site, it cannot tell us whether the site occupants were using by-products (eggs) of the goose or the remains are simply those of hatched goslings being raised for food.

It is extremely rare to recover eggshells in

the archaeological record that are known to come from hatched goslings (which can be recognized by only having one small side of the whole shell cracked open), and assumptions regarding the original use of the birds and their eggshells become problematic. It may be safe to say that both activities were occurring - adult geese and their eggs, were used as food resources.

Chicken was the only domestic bird identified in the faunal studies (Steinwachs et al., this volume) and the wild birds, such as turkey and duck, were likely hunted and not raised. Thus, the recovery of this eggshell fragment is the only evidence we have of geese at Kendal.

From nineteenth century urban Charleston contexts, much greater variety of egg use has been documented. Coyle (2010) found chicken, duck, and goose eggshell at Chicora's Broad Street excavations, although chicken comprised 79% of the eggshell by weight. Lamzik (2013) recently examined eggshell recovered from the nineteenth century African American slave settlement at Thomas Jefferson's Poplar Forest Plantation. She found, like Broad Street, that chicken was the dominant eggshell present in the assemblage, although also present were turkey, guinea fowl or goose, passerine (perching birds), and quail eggshell (Lamzik 2013:82).

In England, it seems that goose was much less intensively exploited than other domestic fowl and most were allowed to reach full size before they were fattened and slaughtered (Maltby 1979:71). In Virginia, geese peak in probate entries prior to the Revolution and then decline significantly into the nineteenth century (Walsh et al. 1997:350-351). Late eighteenth century cookbooks, however, provided were numerous recipes for geese, ranging from roasting to collaring with a turkey (Briggs 1788). Some also offered the Scottish recipe for goose blood pudding (Briggs 1788:543).

Faunal Analysis

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Introduction

The inventory and analysis of the vertebrate faunal remains recovered from Kendal Plantation provides an opportunity to examine subsistence patterns associated with North Carolina plantation owners and slaves. Research questions for this project focus on animal domestication and exploitation practices that can assist in identifying differences in subsistence patterns and wealth and status in the greater Antebellum South. Likewise, comparisons of the faunal assemblages recovered from the identified activity areas and associated features at Kendal Plantation lead to important information on differential access to animal food by the plantation inhabitants.

Specific research questions addressed in this study include:

1. What species are associated with each of the activity areas? Are faunal category patterns associated with the Kendal activity areas similar to other collections recovered from North Carolina and other plantation sites?

2. Are there major differences in subsistence patterns between the Colonial House and identified Slave quarters at the site? It is expected that more and better cuts of meat, especially from domestic cattle, would be associated with the Colonial House. Likewise, lesser quality meats are expected to be present at the slave areas.

3. What patterns are seen at other activity areas identified at the site (storehouses, root cellars, and yard units).

4. What modifications are present on the faunal elements?

By analyzing the faunal materials according to the specific activity areas identified archaeologically at Kendal Plantation, differential access to and use of animal foods can be examined. Most important are the differences observed in identified fauna for the colonial house areas and slave areas. Studies on eighteenth and nineteenth century upper-class urban households document a more variable diet for this social class, including both wild and domestic species coupled with a higher frequency of fish (Reitz 1986). Reitz also compares urban and rural faunal assemblages, maintaining that urban residents used more domestic species, particularly birds, with fewer wild species being present when compared to rural diets. It is expected that the wealthier plantation dwellers will enjoy a more diverse diet and better cuts of meat than the less privileged occupants of the plantation.

Although identified taxa can provide invaluable insight into diet variability and animal availability in a particular environment, the presence of particular skeletal elements associated with meatier cuts have also been used to assess social prestige. According to Reitz and Weinand

(1995), upper and middle class antebellum households in Charleston, South Carolina characteristically had access to better meat cuts, evidenced by a higher frequency of forequarter and hindquarter skeletal elements. Other cuts of meat, specifically elements of the cranium, axial skeleton, and lower legs and feet, are often associated with individuals or businesses of lower prestige (Reitz and Weinand 1995).

Bone modifications can provide information on butchering patterns, whether animals were purchased elsewhere rather than being butchered on site, and disposal patterns. Sawed bone has been associated with the purchase of meat from a butcher (Weinand 1996). Cut marks are typically found in joint areas where the animal is being disarticulated. Carnivore and rodent gnawing on bone provides evidence that the animal remains were not covered immediately after disposal.

Methods

The faunal collection from Kendal Plantation were recovered archaeologically using ¼ inch mesh. Flotation samples were taken in areas where potential for ethnobotanical remains was high (see methods section). The use of floatation recovery methods increased the number of fish and small animal skeletal elements recovered, thus providing a more representative faunal sample.

Analysis of the faunal materials employed standard zooarchaeological procedures and methods. The comparative collection at Ball State University, Department of Anthropology, was used to aid in element identification. Also, authors Steinwachs and Konrad traveled to Indiana University's Glenn Black Laboratory to use comparative collections housed there. The Indiana University collection was instrumental in identifying fish and bird species in the collection. Over 1000 hours were spent in this investigation.

The recovered faunal materials were cataloged by class, suborder, or species, and the individual bone elements identified. Attempts were made to identify all elements to class, but fragmentation and other factors prevented this in many cases. These elements were classified as miscellaneous unidentified or unidentified non-mammal in the inventory.

The side of the skeletal element (right or left), specific bone section (diaphysis, epiphysis, distal, proximal, etc.), and level of maturity (immature, adult, old adult), was recorded where preservation permitted. A scale ranging from 1-4 was used to record fragmentation. A "1" represented 75% or more of the bone was present, "2" 50 to 75% of bone present, "3" 25 to 50% present, and "4" less than 25%. All bones of all taxa were counted and weighed in grams. Based on element identification, the Minimum Number of Individuals (MNI) was be computed for each animal category using paired bone elements and age (mature/immature) as criteria.

Grayson' s (1973) maximum distinction method for MNI was employed. This means that MNI was determined for each activity area and feature and then summed to get a site total. For example, the MNI for a species from one activity area may be based on one bone element (say five right cattle femurs) and the MNI for another activity area based on an entirely different element (say three left cattle ulnas). For the collections analyzed in this study, this meant treating stratigraphic levels as a single unit before combining the MNI for the area. Features and postholes were treated as individual data sets and kept separate at all levels of interpretations. Using activity area as single units provides a MNI count that is less conservative than the minimum distinction method where the entire site is treated as a single unit. Conversely, using stratigraphic divisions to determine MNI is less conservative than the maximum distinction method where both horizontal and vertical strata are treated as single units (Grayson 1973: 438).

As a measure of zooarchaeological quantification, using MNI is seen by some as problematical (Casteel 1977; Grayson 1973,1984).

Depending on the method used (minimum distinction, maximum distinction, or stratigraphic layers), the MNI calculated for a faunal assemblage may be under or over representative. Likewise, use of MNI emphasizes small mammals over large ones. For example, a bird species may be represented five times for every large mammal, but the large mammal contributes more to the diet. Problems inherent in using MNI must be considered when interpreting species contribution to a diet.

Given the problems associated with using MNI as a zooarchaeological measure, weight percentages for each taxa is presented as well as estimates of biomass. Both provide a more realistic profile of animal contributions to the diet. Biomass values are based on allometry—the biological relationship between bone mass and soft tissue. Some animals, such as chickens, may have less muscle relative to bone mass compared to cattle or pig. Biomass is determined using analysis of logarithmic data where bone weight is used to estimate soft tissue amounts that would have been supported by the bone (Casteel 1978; Reitz 1982; Reitz and Cordier 1983; Reitz and Scarry 1985; Reitz et. al. 1987; Reitz and Wing 1999; Wing and Brown 1979). The relationship between skeletal weight and body weight is expressed by the allometric equation $Y= aX^b$, which can be written as log Y= log a + b (log X) and is discussed in detail by Simpson and his colleagues (Simpson et al. 1960:397).

A useful method for comparing similarities and differences in faunal assemblages is to observe the percentages of MNI for specific faunal categories. Reitz (1986) developed this model for urban, rural, and slave settlements located along the South Carolina and Georgia coasts. For this study, MNI percentages were combined in configuring the faunal category patterns, domestic mammal, wild mammal, domestic bird, wild bird, reptiles, fish, and commensals.

Recording the presence or absence of bone elements in a faunal assemblage provides useful information on butchery patterns and animal husbandry. Elements identified for cattle were classified as “head” (cranial fragments and teeth), “axial” (vertebra and ribs), “forequarter (scapula, humerus, ulna, and radius), “hindquarter” (innominate, femur, tibia, fibula), “hindfoot” (tarsals and metatarsals), “forefoot” (carpals and metacarpals), and “foot” (phalanges). Using log difference scale models for cattle (Reitz and Zierden 1991) bone representation can be observed for the different activity areas at Kendal Plantation. Using cuts of meat in these models provides another means for examining bone representation in a faunal assemblage (see Reitz and Zierden 1991 for more detailed discussions).

In addition to determination of MNI, biomass weight, and meat cuts, observations of bone modifications classified as sawed, clean-cut, burned, chopped/hacked, gnawed and worked will also be included in the analysis. Sawing is distinguished where parallel striations are observed on the outer layer of bone. Clean-cut marks are generally produced by sawing but striations are not present. Burned bone is modified by exposure to fire during preparation or after discard. Cuts are defined as shallow incisions on the bone surface generally associated with cutting meat around the joint area. Chop/hack marks are created using a cleaver or ax. Gnawed bone indicates bone was not buried immediately following disposal and consequently was exposed to animals. Human modification of bone not associated with butchering is identified as worked bone (Reitz and Weinand 1995).

Results

Table 120 provides a summary of the total MNI, percentages of MNI, NISP (or Count), and weight in grams for the Kendal materials. A total of 63,142 elements weighing 165,547 grams were identified representing 54 animal species. By count, vertebrate animals represented the majority of the collection (98.8%) with bivalves representing the remaining (1.8%). When vertebrates are considered, 4,210 skeletal elements (6.6%) were identified to species, ten to genus (0.01%), 34,647 fragments (55%) to class,

Table 120.
MNI, NISP, and Weight for Kendal Faunal Remains

	MNI	MNI %	NISP (or count)	Weight (gm)
Domestic Mammals				
Cow, *Bos taurus*	67	23.59	2,511	54,719.97
Pig, *Sus domesticus*	36	12.67	566	2,392.87
Sheep, *Ovis aries*	17	5.98	109	540.01
Wild Mammals				
Deer, *Odocoileus virginianus*	21	7.39	249	1,906.89
Eastern Cottontail, *Sylvilagus floridanus*	10	3.52	61	46.93
Raccoon, *Procyon lotor*	7	2.46	24	137.38
Rice Rat, *Oryzomys palustris*	5	1.76	15	62.95
Opossum, *Didelphis virginiana*	3	1.05	8	111.49
Fox Squirrel, *Sciurus niger*	3	1.05	7	11.8
Eastern Woodrat, *Neotoma floridana*	2	0.7	21	138.21
Grey Fox, *Urocyon cinereoargenteus*	2	0.7	5	8.82
Bobcat, *Lynx rufus*	1	0.35	12	360.25
Grey Wolf, *Canis lupus*	1	0.35	1	25.01
Canis, *Canis*	1	0.35	1	5.93
Skunk, *Mephitis mephitis*	1	0.35	1	1.15
Eastern Mole, *Scalopus aquaticus*	1	0.35	1	0.13
Subtotal	178	62.62	3,592	60,469.79
Unidentified Mammal			33,372	99,967.87
Total	178	62.62	36,964	160,437.66
Domestic Aves				
Chicken, *Gallus domesticus*	18	6.33	215	1,599.53
Total	18	6.33	215	1,599.53
Wild Aves				
Turkey, *Meleagris gallopavo*	7	2.46	46	239.54
Mallard Duck, *Anas* sp.	3	1.05	9	9.03
Falcon, *Falco* sp.	2	0.7	2	42.79
White Ibis, *Eudocimus albus*	2	0.7	2	4.62
Great Horned Owl, *Bubo virginianus*	1	0.35	1	1.05
Grebe, *Podiceps* sp.	1	0.35	1	0.2
Little Blue Heron, *Florida caerulea*	1	0.35	1	0.31
Pigeon/Dove, Columbidae	1	0.35	4	2.83
Raptor, *Buteo* sp.	1	0.35	1	3.46
Duck, Anatidae	1	0.35	1	1.28
Subtotal	20	7.01	68	305.11
Unidentified Bird			871	356.51
Total	20	7.01	939	661.62
Reptile				
Alligator, *Alligator mississippiensis*	5	1.76	35	210.91
River Cooter, *Pseudemys concinna*	9	3.17	119	552.48
Box Turtle, *Terrapene carolina*	6	2.11	63	89.64
Snapping Turtle, *Chelydra serpentina*	2	0.7	8	40.37
Dimondback, *Malaclemys terrapin*	2	0.7	3	15.99
Musk Turtle, *Sternotherus odoratu* s	2	0.7	5	8.82
Florida Cooter, *Pseudemys floridana*	1	0.35	2	9.04
Water Snake, *Nerodia sipedon*	2	0.7	14	2.3
Kingsnake, *Lampropeltis getula*	2	0.7	2	0.33
Gopher Snake, *Pituophis cantenifer*	1	0.35	1	0.01
Subtotal	32	11.24	252	929.89
Unidentified Turtle			186	235.9
Unidentified Reptile			23	31.04
Total	32	11.24	461	1,196.83
Amphibian				
Bullfrog, *Rana catesbeiana*	1	0.35	1	0.26
Total	1	0.35	1	0.26
Pisces				
Catfish, Ictaluridae	5	1.76	29	328.05
Alligator Gar, *Atractosteus spatula*	4	1.41	11	5.33
Perch, *Perca*	4	1.41	9	17.11
Drum, Sciaenidae	3	1.05	17	9.5
Sea Catfish, *Ariopsis* sp.	3	1.05	3	1.48
Longnose Gar, *Lepisosteus osseus*	2	0.7	2	0.8
Percidae	2	0.7	2	0.31
Porgies, Sparidae	2	0.7	3	2.9
Sunfish, Centrarchidae	2	0.7	4	0.13
Bowfin, *Amia calva*	1	0.35	3	2.19
Black Drum, *Pogonias cromis*	1	0.35	4	35.65
Flounder, *Paralichthys* sp.	1	0.35	1	0.15
Freshwater Drum, *Aplodinotus grunniens*	1	0.35	1	0.47
Red Drum, *Sciaenops ocellatus*	1	0.35	1	0.0001
Sunfish, *Lepomis* sp.	1	0.35	3	0.67
Yellow Perch, *Perca flavescens*	1	0.35	1	0.18
Bullhead catfish, *Ameiurus* sp.	1	0.35	1	0.28
Subtotal	35	12.28	95	405.2
Unidentified Fish			195	62.26
Total	35	12.28	290	467.46
Unidentified Non-mammal			237	32.84
Miscellaneous Unidentified			23,955	1,139.61
Bivalve			80	11.98
SITE TOTAL	284	99.83	63,142	165,547.79

and 24,192 fragments (38%) could not be identified to class.

The large percentage of unidentified class is due to several factors. First, many of the skeletal elements were quite fragmented. The average for all of the fragments based on the preservation scale of 1-4 is 2.63, indicating that many bones were scored 3 or 4. This indicates that less than one half of most specimens were preserved for identification. The majority of the unidentified bones were scored "4". Fragmentation of the unidentified skeletal elements is supported by the total weight for this category being less than one percent of the entire collection (see Table 120). Second, often landmarks and facets required for proper identification were not present on the bone. This was especially true with large mammal long bones which were extremely fragmented and very difficult to classify. Finally, several species in the collection were of similar size. For example, some pig bones can be as large as cattle and deer and sheep can be very similar in size as well. When no landmarks were available to aid in identification, fragments were identified to class. So when identifying large mammals, the researchers erred on the side of being more conservative in species identification.

Most of the remains were mammal totaling 96.9% of the total faunal collection weight. Cattle dominated the mammal group with 67 MNI identified in the collection with a total weight of 54,430.28 grams. Pig was the second most common food item (MNI=36; 2392.87 gms), followed by deer (MNI=21; 1906.89 gms) and sheep (MNI=17; 540.01 gms). For non-mammal species, chicken, turtle, and catfish dominated.

Before discussing the results of the analysis of the faunal assemblages by activity areas and features identified at the Kendal Plantation, the sample size of the collection requires some discussion. Archaeological faunal collections should contain at least 200 individuals (MNI) or 1,400 identifiable bones (NISP number of identified specimens to species) to provide reliable interpretations (Grayson 1973; 1984; Wing and Brown 1979). An examination of Table 120 where the totals are presented for the entire site indicates that the faunal collection does meet this criterion. That being said, in every activity area, (Tables 121-131) and Feature (Tables 132-144) the MNI and NISP identified for each faunal sample are below the minimum size suggested. Since there is the potential for bias and under-representation of the certain faunal species recovered and identified at the site, the conclusions offered should be viewed cautiously; nevertheless, they provide important contributions given that the excavations conducted at Kendal Plantation covered numerous activity areas and features that are compared within and beyond the site. Interpretations of the faunal data are necessary to address the proposed research questions and develop further questions concerning dietary patterns at Kendal and for plantation sites in general.

Identified Fauna

A brief description of the bone inventory, MNI, weight, and biomass analysis for each of the activity areas and features follows a discussion of the identified species.

Domestic Mammals

Three domestic mammals, cow (*Bow taurus)*, pig (*Sus scrofa),* and domestic Caprine (most likely sheep, *Ovis aries*)[1] are identified in the assemblage. In the Southern United States, cattle have been an important source of meat, but are less efficient to raise than other domestic animals, pig in particular (Hilliard 1972; Rouse

[1] It is difficult to differentiate between sheep and goat from osteological analysis. Diagnostic differences, for example, include shape differences of horn cores, metrical analysis of metapodia, and the maximum length of calcanea (Maltby 1979:41). Walsh and her colleagues (1997:32) note that while goats were present early in the Chesapeake, their numbers began to decline by the mid-eighteenth century as they were replaced by sheep. There is little doubt that most of these remains are sheep (see Walsh et al. 1997:37).

1973; Towne and Wentworth 1950, 1955).

During the colonial period, cattle and pigs were owned by many families to ensure the availability of meat and dairy foods especially during the colder months (Walsh 1992:233, 242). Butchering in the summer was reduced, especially in warm rural areas, where meat could not be readily consumed or exchanged and would therefore spoil quickly. Both cattle and hogs were dependable resources for major landholders, such as those at Kendal Plantation, where large fields were available for grazing (Carrier 1957; Walsh 1992).

Interestingly, pigs were slaughtered at ages that were most economical while cattle were slaughtered at older ages (Walsh 1992). This probably relates to cattle typically yielding one offspring at a time with longer periods of development while pigs yield seven or more offspring per year (Lida and Pineiro 2015; see also Maltby 1979:55 for a discussion of the fecundity of the pig)[2] with maturity occurring more quickly. Swine reproduce more than any domestic animal, other than chickens, and when slaughtered yield close to 75% edible meat compared to 55% to 65% for cattle (Carrier 1957). Cattle do have other benefits besides meat, such as milk and other dairy items, along with hides (Hilliard 1972; Rouse 1973; Towne and Wentworth 1955). The use of milk, cheese and butter was normal for the period. One cow could produce up to five pounds of butter per month (Lemon 1967). During the seventeenth and eighteenth centuries butter was used lavishly by the wealthy of England and America (Hooker 1984:48).

Cattle were the most numerous species identified in the Kendal Plantation assemblage, numbering a MNI of sixty-seven, which made up 23.59% of the total MNI. The importance of cattle at the site is not unexpected given that among colonies in the 1700s cattle accounted for 75% of the meat and pork 25% (Walsh 1992). Beef was clearly a popular choice for those of British ancestry (Harbury 2004:74).

Pigs on the other hand, require little work due to their ability to scavenge for food resources such as roots, seeds, fruits, eggs, and smaller mammals. The pig's ability to store 35% of their calories, in comparison to cattle who only store 11% of their calories, make them more feasible to raise as a food resource. Pork also preserves well and is an appetizing food choice due to its high fat content (Towne and Wentworth 1950). These factors highlight pigs as a highly important domestic animal for food use in the Southeast (Hilliard 1972). Despite being the preferred domestic food source, the MNI for pigs was just over half that of the cattle. A MNI of thirty-six pigs was identified, making up 12.67% of the total MNI.

The third and final domestic mammal identified that served as a food resource was sheep. By the mid-1600s sheep and poultry were raised as well by colonists with wild game decreasing to about 10% (Walsh 1992).[3] Until 1700 sheep were used primarily for wool and their numbers were limited. One explanation for their limited use as food is that the mutton's greasy texture made it difficult to preserve in hot climates.[4] Sheep when slaughtered, had to be immediately consumed or

[2] Walsh, however, notes that differences and changes in slaughter ages may also be related to environmental degradation which likely occurred during the late seventeenth and early eighteenth centuries (Walsh et al. 1997:35-37).

[3] Dyer observes that while wild game added to the quality, if not quantity of diet. However, "the importance of game cannot be assessed in merely quantitative terms. Game symbolized the aristocratic style of life" (Dyer 1989:61).

[4] This continues to be debated among historians. For example, Kennard (2014:145-147) describes the production of "mutton ham" and the associated curing, almost identical to pork. He also describes in detail that the "fat" of mutton was used extensively in both cooking and for the production of candles and soap (Kennard 2014:32-35). In fact, he observes that, like pigs, butchered sheep were used for a variety of purposes, so that there was "nothing left by the baa." Bowen asserts that dressed sheep generally weighed only 10 to 15 pounds, making their quick consumption relatively easy. Nevertheless, she notes that the meat could be readily potted, using hard mutton fat for the seal (Bowen 1990:143).

preserved (Harbury 2004). Therefore, in the Southeast, sheep were a minor subsistence resource (Hilliard 1972). This is evidenced at Kendal Plantation by the significantly lower representation in the assemblage. An MNI of seventeen sheep was identified, which make up only 5.98% of the total Kendal Plantation assemblage MNI. However, sheep were also a source of wool that could be used for a multitude of purposes (Hilliard 1972:141-142).

Domestic Birds

The only domestic bird species identified in the Kendal Plantation assemblage was the chicken (*Gallus domesticus)*. Chickens are relatively easy to raise and can feed themselves by scavenging for food. They also can be kept in pens and cared for by humans. Chickens were a popular food source for both plantation owners and slaves in the eighteenth and nineteenth centuries, although they were earlier despised as the poor man's food (Drummond and Wilbraham 1957:108). Not only did chickens provide meat, but also provided eggs as a food resource (Hilliard 1972:46-47). Maltby (1979:71) notes that the average chicken today produces about 200 eggs in the first year, going off lay at the end of that year and then often being killed for their meat. Chickens were often boiled or prepared for pie or fricassees. Stewing rather than frying was also common (Harbury 2004).

Wild Mammals

Several wild mammals were identified in the Kendal Plantation faunal collection. Wild mammals identified include: deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), fox squirrel (*Sciurus niger*), skunk (*Mephitis mephitis*), eastern mole (*Scalopus aquaticus*), grey fox, (*Urocyon cinereoargenteus*), Opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), grey wolf (*Canis lupus*), and bobcat (*Lynx rufus*).

Deer is the largest wild mammal identified in terms of size. Deer are browsers and grazers that prefer deciduous forest edges and open fields (Choate et al. 1994). Venison was a popular food among the British settlers and could be boiled, roasted, or cooked in pies (Harbury 2004). Settlers hunted them in the nineteenth century in most areas of the Southeast (Hilliard 1972). The preferred method of hunting deer was with the use of firearms. This restricted the availability of deer as a food resource for slaves (Hilliard 1972:75-76). To many plantation owners, deer hunting was a sport. The choice cuts would then be eaten by them and the rest sent to the slave quarters (Elliott 1994 [1846]).

The eastern cottontail was identified at Kendal Plantation. Rabbits inhabit a variety of habitats, but prefer deciduous forests and forest edge habitats. However, they can also be found in upland thickets, grasslands, and along weedy fencerows. (Choate et al.1994). Due to the ability to trap rabbits, slaves lacking access to firearms could obtain rabbits for food (Hilliard 1972: 78-79).

Both raccoon and opossum were found at the Kendal Plantation site. Both species are nocturnal and live in a variety of habitats including cleared fields, wooded areas near water, and around human settlements (Choate et al. 1994). Raccoon was a food source for both whites and blacks, though opossum was preferred. Opossums meat was preferred because once trapped they could be fattened and "cleaned out" by feeding them milk, bread, or roasted sweet potatoes for a few days (Hilliard 1972:80). Raccoons could be hunted with firearms, hunting dogs, or trapped (Hilliard 1972:80).

Fox squirrel was also identified in the faunal collection. Squirrel, along with turkey and rabbit, replaced domestic poultry and eggs for food in the diet (Hilliard 1972:47). It was preferred over rabbit as well. The remaining species (skunk, mole, fox, and wolf) were unlikely to be eaten; however, Lawson 1967 does refer to Native Americans in the Carolinas eating skunk, and wolf and fox were hunted for fur (Lawson 1967).

Wild Birds

Multiple wild birds were identified in the assemblage. These include turkey (*Melegris gallopavo*), duck (*Anas/Anantidae* sps.), grebe (*Podiceps* sp.), little blue heron (*Florida caerulea*), white ibis (*Eudocimus albus*), pigeon/dove (Columbidae), falcon (*Falco* sp.), raptor (*Buteo* sp.), and great horned owl, (*Bubo virginianus*).

In the early seventeenth century Gervase Markham (1655) provided detailed instructions for those setting off to Virginia on the hunting of water and land fowl. Descriptions of baiting, netting, trapping, the use of dogs, and various other methods were carefully described.

Turkey was a food source for both whites and blacks in the antebellum period (Hilliard 1972:80-81). Wild turkeys could be both hunted with firearms or trapped (Hilliard 1972:80). However, due to their avoidance of inhabited areas, there would have been less chance for slaves to procure them.

Wright summarizes accounts of wild turkeys in the Carolina back to the seventeenth century. As early as 1663 an account spoke of the abundance of turkeys around the Cape Fear River (Wright 1915:207). Another account mentions "huge flights of Wild Turkies [sic], oftentimes weighing from twenty, thirty, to forty pound" (Wright 1915:208). Many of the accounts mention the fine taste of wild turkeys, with one noting that their taste was better than that from England since in Carolina they were in "their proper climate" (Wright 1915:208). When purchased, a 40-pound turkey could be had for 2 pence (Wright 1915:210).

Turkeys were the highest represented wild bird in the assemblage with an MNI of seven, comprising 2.46% of the total site MNI (n=284).

Mallard duck was next highest with only a MNI of three out of twenty wild birds. The appearance of duck in the faunal assemblage is not surprising. Several duck species winter along the Carolina coast, along with a small number of species that may live there year round (Potter et al. 1980:89-90). Even as late as 1842, one visitor remarked that "wild ducks are in sufficient abundance to furnish game for food" (Wright 1915:211).

Grebe, another waterfowl similar to duck, was also identified. They are found along the coast of the Carolinas and feed on insects, crustaceans, and small fish (Potter et al. 1980:40-41). Another waterfowl present in the assemblage was the little blue heron. The little blue heron can range in size from 63 to 73 centimeters. They are found on the coast of the Carolinas year round. They can be found inland as well, after the breeding season (Potter et al. 1980:63-64). The last waterfowl present in the assemblage was the white ibis. Slightly smaller than the little blue heron, the white ibis ranges in size from 56 to 68 centimeters. (Potter et al. 1980:75). Many water fowl were hunted as a food resource (Hilliard 1972:82).

Pigeon/dove was also represented in the faunal collection. They are found in open country habitats such as woodland margins and fields, but avoid dense woods. Pigeons/doves are also a food source as well (Potter et al. 1980:188-191). They, along with quail, were the preferred small game birds in the south (Hilliard 1972:83). Lawson mentions that pigeons were so numerous "you might see many Millions in a Flock" (Lefler 1967:50). In some areas Native Americans relied on pigeons for "their Fat enough to supply their Winter Stores" (Lefler 1967:217)

The last three birds identified were all raptors. (falcon, hawk species [*Buteo*], and the Great Horned Owl). The great horned owl can be found in the dry woodlands throughout the Carolinas (Potter et al. 1980:200). These birds were likely not used for food. Maltby notes that the presence of sparrow hawks in a post-medieval assemblage may indicate the "practice of the sport of falconry" (Maltby 1979:73).

Reptiles

Five species of turtle were identified in the

Kendal faunal collection. These species consisted of box turtle (*Terrapene carolina*), musk turtle (*Sternotherus odoratus*), river cooter (*Pseudemys floridana*), snapping turtle (*Chelydra serpentine*), and diamondback (*Malaclemys terrapin*). A MNI of twenty-two turtles in total were identified.

Walsh reports that at times turtle meat "came at a premium price; at one shilling per pound it cost more than three and a half times that of a pound of beef" (Walsh et al. 1997:145). Discussing Virginia eatables, William Byrd listed a variety of land and water turtles, commenting that all of their meat "is as good as the best veal, even better, either boiled or roasted or baked or in ragout" (quoted in Carson 1985:126-127).

Box turtle is found throughout the southeast and can be seen in both terrestrial (open or mixed forests that have a hot and dry summer and mild winter) and permanent water (streams, lakes, etc) habitats (Obst 1986:106). It was used a food source during the nineteenth century in the southeast (Hilliard 1972: 89).

River cooter is found in and around bodies of fresh water such as rivers, swamps, and ponds. Occasionally, they can also be found in brackish waters (Obst 1986:109). The river cooter can be seen on land looking for locations to nest or sunning. During the eighteenth and nineteenth centuries, the river cooter was used as food resource in the south (Hilliard 1972:89). The river cooter was the highest represented turtle in the assemblage with a MNI of 9.

Snapping turtles are found in varying water locations from swamps to rivers to canals. They rarely leave the water and the bank that surrounds them (Obst 1986:109-111). Snapping turtles would have been used as a food source.

The diamondback turtle was also used for food during the nineteenth century (Obst 1986:113,183). Unlike the river cooter, the diamondback prefers to live in brackish lakes and marshes as well as estuaries (Obst 1986:113).

Alligator

Alligators are the largest reptiles in North American and can grow to be anywhere from six to fifteen feet long. They can be found in freshwater, swamps, rivers, bayous, and brackish marshes (Wernert 1982). Hilliard (1972:88) reports that while alligators were sometimes eaten, they were primarily a "curiosity" rather than a food staple. Nevertheless, a 1682 account of Carolina remarked that, "their Flesh cuts very white; the young ones are eatable" (Carroll 1836:2: 9) and Lawson remarked that some ate alligator "as heartily as if it had been Pork and Turneps [sic]" (Lefler 1967:58). A MNI of five alligators were identified within in five different contexts. Figure 198 is a photograph of alligator bone recovered from the mixed eighteenth and nineteenth century middens.

Figure 198. Alligator bone from Mixed 19th Century Middens (190R150).

Pisces

Seafood was very important to the English diet and was very much a part of the culture. The

Church of England required its use (Harbury 2004:87) and Dyer notes that the feast days and Lent resulted in "the consumption of meat and fish [being] balanced almost equally" (Dyer 1989:58). Fish was prepared in stews, pies and prepared by roasting, baking, broiling, and boiling (Harbury 2004:89).

Seafood was available on the coast year round. Bluefish, croaker, flounder, kingfish, and bass were available in the winter months and crabs, grouper, mackerel, snapper, and other smaller fish were available spring through fall (North Carolina Catch 2016).

There were a multitude of fish species (and genus) identified among the assemblage. These include drum (Sciaenidae), black drum (*Pogonias cromis*), red drum (*Sciaenops ocellatus*), freshwater drum (*Aplodinotus grunnier*), catfish (Ictaluridae), Bullhead catfish (*Ameiurus* sp.), sea catfish (*Ariopsis* sp.), bowfin (*Amia calva*), alligator gar (*Atractosteus spatula*), longnose gar (*Lepisosteus osseus*), flounder (*Paralichthys* sp.), two types of sunfish (Centrarchidae and *Lepomis* sp.), perch (*Perca*), yellow perch (*Perca flavescens*), perciform (Percidae), and porgies (Sparidae). Near the coasts and large rivers, fish were relied upon heavily in the diet (Hilliard 1972:48; Walsh et al. 1997:97).

Drum are often found in bays and estuarine environments, in addition to tidal shores (Boschung et al. 1983). They comprise the only marine fish species found in the Kendal Plantation assemblage. Marine fish are fish that either spawn in the estuary, use it to feed, or use the area as a nursery (Boschung et al. 1983). The black drum is the largest of the drum species weighing up to 109 pounds, followed by the red drum (Robbins et al. 1986). Drum present in the faunal collection include black drum, red drum, and freshwater drum.

The sea catfish species is commonly used for food (Robbins et al. 1986). Like the drum, young catfish are often found in bays, estuarine environments, and tidal shores (Boschung et al. 1983). Catfish prefer sluggish waters, in particular areas of dense vegetation (Lee et al. 1980:442). Catfish were a valuable food source throughout the south. They could be obtained through trapping, trot lines, and set hooks (Hilliard 1972:85-86). Two sea catfish species can be found in the Cape Fear River and can survive in low salinity waters. One is the gafftopsail, which weighs up to 10 pounds and the other the hardhead catfish weighing around two pounds. In addition to sea catfish, other catfish species found in the lower Cape Fear River are the yellow bullhead, brown bullhead, white, and channel catfish (Marsh 2006).

The bowfin is found in sluggish clear waters found off the Carolina Coastal Plain. The average size is between 45 and 87 centimeters (Lee et al. 1980:53) and they can weigh up to 21.5 pounds (Boschung et al. 1983). It is often considered a pest as it eats the same food as game fish and is one of the hardiest of freshwater fishes (Boschung et al. 1983).

Gar was another of the identified fish, with two different species (longnose and alligator gar) being present. Gar live in freshwater habitats along with estuarine environments. They can be found in both fresh and brackish waters of swamps, large streams, and coastal inlets. Longnose gar can grow to six feet in length. They were most likely caught with a hook and line, or a trap (Lee et al. 1980:49-50). The alligator gar is one of the largest freshwater fishes and can grow to 10 feet long and weigh 302 pounds (Boschung et al. 1983).

Flounder are bottom dwellers that can found along the coast (Robbins et al. 1986). Three species, Gulf flounder (Paralichthys albigutta), summer flounder (Paralichthys dentatus) and southern flounder (Paralichthys lethostigma) can be found in the eastern coast and gulf coast of North America. The southern flounder sometimes enters fresh water and can grow to three feet. The Gulf flounder, which grows to 15 inches, prefers mud in estuaries and coastal waters. Both species are important for food and sport (Boschung et al. 1983). The summer flounder and Gulf flounder can be found in esturine and shore waters (Wenner and

Archambault 2005). These fish are often caught by anglers, however, gigging occurs at night in many remote areas of North Carolina, specifically Core and Bogue sounds. Gigging involves poling a boat across the water and using a light to identify flounder laying on the bottom (Wenner and Archambault 2005). Gigging seems to be the most efficient means to catch flounder. In 2002, North Caroline reported that recreational fishing using hook and line caught 236,648 pounds while gigging yielded 361,539 pounds (Wenner and Archambault 2005).

Sunfish are one of the most widespread and popular of fresh water sport fishes. They prefer warm waters of North America (Boschung et al. 1983) and can vary in size between 4 and 26 centimeters. The sunfish class contains a number of species that occupy a variety of habitats, including rivers, creeks, ponds, lakes, swamps, and brackish waters (Lee et al. 1980: 588-603). Currently there are 32 known species in North America (Boschung et al. 1983).

The yellow perch is found primarily in fresh water, but also, though more rarely, can be found in brackish waters. The most common place to find perch is in clear open water, containing only moderate vegetation (Lee et al. 1980:713). They grow to 15 inches and can weigh 4.5 pounds. Perch live in schools but travel to shallow waters to feed at dusk and dawn (Boschung et al. 1983).

Perciformes are found in rocky reefs, oyster beds, grass beds, and are not often found in fresh water or water with a low salinity (Lee et al 1980:754). Perciformes include many North American freshwater and marine fish, including perch and bass (Boschung et al. 1983).

Bivalve

There were eighty pieces of bivalve recovered in the Kendal faunal assemblage. The remains were very fragmented and appeared to be oyster shell. For more information see the section on oysters.

Commensal Species

Commensal species are those animals found around and near human habitations, but are typically not consumed by humans. Included in this are pets, pests, and those animals that eat them. The most common examples are rats, mice, dogs, amphibians, and snakes. The commensal mammal species present include dog (*Canis sp.)*, eastern woodrat (*Neotoma floridana),* and the rice rat (*Oryzomys palustris)*. The rice rat is a crop pest that prefers wet or marshy habitats. However, it can be found where abundant food resources exist. The only amphibian present is the bullfrog (*Rana catesbeiana)*. The snakes present include kingsnake (*Lampropeltis),* gopher snake (*Pituophis*), and water snake (*Nerodia sipedon)*.

Interestingly slaves used rats for bait to trap foxes and they were also eaten. Rats were common to the rice fields and became a regular source of roasted meat. Heywood (2002) also notes that mice and rats were consumed by slaves on the level as birds and fish! The use of mice and rats for foods is based on two premises. First the presence of rats in archaeological collections and second the ethnographic analogy of historic date that indicates rats in the diet of West-Central Africans (Brown 2012).

According to Harbury (2004) the majority of meat in the early colonist diet consisted of cattle, swine, sheep and supplemented by wild game such as deer, squirrel, rabbit and anything else that could be eaten. The diversity of foods identified in the Kendal Plantation assemblage certainly supports this.

Faunal Analysis Results for the Activity Areas and Features

The following discussion provides data on the analysis of faunal materials associated with the activity areas and features. Tables are provided for each.

Colonial Kitchen Midden 1

Excavation units associated with the Kitchen activity area that yielded faunal materials

included 175L5, 175R0, 180R0, 175R10, and 175R20. Sixteen species (Table 121) could be identified from this area comprising a total MNI of 61. Mammals were the most represented vertebrate category totaling 51 MNI, 25,262 fragments weighing 128,175.5 grams and contributing 99.75% of the total biomass. As expected cattle dominated in MNI (n=31) and weight (45,809.06 gms). The Colonial Kitchen Midden 1 yielded more animal bone than any other activity area with 45,762 bone fragments weighing 129,201.39 grams. Feature 6 was associated with this kitchen midden. Table 122 provides the data for this feature. Not unexpectedly, cattle dominated the sample.

Colonial Kitchen Midden 2

The analysis of the Colonial Kitchen Midden 2 (Table 123) also showed mammal dominating with 97.1% of the total biomass weight represented by this category. Seven species and 11 MNI could be identified. The total bone count for the Colonial Kitchen Midden 2 area was 1,779 fragments weighing 2008.01 grams. Cattle bones dominated the faunal materials recovered from the main house with 88 fragments weighing 406.06 grams and 21.66% of the total biomass weight. Chicken was also well represented in this activity area. The units that contained animal remains and are associated with the Colonial Kitchen Midden 2 activity area include 160R50, 160R55, and 165R55.

Colonial Kitchen Front Yard

All identified faunal remains from the Colonial Kitchen Front Yard (Table 124) were identified as mammal. The area, which includes the 80R60 unit, contained 284 bones weighing 595.75 grams.

Colonial Kitchen

This activity area was one of the largest excavation areas at the site and included units 115R50, 115R60, 115R80, 120R40, 125R40, 125R050, 125R60, 125R80, 130R70, 135R40, 140R55, 140R70, 140R75, 140R80, and 140R85. The area yielded 4,593 bone fragments weighing 7,618.1 grams. The results are provided in Table 125. As expected the Colonial Kitchen activity area contained a variety of species (n=37) and most of the biomass contribution was from mammal (83.34%). Interestingly, both cattle and deer were equally represented by MNI (MNI=4) followed closely by pig and sheep (MNI=3). Fourteen of the species were fish which represented 16 of the total MNI for the area. The variety of species present in this area may reflect the more diverse diet enjoyed by the Colonial House residents. Features 9, 10, and 14 are associated with this area. Faunal analysis for these features are summarized in Tables 126-128 and mammal remains continue to constitute most of the assemblages.

Colonial House

The second largest collection of the activity areas is the Colonial House (Table 129) where 4,988 fragments were identified with a total weight of 14,027.1 grams. Thirteen units make up this activity area and include 140R140, 140R170, 145R120, 145R130, 145R150, 150R130, 150R140, 150R150, 150R170, 160R140, 160R150, 160R160, and 160R170. Unlike the other activities areas discussed so far, pig, not cattle, represented the largest MNI (n=7) but cattle weight (2,448.95 or 22.45% of the total percentage of biomass weight) dominated the collection when species are considered. Like the other areas, mammal dominated, representing 89.75% of the biomass weight, followed by chicken (4.75% of the biomass weight) and wild birds (2.3% of biomass weight). Interestingly, alligator and bullfrog were associated with this area.

The 37 species identified at the Colonial House are different from those identified in the Colonial Kitchen. The Colonial House area contained more wild birds and snakes while the Colonial Kitchen had more mammal and fish species represented.

Feature 12 (Table 130) is associated with

this activity area. Only five species were identified in this feature which contained 105 bone fragments.

Nineteenth Century Kendal House

Six units are associated with the 19th Century House, 80R190, 100R170, 100R200, 120R170, 130R170, and 130R200. The area yielded relatively few bones (Table 131), 52 total, weighing 62.87 grams. Four species were identified, pig, sheep, eastern cottontail, and chicken as well as one unidentified turtle bone. Unidentified turtle contributed to most of the biomass percentage for this area but the small sample size limits any interpretation other than faunal remains were scarce in the area.

Nineteenth Century Slave House

Despite 12 units being excavated in this area, only a very small sample, 100 bones, was recovered (Table 132). Three species, cattle, pig, and river cooter were identified along with one unidentified fish bone. Domestic mammal represented the greatest biomass contribution.

Nineteenth Century Storehouse

Only 42 bones were recovered for this activity area which included six units (185R110, 190R110, 190R115, 200R105, 200R115, 200R125). Cattle and pig dominated the collection (Table 133).

Nineteenth Century Root Cellar

Table 134 presents the information from the Nineteenth Century Root Cellar. Two units, 40R180 and 50R180, were excavated and only nine out of 85 bones could be identified to class. Mammal, bird, and reptiles were identified in the area.

Mixed Eighteenth and Nineteenth Century Middens

Compared to the other nineteenth century activity areas, the midden area contained a rather large number of bone totaling 887 (Table 135). Six units are associated with the midden and include 190R160, 190R165, 190R175, 190R180, 190R185 and 195R165. Eleven species were identified along with unidentified fish. Mammal dominated the collection (85.7% of biomass) with most identified fragments being cattle (23.64% of the total biomass). A relatively large percentage of alligator was present in the sample as well (8.53% of total biomass). Feature 2 is associated with this activity area. This feature, identified as a trash pit, contained 502 bone fragments (Table 136). The contents of the trash pit were similar to the faunal assemblage for the mixed eighteenth and nineteenth century midden area.

Miscellaneous Yard Units

Only 12 mammal bones were identified in the Miscellaneous Yard Unites (Table 137). This area contained five excavation units; 210R165, 220R140, 235R180, 255R280, and 275R230.

Features

Other features identified while stripping the site that contained animal bone include Features A, F, H, I, J, and K. Results of the analysis for these features are in Tables 138-143. Of these features only two, Feature F and Feature H, contained close to or over 100 bone fragments. Feature F was a large black stain observed while stripping the site. Seven species were identified among the 92 bone fragments recovered (Table 139). Mammal and turtle were the most represented animal classes. Feature H (Table 140) was a large rectangular stain that contained 630 bone elements and 10 species were identified. Mammal made up the majority of the assemblage.

Faunal Category Patterns

MNI for different animal groups in each activity area were compared to tease out associated patterns. For this study, the faunal categories used are domestic mammal, wild mammal, domestic bird, wild bird, reptiles, fish, and commensals. For comparative purposes, percentages are calculated using MNI. For each

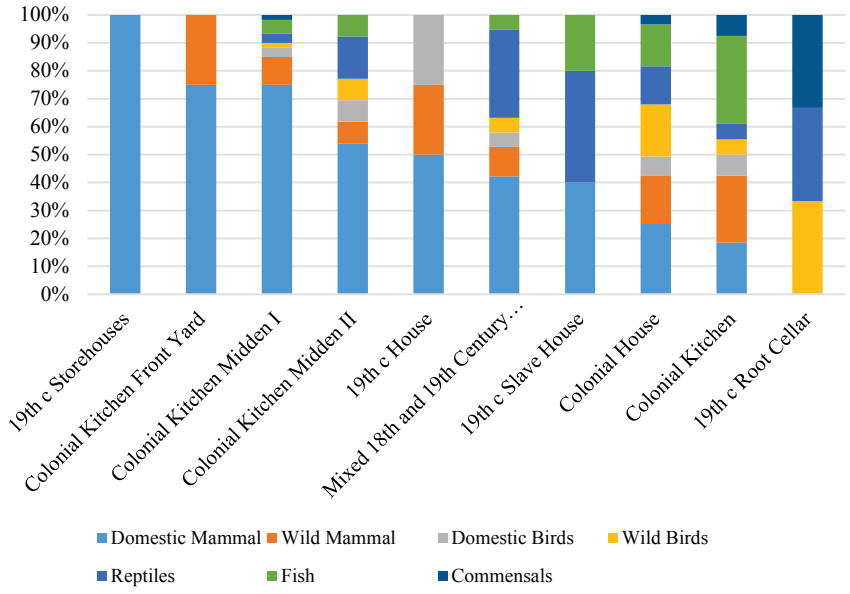

Figure 199. MNI percentages for the Kendal Plantation activity areas.

activity area, MNIs were summed for all of the excavation units and associated features as discussed in the methods section above.

Figure 199 presents an inventory of faunal categories for the Kendal Plantation activity areas. For Kendal Plantation the most diverse use of species is associated with the Colonial House, the Colonial Kitchen Middens 1 and 2, and the Colonial Kitchen. This is expected given Reitz's (1986) observation that eighteenth and nineteenth century upper class urban households had more diverse diets. While Kendal Plantation is not urban, the household residing there were certainly upper class. The Colonial House/Kitchen activity areas show far more diversity than the nineteenth century house and

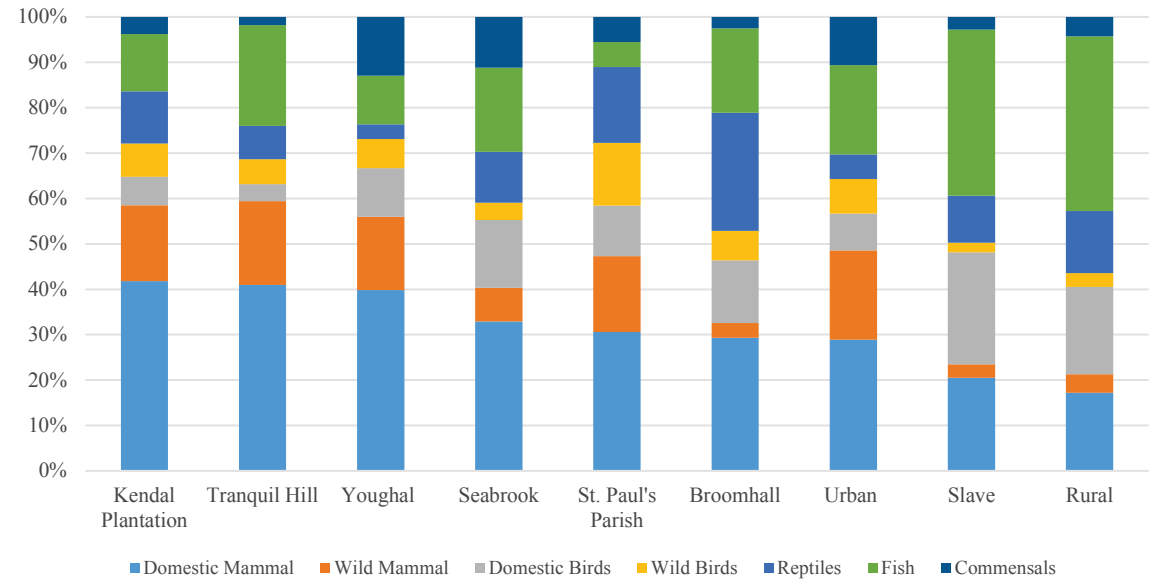

Figure 200. MNI percentages for the Kendal Plantation compared to other sites and models.

nineteenth century slave house.

When the nineteenth century dwellings are compared, the nineteenth century house contained both domestic and wild mammal as well as domestic birds. The contemporaneous slave house shows far less diversity in domestic species with domestic mammals, reptiles, and fish identified. This would suggest that slaves depended on fishing rather than hunting for supplemental foods. That being said, it is possible that the eighteenth and nineteenth midden areas contained both slave and colonial house debris so the diet could have been more diverse than indicated by the nineteenth century slave house alone. Not surprising, the root cellar contained a large percentage of commensal species. The MNI varied considerably among the different Kendal Plantation activity areas.

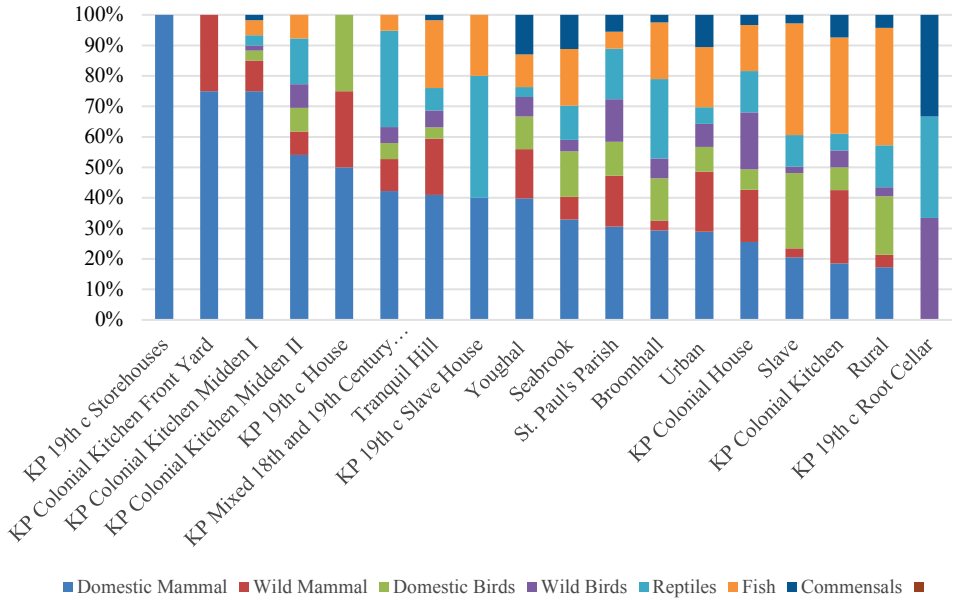

Figure 201. MNI percentages of the Kendal Plantation activity areas compared to other sites and models. "KP" refers to Kendal Plantation.

One important factor to consider when using faunal categories is the MNI used. Assemblages with lower MNIs will more likely be biased toward one species. The more MNI used, the more reliable the data. Five activity areas (Nineteenth Century Storehouse MNI=2; Colonial Kitchen Front Yard MNI=4; Nineteenth Century Slave House MNI=5; Nineteenth Century House MNI=4; and Nineteenth Century Root cellar MNI=3) had five or less MNI. Colonial Kitchen Midden 2 had 13 MNI and the Mixed Eighteenth and Nineteenth century middens had 19 MNI. The largest and most reliable data come from the Colonial Kitchen Midden 1 (MNI=60), the Colonial House (MNI=59), and Colonial Kitchen (MNI=54).

The total MNI for the Kendal Plantation faunal assemblage was computed and compared with patterns obtained for slave, urban, and rural historic settlements located in coastal South Carolina and Georgia (Reitz 1986) and faunal assemblages from South Carolina plantations (Figure 200). The other plantation sites included in this study for comparative purposes are Broomhall Plantation (Hogue et al. 1995), Seabrook Plantation (Hogue 1998), Youghal Plantation (Hogue and McCain 2006), and Tranquil Hill (Lowrey and Hogue 2008). Patterns established by Reitz (1986) for slave, rural, and urban collections are also included for comparative purposes.

One major difference is that the Kendal Plantation has considerably less fish than Reitz's (1986) urban, rural, and slave models and many of the other sites. This low frequency of fish could be due to screening bias as only ¼ inch screen was used during excavation recovery. However, this

screen size was also used in the excavation of sites included in Reitz's model (Reitz 1986: 47). Another explanation for the lower frequency of fish MNI at Kendal Plantation is identification. With both marine and riverine species available identification was very difficult possibly creating a bias in fish representation. With the exception of fish remains, the pattern observed for the Kendal Plantation is most similar to the urban pattern derived by Reitz (1986) where domestic and wild mammals are the dominate food source. This pattern suggests that the Kendal Plantation inhabitants would be considered wealthy.

A third chart (Figure 201) was developed which compares the Kendal Plantation activity areas with the other plantation sites and models developed for slave, rural, and urban collections. As expected the Colonial house and kitchen areas were similar to the urban upper-class assemblages.

Bone Modifications

Included in the analysis of faunal materials were the observations of bone modification (Table 144). Modifications were classified as cut, hacked, sawed, and burned.

Cut marks are often shallow and are generally associated with the cutting of meat from the bone, often near the joints. Figure 202a-d illustrates cut bones from the Kendal Plantation.

Hack marks, illustrated in Figure 202e-f, are commonly deep, irregularly shaped cuts often created by a meat cleaver of ax.

Sawed bones exhibit parallel striations found on the outer layer of compact bone (Figure 202g).

Burned bone is indicative of modification by exposure to fire, whether during cooking or after (Reitz and Weinand 1995).

The majority of the modifications consist of burned bone. This was especially true in Feature 10, associated with the Colonial Kitchen area and the Nineteenth Century House.

In the Kendal Plantation assemblage, there was only one example of a sawed bone. The rest of the modifications associated with butchering observed were cut and hack marks. This is indicative of higher instances of local butchering than commercial butchering (Weinand 1996:232-251).

Cattle Distribution and Butcher Patterns

The skeletons of cattle are subdivided into seven categories: head, axial, forequarter, hindquarter, forefoot, hindfoot, and foot. Meatier cuts are associated with the fore and hind quarters and to a lesser degree the axial skeleton. Less desirable cuts are elements associated with the cranium, fore/hind foot and foot bones.

Only the activity areas Colonial Kitchen, Colonial Kitchen Front Yard, Colonial Kitchen Midden 1, Colonial Kitchen Midden 2, Colonial House, Mixed Eighteenth and Nineteenth Century Middens, Nineteenth Century Slave House, and Nineteenth Century Storehouses are compared due to the small sample size. Although the NISP for five of the activity areas (Colonial Kitchen Front Yard Colonial Kitchen Midden 2, Mixed Eighteenth and Nineteenth Century Middens, Nineteenth Century Slave House, and Nineteenth Century Storehouse) is less than 100 specimens, comparisons are made to observe major differences between the areas.

The NISP (number of identified specimens) of each segment category was counted and each category's percentage of the total NISP for cattle was calculated. The next step was to calculate $\log_e X$ (X being the percentage of each category) and subtract the $\log_e Y$ (the log of the animal's expected percentage for each category) from $\log_e X$ (Reitz and Zierden 1991; Reitz and Wing 1999). This value was plotted so that the deviation from the center line (the expected percentage) could be investigated. By looking at the difference between the expected and the observed, differential use of segments in separate

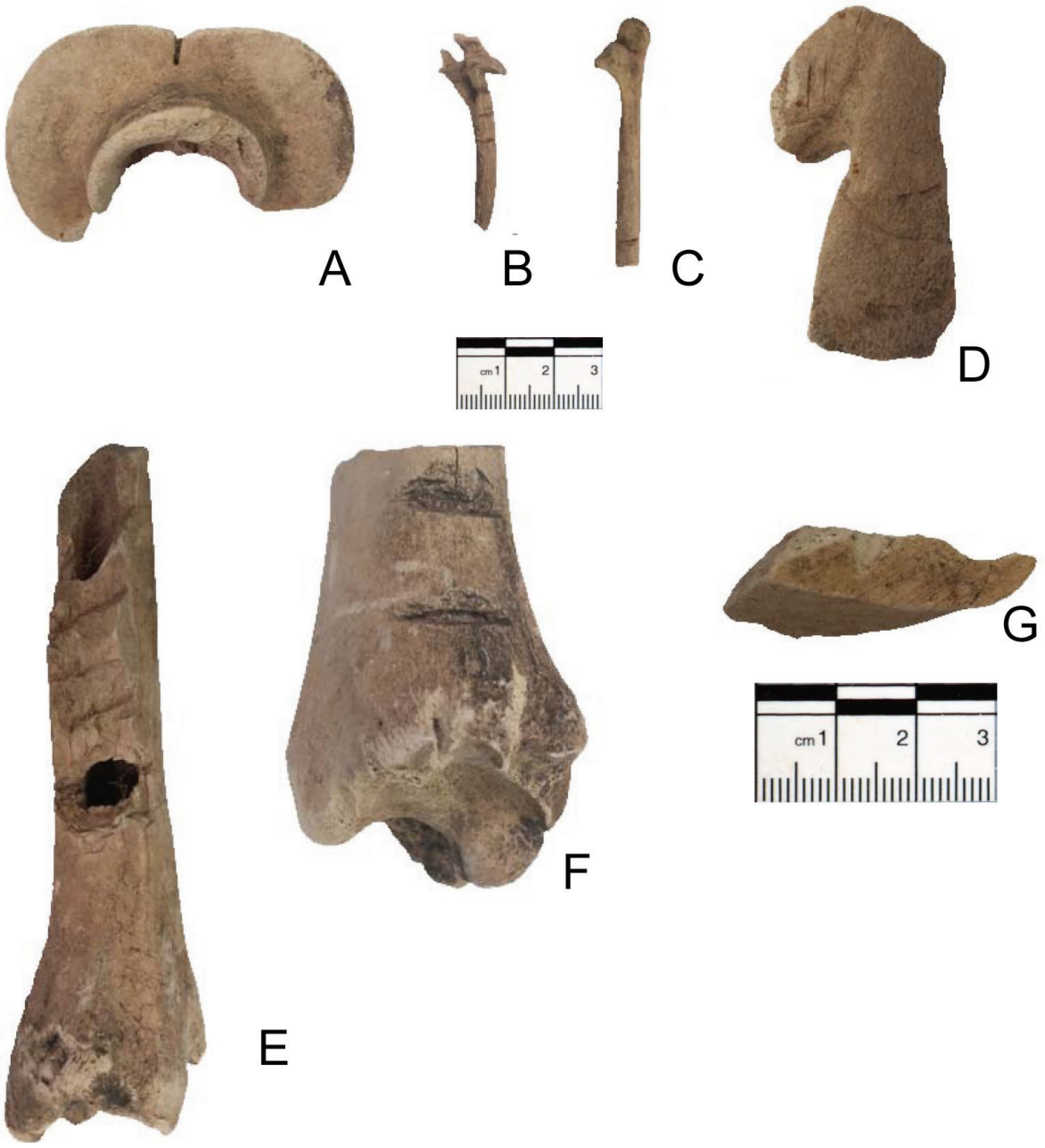

Figure 202. Butchering evidence from Kendal. A, cut marks on sheep axis from Colonial Kitchen Midden 2; B, cut marks on catfish pectoral from Feature H; C, cut marks on chicken metatarsus from the Colonial Kitchen Midden 2; D, cut marks on turtle from the Colonial House; E-F, hack marks on mammal bone from Colonial Kitchen Midden 1; sawing of mammal bone from the 19th century storehouse.

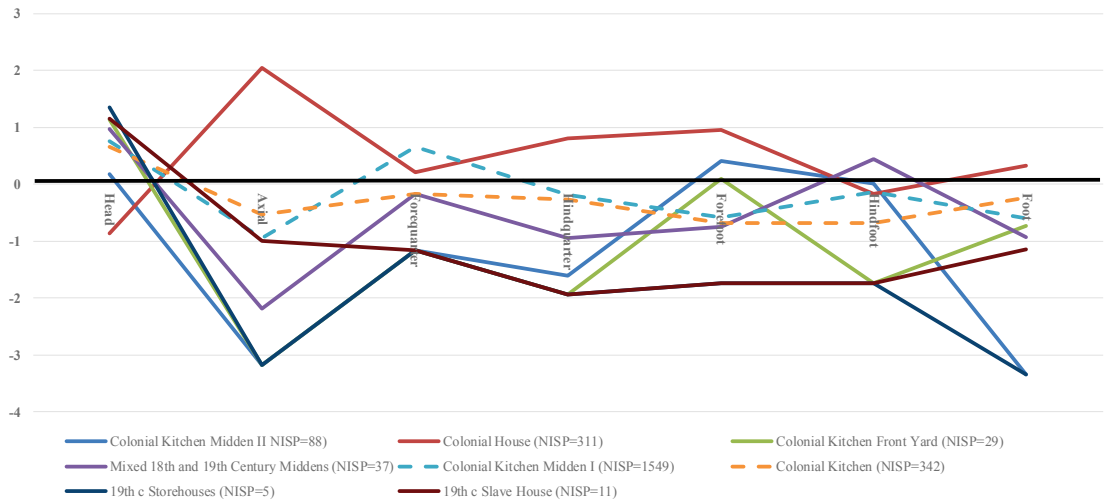

Figure 203. Log-difference scale for the various activity areas at Kendal Plantation.

areas can be examined. If cattle are butchered and consumed on-site, then the log differences for an activity area will be very close to the expected frequency for cattle.

Figure 203 provides the results of the log difference scale for the activity areas. Two activity areas, the Colonial Kitchen and the Colonial Kitchen Midden 1, show patterns similar to standard cow indicating on-site butchering of cattle. Since these two activity areas have the largest number of NISP they probably yield reliable data. The NISP for the Colonial House is also over 100 specimens and pattern is reliable as well. As mentioned above, meatier cuts are associated with the fore and hind quarters and to a lesser degree the axial skeleton. As shown in Figure 203, the Colonial House area has higher than expected for axial, forequarter and hindquarter sections. The log-difference scale graph also shows the cranial foot bones present in lower amounts than all of the other categories in that area. This pattern suggests that the residents of the house were provided with better and meatier cuts than other areas of the site. In other words, the Colonial House residents were eating more quality cuts of meat.

The small sample size for the other activity areas show patterns with higher frequencies of underrepresented elements. While it may be that meat cuts of lower quality are associated with these areas, one should also consider small sample size when interpreting the data.

Conclusions

Several conclusions can be drawn from the analysis of the faunal remains from the Kendal site. While a variety of species was identified in the collection, cattle emerged as the most prevalent food item. This finding does appear to support Reitz's proposition that cattle may have been preferred over pork (Reitz 1995) in southern coastal contexts. Walsh (1992) also concludes that beef accounted for about two-thirds of the meat diet during the 1700s, while pork contributed about one-quarter.

The most diverse faunal assemblage was associated with the Colonial Kitchen area where 37 different species were identified in the collection. Overall the site contained 54 species with over half of these associated with the Colonial Kitchen or the Colonial Kitchen Middens. While eighteenth and nineteenth century planters had adequate supplies of cattle, pigs, and sheep, they also assigned slaves to procure wild foods and provided them with hunting and fishing equipment or engaged in such activities as sport. Deep-water fish, a variety of birds and shellfish were common items consumed

(Walsh 1992). However, many rice planters forced slaves to hunt and gather their own protein foods rather than supplementing their diet with beef and pork (Walsh 1992). It appears that slaves at Kendal Plantation were provided beef and pork, and either the planters and or the slaves were hunting and fishing to increase variety in the diet.

Reitz's study on eighteenth and nineteenth century upper-class urban households documents a more variable diet for this social class, including both wild and domestic species (Reitz 1986) coupled with a higher frequency of fish (Reitz 1986). Likewise, evidence suggests that the diets of the rich and poor occupying the rural areas of the Atlantic coastal plain were more varied than those living in towns (Walsh 1992). British society judged one's status by the amount and diversity of meats served (Dyer 1989:58-61; Harbury 2004) and this pattern is certainly supported by the Kendal Plantation Colonial activity areas.

Interestingly, in the 1700s two large meals were prepared daily in wealthy rural households. Breakfast, consisting of fish and meats, was served between 9:00 to 10:00 am and dinner between 2:00 and 4:00 pm depending on the task at hand; this meal was often sat over for several hours, often drinking large amounts of wine.[5] A small meal or supper may have supplemented on occasion. This meal pattern allowed for long days in the field or attending to the duties of an estate (Burnett 1976; Drummond and Wilbraham 1957:106,211-212).

Two other findings require additional discussion. First, among the modifications, no gnawed bone was identified in the collection. This indicates that bone was quickly covered or discarded away from the site to decrease rodent activity and also implies the house and kitchen areas were kept very clean.

Another interesting finding is that no fish otoliths were present in the collection. Otoliths, or ear stones, are very distinctive among fish and are positioned within the neurocranium of the fish's skull (Casteel 1976). Generally, otoliths are found in archaeological faunal collections where catfish and drum remains are found (Hogue and Lowrey 2007) and due to their unique shapes, they are often used in species identification (Casteel 1976). The complete absence of otoliths at Kendal Plantation may be explained by fish being decapitated (although not necessarily gutted and cleaned) before being brought back to the plantation for consumption.[6]

Comparing the Kendal Plantation results to other sites in the south indicate that the Colonial house and kitchen activity areas were similar to the urban upper-class assemblages. This is expected given the documented wealth of the plantation owners and other recovered artifact assemblages.

Burnett (1976) states that in the 1700s people ate what they could grow or raise, however by 1900 food consumption relied much more on purchased food. This pattern is supported by the Kendal Plantation faunal findings. Because of its rural location, the occupants of Kendal Plantation may not have had reliable access to markets though foods could have been exchanged among other rural households (see Harbury 2004). When cattle

[5] Drummond and Wilbraham comment, "a prodigious quantity of port was drunk by the country gentleman in the second half of the eighteenth century and the stories of three- and four-bottle men are quite authentic (Drummond and Wilbraham 1957:213). They also comment that eighteenth century Englishmen engaged in "gross over-indulgence" in both meat and drink "to an extent which made the English notorious all over Europe" and "the swollen limbs, bulging cheeks and pendulous paunches which nearly every artist and cartoonist of the time depicted tell their own story" (Drummond and Wilbraham 1957:252-253).

[6] Analogs in historic archaeology are scarce. Van de Deijl (2013:8) suggests the presence of vertebra and absence of skull remains suggests that fish were being processed for trade. Ramos and colleagues confronted with an abundance of fish heads and little else suggest that the fish were being captured, processed, and consumed elsewhere (Ramos et al. 2013:228).

elements are compared across the site using a log-difference scale, the Colonial Kitchen and the Colonial Kitchen Midden 1 show patterns similar to standard cow, indicating on-site butchering of cattle. This finding is supported by the general lack of sawing observed in bone modifications. The large frequency of domestic mammals and birds along with the availability of a large variety of wild foods in the nearby river, estuarine, and marine environments, would have led to a relatively self-sufficient settlement at the site.

Table 121.
Faunal Remains from the Colonial Kitchen Midden 1 Area

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammals						
Cow, *Bos taurus*	31	50.82	1,549	45,809.06	411.8809	36.6692
Pig, *Sus domesticus*	9	14.75	137	939.61	12.4614	1.1094
Sheep, *Ovis aries*	5	8.2	56	263.37	3.9667	0.3531
Wild Mammals						
Deer, *Odocoileus virginianus*	3	4.92	59	436.28	6.2475	0.5562
Opossum, *Didelphis virginiana*	1	1.64	1	1.68	0.0419	0.0037
Raccoon, *Procyon lotor*	1	1.64	1	0.42	0.0120	0.0011
Eastern Cottontail, *Sylvilagus floridanus*	1	1.64	2	1.86	0.0460	0.0041
Unidentified Mammal	-	-	23,457	80,723.26	685.8265	61.0582
Domestic Aves						
Chicken, *Gallus domesticus*	2	3.28	27	16.05	0.2553	0.0227
Wild Aves						
Duck, *Anas*	1	1.64	2	0.74	0.0155	0.0014
Turkey, *Melegris gallopavo*	1	1.64	6	15.39	0.2457	0.0219
Unidentified Bird	-	-	314	113.75	1.5168	0.1350
Reptile						
Alligator, *Alligator mississippiensis*	1	1.64	2	14.22	0.2286	0.0204
Box Turtle, *Terrapene carolina*	1	1.64	2	1.77	0.0464	0.0041
Unidentified Turtle	-	-	14	14.86	0.1929	0.0172
Kingsnake, *Lampropeltis getula*	1	1.64	1	0.05	0.0042	0.0004
Pisces						
Porgies, Sparidae	1	1.64	1	0.42	0.0205	0.0018
Drum, Sciaenidae	1	1.64	11	1.04	0.0400	0.0036
Bullhead Catfish, *Ameiurus* sp.	1	1.64	1	0.28	0.0152	0.0013
Unidentified Fish	-	-	16	5.54	0.1380	0.0123
Unidentified Bivalve	-	-	40	5.81	0.0315	0.0028
Unidentified Non-mammal	-	-	12	1.66	-	-
Miscellaneous Unidentified	-	-	20,051	834.27	-	-
Total	61	100	45,762	129,201.39	1,123.2333	100

Table 122.
Faunal Remains from the Colonial Kitchen Midden 2 Area

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammals						
Cow, *Bos taurus*	3	27.27	88	406.06	5.8566	21.6639
Pig, *Sus domesticus*	2	18.18	18	70.08	1.2049	4.457
Sheep, *Ovis aries*	1	9.09	4	16.94	0.3357	1.2417
Wild Mammals						
Deer, *Odocoileus virginianu* s	1	9.09	15	58.3	1.021	3.7767
Eastern Cottontail, *Sylvilagus floridanus*	1	9.09	1	0.25	0.0076	0.0279
Unidentified Mammal	-	-	1433	1,398.62	17.8256	65.9379
Domestic Aves						
Chicken, *Gallus domesticus*	1	9.09	11	37.9	0.5579	2.0638
Unidentified Bird	-	-	25	5.54	0.097	0.3587
Reptile						
Alligator, *Alligator mississippiensis*	1	9.09	1	0.9	0.0186	0.0686
Unidentified Turtle	1	9.09	5	2.59	0.0598	0.2213
Pisces						
Unidentified Fish	-	-	2	1.9	0.0494	0.1826
Miscellaneous Unidentified	-	-	176	8.93	-	-
Total	11	100	1779	2,008.01	27.034	100

Table 123.
Faunal remains from the Colonial Kitchen Front Yard

	MNI	MNI %	NISP or count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammals						
Cow, *Bos taurus*	2	50	29	172.86	2.7154	30.1129
Pig, *Sus domesticus*	1	25	4	7.45	0.1603	1.7773
Wild Mammal						
Deer, *Odocoileus virginianus*	1	25	3	30.71	0.5734	6.3589
Unidentified Mammal	-	-	198	383.92	5.5684	61.751
Miscellaneous Unidentified	-	-	50	0.81	-	-
Total	4	100	284	595.75	9.0175	100

Table 124.
Faunal Remains from the Colonial Kitchen

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	4	7.41	342	1,301.55	16.7082	14.4694
Pig, *Sus domesticus*	3	5.56	97	468.54	6.6617	5.7691
Sheep, *Ovis arie* s	3	5.56	23	82.15	1.3902	1.2039
Wild Mammal						
Deer, *Odocoileus virginianus*	4	7.41	87	520.19	7.3192	6.3384
Raccoon, *Procyon lotor*	2	3.7	11	89.74	1.5052	1.3035
Bobcat, *Lynx rufus*	1	1.85	12	360.25	5.2585	4.5538
Canis, *Canis*	1	1.85	1	5.93	0.1305	0.113
Eastern Cottontail, *Sylvilagus floridanus*	1	1.85	4	5.00	0.1119	0.0969
Eastern Mole, *Scalopus aquaticus*	1	1.85	1	0.30	0.0159	0.0138
Fox Squirrel, *Sciurus niger*	1	1.85	3	7.18	0.155	0.1343
Grey Fox, *Urocyon cinereoargenteus*	1	1.85	4	7.94	0.1697	0.147
Opossum, *Didelphis virginiana*	1	1.85	6	107.47	1.7704	1.5332
Skunk, *Mephitis mephitis*	1	1.85	1	1.15	0.0298	0.0258
Eastern Woodrat, *Neotoma floridana*	1	1.85	1	0.24	0.0073	0.0063
Rice Rat, *Oryzomys palustris*	2	3.7	20	138.21	2.2202	1.9227
Unidentified Mammal	-	-	2996	4,672.88	52.7888	45.7153
Domestic Aves						
Chicken, *Gallus domesticus*	4	7.41	127	911.26	10.0759	8.7257
Wild Aves						
Mallard Duck, *Anas*	1	1.85	3	6.25	0.1082	0.0937
Duck, *Anatidae* sp	1	1.85	1	1.28	0.0256	0.0221
Turkey, *Melegris gallopavo*	1	1.85	10	105.90	1.4212	1.2308
White Ibis, *Eudocimus albus*	1	1.85	1	3.52	0.0642	0.0556
Unidentified Bird	-	-	187	94.31	1.279	1.1076
Reptile						
Alligator, *Alligator mississippiensis*	1	1.85	1	0.37	0.0083	0.0072
Musk Turtle, *Sternotherus odoratus*	1	1.85	2	5.32	0.0969	0.0839
River Cooter, *Pseudemys concinna*	1	1.85	5	60.86	0.496	0.4296
Unidentified Turtle	-	-	54	90.05	0.6449	0.5585
Pisces						
Perch, *Perca sp.*	3	5.56	8	16.90	0.2878	0.2492
Alligator Gar, *Atractosteus spatula*	1	1.85	3	1.05	0.0307	0.0266
Bowfin, *Amia calva*	1	1.85	3	2.19	0.0557	0.0482
Catfish, Ictaluridae	1	1.85	19	274.14	4.1325	3.5788
Drum, Sciaenidae	1	1.85	4	6.72	0.1592	0.1378
Flounder, *Paralichthys* sp.	1	1.85	1	0.15	0.0063	0.0055
Freshwater Drum, *Aplodinotus grunniens*	1	1.85	1	0.47	0.0222	0.0193
Longnose Gar, *Lepisosteus osseus*	1	1.85	1	0.50	0.0168	0.0146
Percidae	1	1.85	1	0.50	0.0155	0.0134
Red Drum, *Sciaenops ocellatus*	1	1.85	1	0.00	0	0
Sea Catfish, *Ariopsis* sp.	1	1.85	1	0.33	0.007	0.006
Sunfish, Centrarchidae	1	1.85	1	0.09	0.0037	0.0032
Sunfish, *Lepomis* sp.	1	1.85	3	0.67	0.0198	0.0171
Yellow Perch, *Perca flavescens*	1	1.85	1	0.18	0.0066	0.0057
Unidentified Fish	-	-	44	14.83	0.2662	0.2305
Unidentified Non-mammal	-	-	9	6.65	-	-
Miscellaneous Unidentified	-	-	954	97.13	-	-
Total	44	100	4593	7,618.10	90.7326	100.02

Table 125.
Faunal Remains from the Colonial House

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammals						
Pig, *Sus domesticus*	7	11.48	165	485.11	6.8734	4.5638
Cow, *Bos taurus*	6	9.84	311	2,848.95	33.8167	22.4536
Sheep, *Ovis aries*	2	3.28	10	43.85	0.7901	0.5246
Wild Mammals						
Eastern Cottontail, *Sylvilagus floridanus*	4	6.56	51	38.67	0.7056	0.4685
Deer, *Odocoileus virginianus*	3	4.92	55	542.46	7.6006	5.0466
Rice Rat, *Oryzomys palustris*	2	3.28	4	60.61	1.0573	0.702
Fox Squirrel, *Sciurus niger*	1	1.64	3	4.13	0.0942	0.0626
Grey Fox, *Urocyon cinereoargenteus*	1	1.64	1	0.88	0.0234	0.0156
Raccoon, *Procyon lotor*	1	1.64	7	45.79	0.8215	0.5455
Unidentified Mammal	-	-	2,684	7,767.49	83.4004	55.3761
Domestic Aves						
Chicken, *Gallus domesticus*	4	6.56	29	626.52	7.1651	4.7574
Wild Aves						
Turkey, *Melegris gallopavo*	2	3.28	23	107.13	1.4362	0.9536
Falcon, *Falco* sp.	2	3.28	2	42.79	0.6231	0.4137
Mallard Duck, *Anas* sp.	1	1.64	4	2.04	0.0391	0.0259
Great Horned Owl, *Bubo virginianus*	1	1.64	1	1.05	0.0213	0.0142
Grebe, *Podiceps* sp.	1	1.64	1	0.2	0.0047	0.0031
Little Blue Heron, *Florida caerulea*	1	1.64	1	0.31	0.007	0.0047
Pigeon/Dove, Columbidae	1	1.64	4	2.83	0.0526	0.0349
Raptor, *Buteo* sp.	1	1.64	1	3.46	0.0632	0.0419
White Ibis, *Eudocimus albus*	1	1.64	1	1.1	0.0223	0.0148
Unidentified Bird	-	-	202	87.97	1.2005	0.7971
Reptile						
Alligator, *Alligator mississippiensis*	1	1.64	12	12.88	0.2089	0.1387
River Cooter, *Pseudemys concinna*	1	1.64	13	92.55	0.6569	0.4361
Box Turtle, *Terrapene carolina*	1	1.64	16	44.86	0.4043	0.2685
Musk Turtle, *Sternotherus odoratus*	1	1.64	3	3.5	0.0732	0.0486
Snapping Turtle, *Chelydra serpentina*	1	1.64	2	23.07	0.3286	0.2182
Turtle, *Terrapene*	-	-	72	159	0.9439	0.6268
Eastern Kingsnake, *Lampropeltis getula*	1	1.64	1	0.28	0.0038	0.0025
Gopher Snake, *Pituophis cantenifer*	1	1.64	1	0.38	0.0052	0.0034
Water Snake, *Nerodia sipedon*	1	1.64	1	0.1	0.0013	0.0009
Unidentified Reptile	-	-	224	785.54	-	-
Amphibian						
Bullfrog, *Rana catesbeiana*	1	1.64	1	0.26	0.006	0.004
Pisces						
Alligator Gar, *Atractosteus spatual*	2	3.28	6	4.26	0.0914	0.0607
Black Drum, *Pogonias cromis*	1	1.64	4	35.65	0.5471	0.3633
Catfish, Ictaluridae	1	1.64	3	50.31	0.8255	0.5481
Drum, Sciaenidae	1	1.64	2	1.74	0.0586	0.0389
Longnose, Gar, *Lepisosteus osseus*	1	1.64	1	0.3	0.0111	0.0074
Perch, *Perca* sp.	1	1.64	1	0.21	0.0075	0.005
Percidae	1	1.64	1	0.26	0.009	0.006
Sea Catfish, *Ariopsis* sp.	1	1.64	1	0.79	0.016	0.0106
Porgies, Sparidae	1	1.64	2	2.48	0.0366	0.0243
Unidentified Fish	-	-	71	35.56	0.5452	0.362
Unidentified Non-mammal	-	-	60	11.87	-	-
Miscellaneous Unidentified	-	-	930	47.91	-	-
Total	61	100	4,988	14,027.10	150.5986	99.99

Table 126.
Faunal Remains from the Nineteenth Century Kendal House

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Pig, *Sus domesticu* s	1	25	1	2.39	0.0576	14.1269
Sheep, *Ovis aries*	1	25	2	7.5	0.1612	39.5408
Wild Mammal						
Eastern Cottontail, *Sylvilagus floridanus*	1	25	1	0.42	5.0389	2.9503
Domestic Aves						
Chicken, *Gallus domesticus*	1	25	1	0.64	0.0136	3.358
Reptile						
Terrapene	-	-	1	11.59	0.1633	40.0423
Miscellaneous Unidentified	-	-	46	40.33	-	-
Total	4	100	52	62.87	5.4346	100

Table 127.
Faunal Remains from the Nineteenth Century Slave House

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	33.33	11	111.74	1.8336	46.0083
Pig, *Sus domesticus*	1	33.33	8	14.79	0.2971	7.4545
Unidentified Mammal	-	-	48	107.04	1.764	44.2629
Reptile						
Florida Cooter, *Pseudemys floridana*	1	33.33	2	4.21	0.0828	2.0788
Unidentified Reptile	-	-	9	7.65	-	-
Pisces						
Unidentified Fish	-	-	1	0.2	0.0078	0.1955
Miscellaneous Unidentified	-	-	21	0.28	-	-
Total	3	100	100	245.91	3.9854	100

Table 128.
Faunal Remains from the Nineteenth Century Storehouse

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	33.33	5	31.15	0.5808	64.441
Pig, *Sus domesticus*	1	33.33	4	16.09	0.3205	35.559
Miscellaneous Unidentified	1	33.33	33	26.99	-	-
Total	3	100	42	74.23	0.9013	100

Table 129.
Faunal Remains from the Nineteenth Century Root Cellar

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammals						
Eastern Cottontail, *Sylvilagus floridanus*	1	33.33	1	0.6	0.0166	1.0054
Rice Rat, *Oryzomys palustris*	1	33.33	5	1.88	0.0464	2.8104
Unidentified Mammal	-	-	2	2.42	0.0583	3.5274
Aves						
Unidentified Bird	-	-	1	0.29	0.0066	0.4008
Reptile						
River Cooter, *Pseudemys concinna*	1	33.33	76	324.91	1.5237	92.256
Total	3	100	85	330.1	1.6516	100

Table 130.
Faunal Remains from the Mixed Eighteenth and Nineteenth Century Middens

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	3	17.65	37	452.86	6.4608	23.6411
Sheep, *Ovis aries*	1	5.88	1	0.29	0.0086	0.0316
Pig, *Sus domesticus*	4	23.53	85	178.92	2.801	10.2493
Wild Mammal						
Deer, *Odocoileus virginianus*	1	5.88	7	25.48	0.4847	1.7737
Raccoon, *Procyon lotor*	1	5.88	2	0.88	0.0234	0.0858
Unidentified Mammal	-	-	527	1,040.62	13.6609	49.9876
Domestic Aves						
Chicken, *Gallus domesticus*	1	5.88	2	0.5	0.0109	0.0398
Unidentified Bird	-	-	15	4.95	0.0875	0.3202
Reptile						
Alligator, *Alligator mississippiensis*	1	5.88	19	182.54	2.3326	8.5355
Snapping Turtle, *Chelydra serpentina*	1	5.88	6	17.3	0.2457	0.899
River Cooter, *Pseudemys concinna*	1	5.88	5	13.97	0.1851	0.6771
Florida Cooter, *Pseudemys floridana*	1	5.88	2	9.04	0.1382	0.5059
Box Turtle, *Terrapene carolina*	1	5.88	32	31.42	0.3185	1.1655
Unidentified Turtle	1	5.88	22	71.74	0.5538	2.0265
Unidentified Reptile	-	-	9	20.01	-	-
Pisces						
Unidentified Fish	-	-	1	0.51	0.0168	0.0614
Miscellaneous Unidentified	-	-	115	10.54	-	-
Total	17	100	887	2,061.57	27.3285	100

Table 131.
Faunal Remains from the Miscellaneous Yard Units

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Unidentified Mammal	-	-	12	38.08	0.6959	100
Total	-	-	12	38.08	0.6959	100

Table 132.
Faunal Remains from Feature 2

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	8.33	6	219.57	3.3677	26.2167
Pig, *Sus domesticus/taurus*	1	8.33	15	63.95	1.1096	8.6381
Sheep, *Ovis aries*	1	8.33	6	22.12	0.4268	3.3225
Wild Mammal						
Deer, *Odocoileus virginianus*	1	8.33	2	34.42	0.6354	4.9464
Grey Wolf, *Canis lupus*	1	8.33	1	25.01	0.4767	3.7108
Rice Rat, *Oryzomys palustris*	1	8.33	4	0.3	0.0089	0.0693
Unidentified Mammal	-	-	282	427.17	6.1299	47.7203
Domestic Aves						
Chicken, *Gallus domesticus*	1	8.33	3	1.55	0.0304	0.2368
Wild Aves						
Turkey, *Melagris gallapavo*	2	16.67	5	6.68	0.115	0.895
Duck, *Anantidae* sp						
Unidentified Bird	-	-	23	3.71	0.0673	0.524
Reptile						
River Cooter, *Pseudemys concinna*	1	8.33	6	10.04	0.1483	1.1546
Box Turtle, *Terrapene carolina*	1	8.33	8	7.6	0.1231	0.9581
Northern Water Snake, *Nerodia sipedon*	1	8.33	13	2.29	0.0319	0.2481
Unidentified Turtle	-	-	7	9.12	0.1391	1.0826
Unidentified Reptile	-	-	2	0.03	-	
Pisces						
Sunfish, Centrarchidae	1	8.33	2	0.04	0.0019	0.0148
Unidentified Fish	-	-	47	1.19	0.0336	0.2618
Miscellaneous Unidentified	-	-	70	1.76	-	-
Total	13	100	502	836.55	12.8456	100

Table 133.
Faunal Remains from Feature 6

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	2	22.22	82	2,537.69	30.4726	63.4678
Pig, *Sus domesticus/taurus*	1	11.11	2	34.35	0.6342	1.321
Sheep, *Ovis aries*	1	11.11	4	85.95	1.4479	3.0156
Wild Mammal						
Deer, *Odocoileus virginianus*	2	22.22	8	97.62	1.6237	3.3818
Eastern Cottontail, *Sylvilagus floridanus*	1	11.11	1	0.13	0.0042	0.0087
Unidentified Mammal	-	-	959	1,024.43	13.4694	28.0539
Domestic Aves						
Chicken, *Gallus domesticus*	1	11.11	1	0.65	0.0138	0.0287
Wild Aves						
Turkey, *Melagris gallapavo*	1	11.11	2	4.44	0.0793	0.1651
Unidentified Bird	-	-	41	16.15	0.2567	0.5347
Pisces						
Unidentified Fish	-	-	1	0.30	0.0109	0.0226
Bivalve	-	-	42	3.52	-	-
Unidentified Non-Mammal	-	-	151	6.54	-	
Miscellaneous Unidentified	-	-	600	36.14	-	-
Total	9	100	1894	3,847.91	48.0127	100

Table 134.
Faunal Remains from Feature 9

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	14.29	4	141.59	2.2691	46.7638
Pig, *Sus domesticus/taurus*	1	14.29	1	0.89	0.0237	0.488
Sheep, *Ovis aries*	1	14.29	1	15.3	0.3063	6.3125
Wild Mammal						
Deer, *Odocoileus virginianus*	1	14.29	4	13.95	0.2819	5.8089
Unidentified Mammal	-	-	70	114.1	1.8684	38.5068
Aves						
Unidentified Bird	-	-	1	1.96	0.0377	0.7763
Reptile						
River Cooter, *Chrysemys concinna*	1	14.29	1	2.22	0.054	1.1121
Unidentified Turtle	-	-			0	0
Pisces						
Sea Catfish, *Ariopsis* sp.	1	14.29	1	0.36	0.0076	0.1558
Unidentified Fish	1	14.29	1	0.08	0.0037	0.0758
Unidentified Nonmammal	-	-	8	3.66	-	-
Miscellaneous Unidentified	-	-	13	0.1	-	-
Total	7	100	105	294.21	4.8522	100

Table 135.
Faunal Remains from Feature 10

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Unidentified Mammal	-	-	5	15.17	0.304	95.7747
Unidentified Bird	-	-	3	0.63	0.0134	4.2253
Unidentified Non-mammal	-	-	1	0.42	-	-
Miscellaneous Unidentified	-	-	9	0.04	-	-
Total	-	-	18	16.26	0.3174	100

Table 136.
Faunal Remains from Feature 12

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	20	1	2.31	0.056	1.9753
Pig, *Sus domesticus/taurus*	1	20	1	9.83	0.206	7.2726
Wild Mammal						
Rice Rat, *Oryzomus palustris*	1	20	1	0.16	0.005	0.1787
Unidentified Mammal	-	-	30	152.58	2.427	85.8097
Domestic Aves						
Chicken, *Gallus domesticus*	1	20	12	2.29	0.043	1.5344
Reptile						
Box Turtle, *Terrapene carolina*	1	20	1	3.37	0.071	2.5234
Unidentified Reptile	-	-	3	3.25	-	-
Pisces						
Unidentified Fish	-	-	6	0.63	0.02	0.7059
Miscellaneous Unidentified	-	-	50	0.63	-	-
Total	5	100	105	175.1	2.772	100

Table 137.
Faunal Remains from Feature 14

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	25	1	16.69	0.33123	32.1537
Wild Mammal						
Deer, *Odocoileus virginianus*	1	25	2	2.98	0.07026	6.8205
Unidentified Mammal	-	-	28	28.19	0.53089	51.5354
Aves						
Unidentified Bird	-	-	14	2.95	0.05464	5.3046
Pisces						
Alligator Gar, *Atractosteus spatula*	1	25	2	0.02	0.00124	0.1204
Catfish, *Ictaluridae* sp.	1	25	1	0.61	0.01248	1.2115
Unidentified Fish	-	-	1	1.01	0.0294	2.8539
Unidentified Nonmammal	-	-	3	1.4	-	-
Miscellaneous Unidentified	-	-	25	0.32	-	-
Total	4	100	77	54.17	1.03014	100

Table 138.
Faunal Remains from Feature A

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	100	1	21.36	0.4136	71.1607
Unidentified Mammal	-	-	5	7.83	0.1676	28.8393
Total	1	100	6	29.19	0.5812	100

Table 139.
Faunal Remains from Feature F

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	14	2	17.72	0.3496	12.0335
Pig, *Sus domesticus/taurus*	1	14	1	3.75	0.0864	2.9744
Wild Mammal						
Deer, *Odocoileus virginianus*	1	14	1	27.96	0.527	18.1408
Raccoon, *Procyon lotor*	1	14	1	0.31	0.0092	0.3155
Opossum, *Didelphis virginiana*	1	14	1	2.34	0.0565	1.9457
Unidentified Mammal	-	-	42	69.9	1.2021	41.3813
Aves						
Unidentified Bird	-	-	4	1.02	0.0208	0.7156
Reptile						
Dimondback, *Malaclemys terrapin*	1	14	1	13.49	0.1808	6.2226
River Cooter, *Chrysemys concinna*	1	14	6	29.62	0.3062	10.5397
Unidentified Turtle	-	-	6	11.93	0.1665	5.7308
Unidentified Non-Mammal	-	-	2	0.64	-	-
Miscellaneous Unidentified	-	-	25	0.54	-	-
Total	7	100	92	179.22	2.905	100

Table 140.
Faunal Remains from Feature H

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Cow, *Bos taurus*	3	30	22	466.6	6.6369	23.1262
Pig, *Sus domesticus/taurus*	2	20	27	97.12	1.6162	5.6316
Sheep, *Ovis aries*	1	10	2	2.54	0.0609	0.212
Deer, *Odocoileus virginianus*	1	10	4	44.19	0.7956	2.7723
Fox Squirrel, *Sciurus niger*	1	10	1	0.49	0.0138	0.0482
Unidentified Mammal	-	-	264	1,515.02	19.1554	66.7467
Chicken, *Gallus domesticus*	1	10	1	0.6	0.0128	0.0447
Unidentified Bird	-	-	18	12.3	0.2004	0.6982
Unidentified Turtle	-	-	5	8.12	0.1287	0.4483
Catfish, Ictaluridae	1	10	6	2.99	0.0565	0.1969
Unidentified Fish	-	-	4	0.69	0.0215	0.075
Miscellaneous Unidentified	-	-	276	6.49	-	-
Total	10	100	630	2,157.15	28.6987	100

Table 141.
Faunal Remains from Feature I

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	16.67	1	5.29	0.11777	5.0052
Wild Mammal						
Deer, *Odocoileus virginianus*	1	16.67	2	72.35	1.23997	52.6995
Raccoon, *Procyon lotor*	1	16.67	2	0.24	0.00728	0.3094
Unidentified Mammal	-	-	24	38.21	0.69803	29.6668
Aves						
Unidentified Bird	-	-	2	1.1	0.02227	0.9464
Reptile						
Box Turtle, *Terrapene carolina*	1	16.67	1	0.62	0.02296	0.9757
River Cooter, *Pseudemys concinna*	1	16.67	5	14.1	0.1862	7.9137
Diamondback Turtle, *Malaclemys terrapin*	1	16.67	2	2.5	0.05843	2.4833
Total	6	100	39	134.41	2.3529	100

Table 142.
Faunal Remains from Feature J

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	100	1	4.94	0.11073	11.464
Unidentified Mammal	-	-	8	47.88	0.85517	88.536
Miscellaneous Unidentified	-	-	25	1.01	-	-
Total	1	100	34	53.83	0.96590	100

Table 123.
Faunal Remains from Feature K

	MNI	MNI %	NISP or Count	Weight (gms)	Biomass (kg)	Biomass %
Domestic Mammal						
Cow, *Bos taurus*	1	100	3	76.81	1.3086	84.6312
Unidentified Mammal	-	-	6	11.54	0.2376	15.3688
Miscellaneous Unidentified	-	-	18	0.03	-	-
Total	1	100	27	88.38	1.5462	100

Table 144.
Bone Modifications Identified at Kendal

	Sawed	Cut	Burned	Chopped/ Hacked	Gnawed
Colonial Kitchen Midden 1					
Cow	-	11	5	11	-
Chicken	-	0	2	-	-
Unidentified Bird	-	-	3	1	-
Unidentified Mammal	-	6	53	-	-
Unidentified Non-Mammal	-	-	2	-	-
Unidentified Fish	-	-	1	-	-
Totals	0	17	66	12	0
% of NISP (45,762 total)	0	0.04	0.14	0.03	0
Colonial Kitchen Midden 2					
Unidentified Mammal	-	2	2	-	-
Totals	0	2	2	0	0
% of NISP (1,779 total)	0	0.11	0.11	0	0
Colonial Kitchen Front Yard					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (284 total)	-	-	0.35	-	-
Colonial Kitchen					
Chicken	-	1	-	-	-
Unidentified Bird	-	1	2	-	-
Cow	-	1	1	-	-
Deer	-	4	-	-	-
Sheep	-	1	-	1	-
Raccoon	-	-	1	-	-
Pig	-	1	-	-	-
Unidentified Mammal	-	3	19	-	-
Unidentified Fish	-	-	1	-	-
Unidentified	-	-	4	-	-
Totals	0	12	28	1	0
% of NISP (5055 total)	0	0.24	0.55	0.02	0
Colonial House					
Unidentified Bird	-	-	1	-	-
Cow	-	-	3	2	-
Pig	-	-	1	-	-
Unidentified Mammal	-	4	18	1	-
Unidentified Turtle	-	2	4	-	-
Unidentified Reptile	-	-	2	-	-
Totals	0	6	29	3	0
% of NISP (4988 total)	0	0.12	0.58	0.06	0
Nineteenth Century (Kendal) House					
Unidentified Bird	-	-	1	-	-
Sheep	-	-	2	-	-
Unidentified Mammal	-	-	2	-	-
Unidentified	-	-	1	-	-
Totals	0	0	6	0	0
% of NISP (52 total)	0	0	11.54	0	0
Nineteenth Century Slave House					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (100 total)	0	0	1.00	0	0
Nineteenth Century Storehouse					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (42 total)	0	0	2.38	0	0
Mixed Eighteenth and Nineteenth Century Middens					
Unidentified Mammal	1	1	5	-	-
Totals	1	1	5	0	0
% of NISP (887 total)	0.11	0.11	0.56	0	0
Feature 10					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (18 total)	0	0	5.56	0	0
Feature 12					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (105 total)	0	0	0.95	0	0
Feature 16 E½ Bisect					
Cow	-	1	-	-	-
Unidentified Mammal	-	-	2	-	-
Totals	0	1	2	0	0
% of NISP (888 total)	0	0.11	0.23	0	0
Feature 2					
Unidentified Bird	-	-	1	-	-
Unidentified Mammal	-	-	2	-	-
Totals	0	0	3	0	0
% of NISP (502 total)	0	0	0.60	0	0
Feature 6					
Unidentified Mammal	-	-	2	-	-
Totals	0	0	2	0	0
% of NISP (1894 total)	0	0	0.11	0	0
Feature 9					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (105 total)	0	0	0.95	0	0
Feature H					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (630 total)	0	0	0.16	0	0
Feature I					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (39 total)	0	0	2.56	0	0
Feature K					
Unidentified Mammal	-	-	1	-	-
Totals	0	0	1	0	0
% of NISP (27 total)	0	0	0.37	0	0
Site Total	1	39	152	16	0
Site Percentage (63,443)	0.00	0.06	0.24	0.03	0

Ethnobotanical Remains

Introduction

It is difficult, perhaps impossible, to gauge the importance of plant foods to the colonial and antebellum occupants of Kendal. Harbury introduces the topic succinctly,

> As a subject, vegetables remain a topic of debate among culinary circles. Study of the subject proves to be unreliable because of the prevailing argument over whether vegetables were eaten commonly or infrequently. Some food historians insist that vegetables were not mentioned in seventeenth- and eighteenth-century English or American culinary books because they did not require fancy preparation methods; they were either cooked simply or eaten raw. Other sources argue that vegetables were accepted gradually since they were perceived by various classes as "unfashionable" and fit only for the poor (Harbury 2004:105).

Burnett's discussions associate vegetables with the more affluent, only becoming widely available by the middle of the nineteenth century as bread and meat became cheaper (Burnett 1976:17) and often what was available were root vegetables, such as cabbage, potatoes, turnips, and onions – items that would not leave a very distinct ethnobotanical record.

Lemon (1967:65) notes that cabbages, potatoes, and turnips, although present in Pennsylvania garden plots, might have been used to some extent for cattle feed. For the Chesapeake, Miller found that grains such as corn, were the most commonly mentioned food in inventories, found in 80% of those specifying food items. Beans and peas were found in 40% of the inventories by the early eighteenth century (Miller 1988:179-180).

An overview of dietary choices is provided by Walsh and her colleagues as a result of their study in the Chesapeake. Suppliers range from the self-sufficiency of many planters and their slaves to available local markets. Whatever the source, local account books reveal that vegetables account for over 15% of the purchased items (although their cost was low, representing only 3% of expenditures), followed by fruits and nuts (at over 8%) (Walsh et al. 1997:140). Food grains accounted for another 4.3% of the purchases, and legumes nearly 2% (Walsh et al. 1997:141). The situation was a little different at the Virginia Governor's Palace where fruits and nuts accounted for 15.6% of the purchases, while vegetables accounted for only 3.5%. The reason for this reversal of frequencies is almost certainly related to status. The Governor was required to entertain a number of guests in formal settings and a course of fruits and nuts (including oranges, pears, peaches, damsons, plums, figs, watermelons, cherries, cranberries, gooseberries, huckleberries, mulberries, strawberries, walnuts, and chestnuts) were an essential component for the homes of the elite (Walsh et al. 1997:144-145).

Added to these cultural uncertainties, there are also taphonomic and sampling issues. Popper (1988) explores the "cumulative stages" of patterning, or potential bias, in ethnobotanical data. She notes that the first potential source of bias includes the world view and patterned behavior of the site occupants – how were the

plants used, processed, and discarded, for example. Added to this are the preservation potentials of both the plant itself and the site's depositional history. Of the materials used and actually preserved, additional potential biases are introduced in the collection and processing of the samples. For example, there may be differences between deposits sampled and not sampled, between the materials recovered through flotation and those lost or broken, and even between those that are considered identifiable and those which are not.

Kendal Samples

Ethnobotanical remains were recovered from unit excavations by handpicking during excavation. Unfortunately, time did not allow for more intensive flotation studies.

Hand-picked (or even waterscreened samples in some cases) may produce little information on subsistence since they often represent primarily wood charcoal large enough to be readily collected during either excavation or screening. Such hand-picked samples are perhaps most useful for providing ecological information through examination of the wood species present.

Such studies assume that charcoal from different species tends to burn, fragment, and be preserved similarly so that no species naturally produce smaller, or less common, pieces of charcoal and is less likely than others to be represented – an assumption that is dangerous at best. Such studies also assume that the wood was being collected in the same proportions by the site occupants as the charcoal found in the archaeological record—likely, but very difficult to examine in any detail. And finally, an examination of wood species may also assume that the species present represent woods intentionally selected by the site occupants for use as fuel or other purposes – probably the easiest assumption to accept if due care is used to exclude the results of natural fires.

While this method probably gives a fair indication of the trees in the site area at the time of occupation, there are several factors that may bias any environmental reconstruction based solely on charcoal evidence, including selective gathering by site occupants (perhaps selecting better burning woods, while excluding others) and differential self-pruning of the trees (providing greater availability of some species over others). Smart and Hoffman (1988) provide an excellent review of environment interpretation using charcoal that should be consulted by those particularly interested in this aspect of the study.

Procedures

The hand-picked samples were bagged in the field directly from either the ¼-inch screen or actual feature excavation and were therefore clean and easily sorted. The samples were examined under low magnification with the larger pieces of wood charcoal identified, where possible, to the genus level using comparative samples, Edlin (1969), Hoadley (1990), Koehler (1917), and Panshin and de Zeeuw (1970). Wood charcoal samples were broken in half to expose a fresh transverse surface. Seed identification relied on comparative samples, Martin and Barkley (1961), Montgomery (1977), Schopmeyer (1974), and United States Department of Agriculture (1971). The results of this analysis are shown in Table 125.

Wood counts, rather than weights, are used to quantify the significance of the various taxa since different woods will have dramatically different properties that affect overall preservation (see, for example, Bonhage-Freund 2005).

Results

Eight genera of carbonized wood were identified in the Kendal samples, with one additional category representing indeterminate wood. The most abundant carbonized wood, found in 57 of the 69 proveniences (83% ubiquity), is pine (*Pinus* sp.), followed by oak (*Quercus* sp.) identified in nine proveniences (only 13% ubiquity). Cedar (*Juniperus* sp.) and cypress (*Taxodium distichum*) are found in four and three units respectively. Hickory (*Carya* sp.) was also

recovered from four proveniences. Finally, dogwood (*Cornus florida*), water tupelo (*Nyssa aquatic*), and magnolia (*Magnolia* sp.) were each recovered from a single location at Kendal.

In addition to the carbonized specimens, there are several examples of pine where it has not been carbonized but is sufficiently well preserved to reveal that it represents dimensional lumber. In one case part of a molding is present and in another case the wood exhibits scorched paint or varnish. These remains are from the Kendal House and represent architectural detailing in the house.

Resin was also found in several samples. Although not specifically identifiable to a species, it is likely that these remains are the result of burning highly resinous pine – which is abundant in the samples.

While carbonized, several fragments of the cypress wood also appear to be dimensional lumber, almost certainly representing fragments of the shake or single siding applied to the Kendal House and visible in period photographs.

Also recovered from the hand-picked samples are peach pits, hickory nutshell, a corn cupule, and chinaberry seeds.

Analysis of Cultigens

Corn – *Zea mays*

The history of corn is still being debated. However, a three-part typology is generally used in the eastern United States, where corn is viewed as Eastern Eight-Row ("flint" and "flour" types; historically called Northern Flint or Eastern Flint), Midwestern Twelve Row ("flour" type), or Northern American Pop (King 1987:25-26, Bonhage-Freund 2007:171).

The dominant corn throughout the Southeast from about A.D. 1200 to 1850 was the Eastern Eight-Row (Blake and Cutler 2001:75). This Eastern Eight Row has a large cob with an expanded butt, usually with eight rows, although up to 12 rows can be present. The grains may be hard flint or soft flour, but rarely sweet. The plant is cold and drought tolerant, needing a short growing season to reach maturity.

Kernels with an indentation caused by soft starch is diagnostic of flour corn (i.e., dent corn), but the rounded kernels, especially the high, rounded "popcorn-like" kernels, are more characteristic of the flint corns (Bonhage-Freund 2007:272). The Spanish brought dent corn from Mexico to their early settlements in the Southeast, including South Carolina's Santa Elena and before 1679 dent corn was being grown in Virginia (King 1987:25-26). Nevertheless, Shields reports that flint corn was being grown on the eighteenth century Sea Island (Shields 2015:341).

Plantation accounts are replete with accounts of corn – eaten as kernels, made into hominy, added to stews, ground into meal, or even fed to livestock. The presence of cupules also suggests that cobs were used as tinder or fuel. Thomas Jefferson suggested that corn should be intercropped with potatoes or peas (Betts 1944:194). Corn remains, therefore, are entirely consistent with what might be expected at Kendal. It is not found more commonly since there are relatively few opportunities for its preservation through burning. Nevertheless, Gardner (1986:F17) discovered that, of the cultigens, corn was the most common carbonized seed recovered from the Lesesne Plantation in Berkeley County, South Carolina. It was also very common at Yourhaney Plantation in Georgetown County, South Carolina (Adams 2006:152).

Porcher (1863:548-561) provides considerable discussion on the possible benefits of corn, although it is doubtful that it was much used beyond its meal for humans and as fodder for cattle and horses. Porcher does mention, "blade tea is quite a favorite diaphoretic used recently by many in the Confederate States in fever – its antiperiodic properties doubtful" (Porcher 1963:548). Hilliard also discusses the importance of corn, observing that by the mid-antebellum corn production along the coast was below that needed for self-sufficiency (Hilliard 1972: 158-159).

Table 145.
Hand-Picked Charcoal Samples at Kendal

Provenience	*Pinus* sp. (%)	*Pinus* sp. noncarbonized dimensional lumber	Rosin (%)	*Quercus* sp. (%)	*Carya* sp. (%)	*Cornus florida* (%)	*Nyssa aquatica* (%)	*Magnolia* sp. (%)	*Juniperus* sp. (%)	*Taxodium distichum* (%)	UID wood (%)	Corn Cupule	Chinaberry Seeds	Peach Pit	Hickory nutshell
Colonial Kitchen Midden 1															
175L5, Lv 2	66			34											
175L5-R20, trowel	100														
175R0, Lv 1	100														
175R10, Lv 2	67				20		7				6			P	P
175R20, Lv 2	60			25	5										
180R0, Lv 2	60			40											
Colonial Kitchen Midden 2															
165R55, Lv 1	100														
Colonial Kitchen Front Yard															
80R60, Lv 1	100														
80R60, trowel	100														
Colonial Kitchen															
115R60, Lv 1	100														
115R80, Lv 1	100														
125R50, Lv 1											100				
125R60, Lv 1	66			34											
125R80, Lv 1	100														
125R80, Lv 2	100														
130R70, Lv 1	70			15							15				
140R55, Lv 1								66	34						
Colonial House															
140R140, Lv 1 Ext	60										40			P	
140R170, Lv 1	100														
145R130, Lv 1	100									20					
150R130, Lv 1	100														
150R140, Lv 1	100														
150R150, Lv 1	80														
160R140, Lv 1	100	P													
160R150, Lv 1		P													
160R160, Lv 1	100														
160R170, Lv 1	70									30					
Kendal House															
80R90, Lv 1	90										10				
100R170, Exterior	100														
100R170, Interior	100														
100R170, trow	100														
100R200, Lv 1	60	P							40						
100R200, trow	100														
120R170, Lv 1											100			P	
120R170, stairwell	60								40						
130R170	100														
130R200	100														
Slave House															
180R205, Lv 1	100														
190R205				100											
200R210, Lv 1	66			34											
200R220, Lv 1						100									
200R230															
215R210, Lv 1	80									20					
210R220, Lv 1	100														
210R230															
220R205, Lv 2	100														
230R205															
240R205															
240R220, Lv 1	50		50												
Nineteenth Century Storehouse															
185R110, Lv 1	100														
200R115, Lv 1			50		50										
Nineteenth Century Root Cellar															
40R180, Lv 2	100														
40R180, Lv 2	100														
50R180, Lv 1	100														
Miscellaneous Yard Units															
255R280, Lv 2	100														
Mixed Nineteenth Century Middens															
190R160, Lv 1	100														
190R185, Lv 1	50				50										
Features															
Fea 2, N½	100														
Fea 5, E½			100												
Fea 6, W½	100														
Fea 6, E½	100														
Fea 7	80		20												
Fea 9	100														
Fea A	83		8								8	P	P	P	
Fea B	100														
Fea E	100														
Fea F	100														
Fea H	60		10	30											
Fea I	40		10	20					20						

P = present in sample

Blake and Cutler comment that various accounts of "green corn" and "sweet corn" likely refer to slightly immature corn, "picked when the kernels are still moist and doughy but riper than the milk state, which is preferred by modern eaters of green sweet corn" (Blake and Cutler 2001:14).

The single corn fragment recovered is a fragmentary cupule (the cupule is the small cup-like structure of the cob from which the kernel forms). The cupule measures 9.73mm in width.

Peach – *Prunus persica*

Peach (*Prunus persica*) pits were found in multiple hand-picked samples.

The peach (*Prunus persica*) is well known in the Southeast, being introduced by the Spanish and quickly adapted by Native American groups. The trees became so widespread that by the mid-eighteenth century Bartram regarded the fruit as a native plant (Hedrick 1972).

Hilliard (1972:180) comments that it was a favorite food, found fresh, dried, or preserved. Where there were sufficient quantities it was converted into a wine and distilled into a brandy. They were even fed to the hogs. Nevertheless, orchard production was spotty and often poorly tended (Hilliard 1972:181). Its popularity is attested to by the number of named species. In 1629 there were 21, by 1768 there were at least 31, and by 1850 there were over 250 named peach varieties (Leighton 1976:237). All belonged to one of two groups, generally described as freestones or melting-peaches in which the pulp or flesh separates easily from the stone and the clingstone in which the flesh clings or adhere to the stone.

Simmons (1798:41-42) describes preserving peaches in sugar and brandy, as well as drying them using sugar and heating on a stovetop (Simmons 1798:44). Carter (1803:172,189) offers nearly identical recipes, as well as one to make peach sweetmeats with brown sugar (Carter 1803:208).

Peach pits have been found in a wide variety of historic contexts, including Yaughan and Curriboo plantations in Berkeley County, South Carolina (Gardner 1983), the Lesesne and Fairbank plantations, also in Berkeley County (Gardner 1986) and even from McCrady's Longroom in downtown Charleston, South Carolina (Trinkley 1982).

In North Carolina, the peach is best cultivated in the Sandhills, although they are grown from the coastal plain to the lower mountains. Radford et al. (1968:566) note that the peach is frequently found escaped from cultivation and fruits from June through July. They may have been at the edge of their natural range on the Lower Cape Fear. Though they prefer relatively warm areas, they also require a resting period of winter cold for at least two months, during which time they gather strength for producing leaves and flowers in the spring.

Analysis of Plant Food Remains - Nuts

Hickories – *Carya* sp.

Hickory nuts provide a valuable and reliable food source for both humans (especially in the prehistoric period) and wildlife. The nuts may be eaten raw, crushed and boiled for their oil, roasted and ground for flour, and even candied.

There are four hickories common to the Kendal area – bitternut (*Carya cordiformis*), water (*C. aquatica*), mockernut (*C. tomentosa*), and pignut (*C. glabra*). The fragments identified in the collection are too small to allow a positive identification.

The mockernut and pignut prefer drier, better drained upland soils, with the mockernut associated with yaupon and live oak on coastal sites and the pignut often found with oak and black oaks or with post and white oaks (Fowells

1965:116,125). The bitternut and water hickories are typically found in wetter sites, with the water hickory able to survive on soils that are seasonally flooded (Fowells 1965:112, 136). While any of the four might be found in the vicinity of Kendal, the bitternut and water hickories would have been common in the low wet soils of the rice producing areas. Nevertheless, of the four varieties, only the pignut appears to have been used to any extent (Medsger 1974:103-104).

In North Carolina hickories fruit in October, although seeds are dispersed from October through December (Bonner and Maisenhelder 1974:269; Radford et al. 1968:363-366). Good crops of all species are produced at intervals of up to three years when up to about 16,000 nuts may be produced per tree (Bonner and Maisenhelder 1974:271). Complicating this simple seasonality is the ability of the nuts to be stored for up to six months.

Analysis of Non-Food Plant Remains

Chinaberry Seeds – *Melia azedarch*

The Chinaberry tree is a fast growing, but short lived deciduous tree found throughout the coastal plain and piedmont (Radford et al. 1968:655). It fruits in April and May, and seeds are dispersed September through October.

Radford and his colleagues note that the tree is often cultivated and may be found naturalized on woodland borders. The earliest reference to the tree was by Thomas Jefferson in 1778, although others comment on it as an ornamental in 1827 and 1838 (Adams 2004:27, 41, 87).

By at least 1809 the bark of the tree was reported as a vermifuge (Parr 1809:133) Porcher provides detailed comments, explaining that while some consider the plant poisonous,

> We have frequently seen them eaten by children in South Carolina with no bad effect. As an anthelmintic [drugs that expel parasitic worms, e.g., vermifuge], four ounces of the bark of the fresh root are boiled in one pint of water, till it becomes of the consistence of coffee . . . . the dried berries, in spirits, have also been employed against ascaradides, tænia, and verminous maladies generally . . . . the pulp of the berry, stewed in lard, is used advantageously as an ointment in tinea capitis. The decoction of the leaves is regarded as astringent and stomachic . . . . The leaves and berries of the Pride of India, packed with dried fruits, will preserve them from insects. . . . A soap is made from the berries of the Pride of India, which is called "Poor man's soap" (Porcher 1863:106-107).

More recently Morton reports that Low Country African Americans use both the root and the berries to expel worms, comments that "people in the Low Country claim that fruits are 'sweet' and that their children habitually eat them" (Morton 1974:96).

We have identified carbonized chinaberry seeds from at least one other plantation site, the Campfield slave settlement in Georgetown County, South Carolina (Trinkley 1983).

At Kendal we recovered abundant fruits from Feature A, which has been identified as antebellum. It was also this feature that produced the corn cupule, and fragments of a peach stone.

Analysis of Wood Remains

Some species are characteristic of the upland forests, with pine being the most common. Other woods are characteristic of the lower, wetter portions of the plantation, such as the baldcypress. Regardless, all of the woods

identified could easily be found in the immediate Kendal surrounds and likely represent the historic environment during the eighteenth and nineteenth centuries.

Pine – *Pinus* sp.

The most abundant wood was pine (*Pinus* sp.). This is typical of most southeastern sites. Many of these specimens appear to be in the subclass of Southern Yellow Pines, which includes loblolly, shortleaf, longleaf, slash, and pitch pine (Hoardley 1990:147). This may reflect the density of the species, or it may only reflect that pine is a good self-pruner, making its wood readily accessible.

By the antebellum, pines were common in the Carolina low country. Commenting on the prevalence of pines, found usually with "only a very few back-jack oaks," Edmund Ruffin observed that they were found on "the dryest [sic] land" whose surface is "sandy & dry" (Mathew 1992:74).

Well known for their naval stores and often used for building materials, pines might be found in a variety of settings. Given the association of Kendal with naval stores, we assume that its presence in the collection reflects its importance – and prevalence – in the lands surrounding the plantation. Although the function of the recovered woods is uncertain, their presence as widely dispersed and carbonized suggests that for the most part we are looking at remnants of building construction and fuel wood.

Some of the wood recovered from Kendal appears to represent dimensional lumber used in the construction of the various structures at the site.

Pine, however, is not a particularly good firewood. Depending on the species, the heat index ranges from about 77 to 85, but the wood burns quickly and is smoky. In contrast, oak has a heat index of 82 to 92 (Graves 1919:29). The varying quality of firewood has long been recognized; Reese notes, "the heavy and dense woods give the greatest heat, burn the longest, and have the densest charcoal. To the dense woods belong the oak, beech, alder, birch, and elm; to the soft, the fir, the pine of different sorts, larch, linden, willow, and poplar" (Reese 1847:116). Regardless, Bonhage-Freund (2007:168) notes two additional features that must be considered. First, most hardwoods tend to burn to ash, while pine tends to produce charcoal. Second, whatever its properties, pine was abundant and readily available.

Oak – Quercus sp.

There are at least 13 species of oaks in the Wilmington area and they occur in areas that range from low sandy soils to high dry woods (Radford et al. 1968). Red and white oaks were the most common varieties used in lumber, with the timber well known for its strength (Anonymous 1909:19-26). Oak is also a favored firewood, with heat indices of 82 to 92 depending on the species (Graves 1919:29).

Hickory – Carya sp.

As previously mentioned, there are at least four hickories common to the Kendal area, including bitternut (*Carya cordiformis*), water (*C. aquatica*), mockernut (*C. tomentosa*), and pignut (*C. glabra*). Bitternut hickory is the most abundant of the hickories, generally found on moist soils. The mockernut hickory, however, is the only hickory found in the sandy pine belts of southern states. The water hickory is especially found on the low, wet flats of the coastal plain (Fowells 1965).

Hickory has been used for tool handles, wheel spokes, and carts. Hickory has a very high heat value, ranging from 94 to 100 and is also preferred for smoking meats (Graves 1919:29).

Water Tupelo – *Nyssa aquatica*

The gum was likely water gum or tupelo gum, commonly found in swamp forests and low, wet flats of the coastal region (Radford et al. 1968:790; Fowells 1965:284-285). It is often found associated with the baldcypress. Gum has a

variety of uses, being traditionally used for wagon box boards, weatherboards, and even moldings (Anonymous 1909:34-39). Gum has a heat value of 71 (as a percentage of a short ton of coal), making it a relatively good firewood (Graves 1919:29).

Magnolia – *Magnolia* sp.

The magnolia wood identified is most likely from the sweet bay (*Magnolia virginiana*), although the bull bay or Southern magnolia (*Magnolia grandiflora*) is also present in the vicinity (although Brunswick County is at the northern edge of its range). Both are found in similar maritime forests, bays, and pocosins (Fowells 1964; Gilman and Watson 1994).

Magnolia is a relatively poor firewood, with a heat index of only 60 to 70. It has, however, had some commercial uses, such as blinds, interior finishes, sashes, and doors, because of its good finishing qualities and freedom from twisting and warping (Panshin and de Zeeuw 1970:583).

Dogwood – *Cornus florida*

Dogwood grows on soils ranging from deep, moist soils along streambanks to well-drained, light upland soils, though usually as an understory tree (Fowels 1965:162). Because of the hardness and close texture, dogwood has been used for shuttles, thread spools, bobbins, and mallet heads (Panshin and de Zeeuw 1970:512).

It is a good firewood, with heat values of 91-97 (Graves 1919:29).

Cedar – *Juniperus* sp.

Although the Eastern Red Cedar (*J. virginiana*) is the most common, it tends to be more common in the piedmont. Fowells (1965:212) indicates the North Carolina coastal plain is out of its range, although Radford et al. (1968:42) document its presence in Brunswick County. It appears that the Southern Red Cedar (*J, silicicola*) may be a more likely candidate for these remains, although some researchers view it as a variety of Eastern Red Cedar (*Juniperus viriginiana var. silicicola*). The Southern Red Cedar is found on the sandy soils of the outer coastal plain.

Historically cedars were used primarily for fence posts, although the wood was also used for wardrobes and chests because of its color, working qualities, and fragrance. It was also used in millwork, although suitable material is no longer readily available (Panshin and de Zeeuw 1970:500).

Cypress – *Taxodium distichum*

The Baldcypress is generally restricted to very wet soils, most often on broad flats. It is sometimes associated with water tupelo, which has also been identified at Kendal. Moreover, during the twentieth century we have documented that cypress was being logged from the Orton and Kendal swamps, with some being sold and much of it being used for repair and cladding of plantation houses (Trinkley and Hacker 2016:34, 57).

In fact, Panshin and de Zeeuw (1970:489) observe that most baldcypress is used in construction, largely because old-growth cypress is rated as durable to very durable to decay. It has a relatively poor heat value of only 56-63.

Some of the wood recovered from Kendal appears to represent the shingles used to clad the exterior of the Kendal House.

Summary

While only hand-picked samples are available from Kendal, the analysis of the materials does provide some information concerning the use of plants by the site occupants.

Cultigens included corn and likely peach. The finding of these foods at an eighteenth and nineteenth century coastal plantation is consistent with previous studies. The presence of peach is nearly ubiquitous, but like corn, it may have been used as much by livestock as humans. The remains cannot tell us whether peach trees were planted

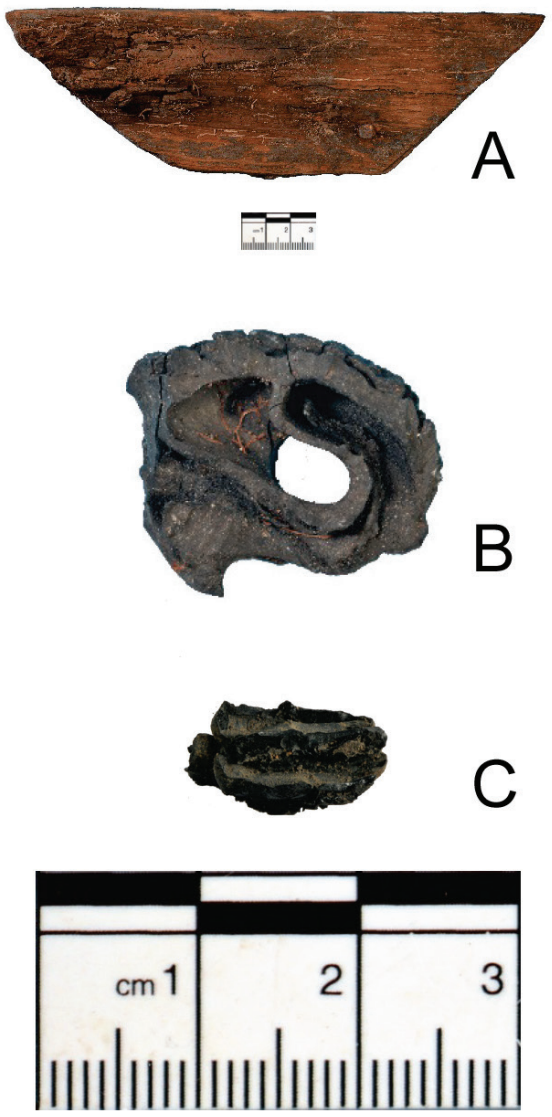

Figure 204. Plant remains from Kendal. A, dimensional pine molding with machine cut nail from the Kendal House; B, peach pit; C, corn cupule.

as an orchard at Kendal, or available wild in the landscape, perhaps escaped from earlier settlements and the Native Americans.

The hickory nuts certainly may have been intentionally collected and eaten, or may represent livestock food, or even remains of fuel (there is evidence of burned hickory wood).

Non-plant food remains consist solely of chinaberry seeds. The chinaberry had a number of medicinal uses during the historic period and the seeds have been found at another antebellum plantation site.

Although peach is found in several proveniences, both corn and chinaberry are found only in Feature A, which is dated from the early antebellum. Whether these remains can be associated with the white occupants at Kendal or represent African American activities is uncertain.

Finally, the charcoal present in the assemblage is dominated by pine, again consistent with the vicinity of Kendal Plantation. In fact, some of the pine from Kendal was certainly associated with the Kendal House, based on the presence of dimensional lumber fragments. Research also suggests that the shingles used on the Kendal House were cypress, found in the samples from this structure.

Other woods from Kendal demonstrate that the environment was essentially divided into drier areas, where pine and oak thrive; and moister areas, where gum would be expected.

Mrozowski and his colleagues emphasized an important lesson in their 2008 article,

> If there is one conclusion that can be offered without qualification, it is that the sampling program conducted was successful . . . . The practice of collecting limited numbers of samples from selected features in the field, or subsampling after the material has been collected, have proven utility under constraints of time or funding. What these approaches do not appear to generate is a more comprehensive representation of the richness of plants being

> exploited (Mrozowski et al. 2008:723).

Had we paid closer attention to this caution and collected both larger and more frequent samples at Kendal, we might have been in a better position to make statements regarding plant use with broader applications.

Pollen and Phytolith Analysis

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Methods

Pollen

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for recovering pollen grains from sediments. This particular process was developed for extracting pollen from soils where the preservation has been less than ideal and the pollen density is lower than in peat. It is important to recognize that it is not the repetition of specific and individual steps in the laboratory but rather mastery of the concepts of extraction and how the desired result is best achieved, given different sediment matrices, which results in successful recovery of pollen for analysis.

Hydrochloric acid (10%) was used to remove calcium carbonates present in the sediment samples, after which they were screened through 250-micron mesh. The samples were rinsed until neutral by adding water before letting them stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was mixed into each sample once it reached neutrality to suspend clay-sized particles. Then the samples were allowed to settle. Once the samples settled by gravity for two hours, the suspended clay-sized particles and water were decanted. This step was repeated three more times until the supernatant was clear, each time settling for two hours. Treatment with sodium hexametaphosphate was repeated, as necessary, to remove clay. This process was repeated with ethylenediaminetetraacetic acid (EDTA), which removes clay, soluble organics, and iron. Finally, the samples were freeze dried under vacuum.

The sediment samples were mixed with sodium polytungstate (SPT), at a density of 1.8 g/ml, and centrifuged to separate the organic material including pollen and starch, which will float, from the inorganic remains and silica, which will not. The supernatant containing pollen and organic remains was decanted. Again sodium polytungstate was added to the inorganic fraction to repeat the separation process. The supernatant was decanted into the same tube as the supernatant from the first separation. This supernatant then was centrifuged at 1,500 rpm for 10 minutes to allow any remaining silica to be separated from the organics. Following this, the supernatant was decanted into a 50-ml conical tube and diluted with reverse osmosis deionized (RODI) water. These samples were centrifuged at 3,000 rpm to concentrate the organic fraction in the bottom of the tube. This pollen-rich organic fraction was rinsed, and then all samples received a short (25 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples were acetylated for 10 minutes to remove extraneous organic matter. The samples were rinsed with RODI water to neutral. Following this a few drops of potassium hydroxide (KOH) were added to each sample which was then stained lightly with safranin. Due to the presence of large quantities of minute organic debris, the samples were centrifuged at high speeds for short intervals to remove this debris for better viewing.

A light microscope was used to count pollen at a magnification of 500x. Pollen preservation in these samples varied from good to poor. An extensive comparative reference housed at PaleoResearch Institute aided pollen identification to the family, genus, and species level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen and may be interpreted to represent either pollen dispersal over short distances or the introduction of portions of the plant represented into an archaeological setting. The aggregates were included in the pollen counts as single grains, as is customary. An "A" next to the pollen frequency on the percentage pollen diagram notes the presence of aggregates. A plus sign (+) on the pollen diagram indicates that pollen was observed, in spite of the fact that pollen was not present in a sufficient concentration to obtain a full count. The percentage pollen diagram was produced using Tilia 2.0 and TGView 2.0.2. Total pollen concentrations were calculated in Tilia using the quantity of sample processed in cubic centimeters (cc), the quantity of exotics (spores) added to the sample, the quantity of exotics counted, and the total pollen counted and expressed as pollen per cc of sediment.

"Indeterminate" pollen includes pollen grains that are folded, mutilated, or otherwise distorted beyond recognition. These grains were included in the total pollen count since they are part of the pollen record. The microscopic charcoal frequency registers the relationship between pollen and charcoal. The total number of microscopic charcoal fragments was divided by the pollen sum, resulting in a charcoal frequency that reflects the quantity of microscopic charcoal fragments observed, normalized per 100 pollen grains.

Pollen analysis also included observation and recording of starch granules and, if they were present, their assignment to general categories. We did not, however, search for starches outside the pollen count. An additional search for starches is performed only when starch analysis is part of the suite of analyses performed. Starch granules are a plant's mechanism for storing carbohydrates. Starches are found in numerous seeds, as well as in starchy roots and tubers. The primary categories of starches include the following: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, or lenticular). Some of these starch categories are typical of specific plants, while others are more common and tend to occur in many different types of plants.

Phytolith Extraction from Sediment

Phytolith extraction from this sample was based on heavy liquid floatation. First, sodium hypochlorite (bleach) destroyed the organic fraction from 15 ml of sediment. Once this reaction was complete, the sample was rinsed to remove the bleach. Organic destruction also included addition of dilute (5%) potassium hydroxide (KOH), followed by several water rinses. A small quantity of sodium hexametaphosphate was added, after which the sample settled according to Stoke's Law in a 500-ml beaker. The sample was given three additional water rinses to remove clay particles prior to heavy liquid separation. This process was repeated with ethylenediaminetetraacetic acid (EDTA). Next, the sample was freeze dried. The dried silts and sands were mixed with sodium polytungstate (SPT, density 2.1) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. After the phytoliths were recovered, the sample was rinsed with RODI water, followed by alcohol to remove the water. The sample was mounted in immersion oil for counting with a light microscope at a magnification of 500x.

After obtaining the count of 300 phytoliths, the remainder of the slide was scanned for rare phytolith types of ecological and/or economic significance. The phytolith diagram was produced using Tilia, a computer program developed by Dr. Eric Grimm of the Illinois State

Museum for diagraming pollen.

Phytolith Review

Phytoliths are silica bodies produced by plants when soluble silica in the ground water absorbed by the roots is carried up the plant's vascular system. Evaporation and metabolism of this water result in precipitation of the silica in and around the cellular walls. Opal phytoliths, which are distinct and decay-resistant plant remains, are deposited in the soil as the plant or plant parts die and break down. However, they are subject to mechanical breakage, erosion, and deterioration in high pH soils. Usually, phytoliths are introduced directly into the soils in which the plants decay. Phytolith transportation occurs primarily through animal consumption, human plant gathering, or wind, water, or ice soil erosion or transportation. Phytoliths produced in roots/tubers deteriorate subsurface, so they will not be represented on the growing surface. Therefore, root/tuber phytolith recovery from stratigraphic sediments does not necessarily represent vegetation coeval with that represented by phytoliths produced in leaves or other above-ground vegetative parts.

The three major types of grass short-cell phytoliths include festucoid, chloridoid, and panicoid. Smooth elongate phytoliths provide no aid interpreting either paleoenvironmental conditions or the subsistence record, because all grasses, various other monocot plants, and several dicots produce them. Phytoliths tabulated to represent "total phytoliths" include the grass short-cells, bulliform, trichome, elongate, and dicot forms. All other silica and non-silica body recovery frequencies are calculated by dividing the number of each type recovered by the "total phytoliths."

The festucoid class of phytoliths is ascribed primarily to the subfamily Pooideae and occurs most abundantly in cool, moist climates. They grow well in shady areas and during the cooler spring and fall months. They are the first grasses to "green up" in the spring, going dormant in the summer, then growing again in the fall. Brown (1984) notes that festucoid phytoliths are produced in small quantity by nearly all grasses (mostly rondel-type phytoliths, which exhibit an approximately circular shape). Therefore, while these typical phytoliths forms are produced by the subfamily Pooideae, they are not exclusive to this subfamily. Trapeziform phytoliths are tabular and may be thin or thick. Their outer margins may be smooth, slightly spiny, or sinuate.

Warm season or summer grasses are divided into the group that thrives in dry conditions (chloridoid) and those that grow best in humid conditions (panicoid) or that grow along sources of water. Chloridoid saddle phytoliths are produced by the subfamily Chloridoideae, a warm-season grass that grows in arid to semi-arid areas and requires less available soil moisture (Gould and Shaw 1983:120). They thrive in hot, dry conditions of summer. Twiss (1987:181) notes that some members of the subfamily Chloridoideae also produce both bilobate (panicoid) and festucoid phytoliths. Also, saddles may be produced in non-chloridoid grasses. Bilobates and polylobates (lobates) are produced mainly by panicoid (tall) grasses, although a few festucoid grasses also produce these forms. Panicoid or tall grasses prefer the warmth of summer and thrive in humid conditions or grow next to water such as creeks, rivers, and lakes. More than 97% of the native US grass species (1,026 of 1,053) are divided equally among three subfamilies: Pooideae, Chloridoideae, and Panicoideae (Gould and Shaw 1983:110).

Bulliform phytoliths are produced in grass leaf cells that control leaf rolling in response to drought. These cells often silicify under wet or moist conditions and increase in abundance as the grass leaves age. Trichomes represent silicified hairs, which may occur on the stems, leaves, and the glumes or bran surrounding grass seeds.

Terms applied to phytoliths in this study use the International Code for Phytolith Nomenclature (ICPN) (Madella, et al. 2005). Phytolith reference samples prepared and curated at PaleoResearch Institute were consulted when

identifying phytoliths recovered in this study.

Other Siliceous Microfossils

Diatoms and/or sponge spicules were noted. Pennate diatoms are cosmopolitan, occurring in many sediments, and indicate at least some soil moisture. Sponge spicules represent fresh water sponges. Diatoms are single-celled algae with a siliceous cell wall. They grow in a wide range of aerophilous habitats, including on wet plants and rocks, in damp soils, marshes, wetlands, mudflats, and various standing and flowing aquatic habitats. Often, their silica cells are preserved in sedimentary deposits. Individual taxa have specific growth requirements and preferences with respect to water chemistry. Thus, the presence (and subsequent identification to the species level) of diatoms in paleoenvironmental contexts can provide information about the nature of the local environment, including water chemistry, hydrologic conditions, and substrate characteristics. These data, coupled with input about local geology, hydrology, soil characteristics, pollen and phytoliths, provide evidence of the paleoenvironmental setting.

In these phytolith samples, diatoms are noted, but not identified beyond the split of “pennate” and “centric” forms. Often, centric diatoms indicate wet conditions, while some of the pennate diatoms are cosmopolitan, occurring nearly everywhere. Both diatoms and sponge spicules can be transported with sediment. As an illustration, recovery of sponge spicules in upland soils is noted to accompany loess deposits derived from Illinois floodplains (Jones and Beavers 1963).

Pollen Review

Use of historic documents referring to plant use is particularly relevant to the study of remains from the historic era. The ethnobotanic literature, as well as historic records of various types, provide evidence for the exploitation of numerous plants in historic times, both by broad categories and by specific example. Ethnographic sources outside the study area have been consulted to permit a more exhaustive review of potential uses for each plant. References on plant domestication, cooking, and food cultures are often consulted when describing plants whose evidence we encounter in the pollen, phytolith, and/or macrofloral records. Plants represented by pollen, phytoliths, and starch are discussed in the following paragraphs to provide a background for discussing the remains.

Cultigens

Cerealia

Cerealia is a term used in palynology to denote *Triticum* (wheat), *Avena sativa* (oats), *Hordeum vulgare* (barley), and *Secale cereale* (rye). Other major cereal grains around the world include *Oryza sativa* (rice), *Zea mays* (maize), *Setaria italica* (foxtail millet), *Panicum miliaceum* (proso millet, common millet), and *Sorghum bicolor* (sorghum). Of these, *Oryza* and *Zea mays* pollen grains may be distinguished and are not usually lumped with Cerealia.

The cereal grains were named for *Ceres*, the Roman goddess of agriculture. These seeds are noted to "have played a crucial role in human nutrition and cultural evolution" (McGee 1984:226). Grains are used to make beer and bread, which have been staples in the human diet since at least 3000 B.C. Cereal grains are concentrated sources of protein and carbohydrates and continue to provide the majority of the caloric intake for much of the world's population. Wheat, barley, rye, and oats have been the most important grains in the Middle East and Europe; rice in Asia; maize or corn in the prehistoric New World; and sorghum and millets in Africa (Hickey and King 1981:436; McGee 1984:227-232).

Medicinal Plants

Ilex (Holly)

In eastern North America *Ilex* (holly) is represented by many species that grow as evergreen trees, shrubs, or vines. *Ilex* leaves

contain varying quantities of caffeine and other toxins that make them valuable as medicinal items. Some *Ilex* species were used for their emetic properties. *Ilex opaca* (American holly) bark was processed to make a wash for sore eyes. An infusion of the leaves was taken for sores and measles. Berries were used to treat colic and make a dye. A decoction of roots was used for hay fever (Moerman 1998:273).

Weedy Plants

Low-Spine Asteraceae (Ragweed Group)

Asteraceae (sunflower, aster, or composite family) is a very large family of over 20,000 species worldwide. This family consists mostly of herbaceous plants, usually with a taproot. Members of the Low-spine Asteraceae (Ambrosieae) includes taxa whose pollen has spines (echinate) less than 2.0 µm in length (Kapp 1969) and also exhibit certain other morphologic characteristics.

In this project area, these taxa include wind-pollinated plants such as *Ambrosia* (ragweed) and *Iva* (sumpweed). The pollen grains are more buoyant and capable of being transported over longer distances on the wind than those of most members of the High-spine group. The plants usually pollinate late in the summer or even in the early fall, causing allergic reactions in many people. Members of the Low-spine Asteraceae are weedy, herbaceous plants found in a variety of habitats (usually disturbed areas), some of which include cultivated fields, meadows, waste places, old fields, pastures, gardens, and lawns (Hickey and King 1981:418; Muenscher 1980:422; Niering and Olmstead 1979:354; Zomlefer 1994:203).

Ambrosia artemisiifolia (ragweed) is an annual native to North America, widespread throughout, but most common in the eastern and north central United States. It is noted to be "a pioneer dominant in abandoned croplands in several areas of the eastern United States" (Bazzaz 1974:112). Associated more with hay fever than with any healing properties, this unpopular weed had slight use historically as an antiseptic poultice, as an ineffective substitute for quinine, and was reported by one source in New Jersey to be a successful antidote to the poisonous affects of poison sumac if rubbed on the inflamed parts until they are discolored by the juice (Millspaugh 1974:325-327). The pollen and tinctures of ragweed do appear to have an irritant action on mucous membranes. Ragweed blossoms July through October and reproduces by seed. It inhabits waste fields, cultivated fields, meadows, pastures, roadsides, and dry places (U.S. Department of Agriculture 1971:364; Muenscher 1980:423).

Liguliflorae (Chicory Tribe)

Liguliflorae refers to a subfamily of the Asteraceae containing plants such as dandelion (*Taraxacum*), endive (*Chicorium endivia*), chicory (*Chicorium intybus*), wild lettuce (*Lactuca*), and numerous others. Dandelion, chicory, wild lettuce, and similar plants are well-known as salad-greens and can be eaten either raw or boiled as a potherb. The leaves are most tender and tasty in the spring prior to flowering, after which they turn bitter. Although *Chicorium* was introduced to North America from Europe or the Orient, where it is native, *Taraxacum* appears to have had a more cosmopolitan distribution in temperate areas around the world. Chicory has basal rosettes of leaves in the spring, much like the dandelion; however, it sends up a stalk nearly four feet tall in the late spring, producing edible flowers that last from late spring to early fall. These vivid, beautiful blue flowers, coming after the edible leaves have been harvested in the spring, might have added to the desirability of this plant. The roots of many of the members of the Liguliflorae tribe can be eaten raw or dried and ground to brew a beverage. Dandelion and chicory roots are the most well-known, with roasted chicory roots having become quite famous as an economical and delicious coffee substitute and having the medicinal benefits of being calming and enhancing liver function (Brill and Dean 1994:234-235; Harrington 1967:99-102; Hedrick 1972:166-168, 563-565).

Cyperaceae (Sedge Family)

Members of the Cyperaceae (sedge) family are perennial or annual grass-like herbs with creeping rhizomes and triangular stems. They grow in damp to marshy habitats, although some are adapted to drier habitats. *Carex* is a sedge that persists as a weed in grasslands and on recently drained areas. Some species of *Carex*, *Cyperus*, and *Eleocharis* are used as ornamental plants for pools (Muenscher 1980; Zomlefer 1994:347).

Cyperus rotundus (nut-grass) is a perennial sedge that is often noted to be a troublesome weed. It frequently grows in cultivated ground and along bottomlands. *Cyperus esculentus* (yellow nut-grass) also can be a troublesome weed in cultivated ground and also grows in sandy soil. *Cyperus strigosus* is perennial and grows in meadows, damp thickets, bogs, and marshes, as well as along wet shores (Fernald 1950:244-245).

Dulichium arundinaceum (three-way sedge) is a perennial herb of North American origin, found at the margins of pools or streams or in open wet places such as marshes and swamps from Newfoundland to British Columbia and south to Florida, Texas, and California (Fernald 1950:248).

Eleocharis (spikerush) has mainly leafless stems and seed clusters arising in a clump from a matted rootstalk. Spikerushes are found growing in marshes and along shores, and *E. palustris* is a common weed of rice fields. The tuber of *E. tuberosa* (water-chestnut) is universally used as food. It is in greatest demand and largely cultivated all over China (Hedrick 1972:251-252; Muenscher 1980:46-47; Reid 1987:55).

Fimbristylis (fimbry) are annual or perennial sedges with triangular stems and a flat leaf blade. Species of *Fimbristylis* are found in wet areas and sandy or barren soils of the eastern United States and southeastern Canada (Fernald 1950:260-262; Hickey and King 1981:448; Zomlefer 1994:347).

Scirpus (bulrush, threesquares) are annual or perennial sedges common in the eastern United States. Bulrushes have cylindrical, bullwhip-like stems, while threesquares have triangular stalks. *Scirpus* plants can be found in woods, thickets, meadows, pastures, rice fields, ditches, swamps, bogs, marshes, and in other low, wet places (Britton and Brown 1970:326; Martin 1972:31; Muenscher 1980:151).

Euphorbia (Spurge)

Euphorbia (spurge) are typically considered to be common, poisonous weedy plants. They occur as annual or perennial herbs, and many species have an acrid milky sap that will irritate the skin and membranes of the eyes and mouth. Although most species are considered bothersome weeds, some species have been used in a variety of ways. Spurge has been used to treat snake bites, asthma, and bronchial congestion. The juice of *E. marginata* (snow-on-the-mountain) has been used in Texas to brand cattle. Other species, such as *E. pulcherrima* (poinsettia), are grown as ornamentals. *Euphorbia* is found throughout the United States along roadsides and in fields, meadows, pastures, waste places, gardens, and yards (Kirk 1975:32; Muenscher 1980:298-305; Niering and Olmstead 1979).

Discussion

The eighteenth century historic Kendal Plantation contains remains of at least two colonial structures and three antebellum structures. A total of seven sediment samples submitted for pollen and phytolith analysis derive from general fill in the colonial house and kitchen, the nineteenth century root cellar, and from midden and trash areas (Table 146). Results from this study intend to provide additional information concerning food refuse and cooking activities.

Colonial Midden 1

Two samples were collected from the

Table 146.
Provenience Data for Pollen and Phytolith Samples

Colonial Kitchen Midden 1	
180R0, Lv 2	PRI Sample 5, sediment
175L5, Lv 2	PRI Sample 6, sediment
Colonial Kitchen	
120R40, Lv 2	PRI Sample 3, sediment
125R80, Lv 1	PRI Sample 2, sediment
Colonial House	
140R170, Lv 1	PRI Sample 1, sediment
19th Century Root Cellar	
40R180, Floor	PRI Sample 4, sediment
Mixed Middens	
Feature 2, N½	PRI Sample 7, sediment

midden. Pollen records for samples 5 and 6 are considerably different in spite of the fact that both derive from Level 2. Both exhibited small quantities of Caryophyllaceae, *Corylus*, and *Eriogonum* pollen, representing a plant in the pink family, hazel, and wild buckwheat. Low-growing plants in the pink family and wild buckwheat are likely to have grown on the midden, while hazel probably grew in a drainage or wet habitat. Sample 5 yielded the largest quantity of *Pinus* pollen, reflecting pine trees, while sample 6 exhibited an elevated *Quercus* (oak) pollen frequency. Low-spine Asteraceae and High-spine Asteraceae pollen were more abundant in sample 5, while *Ilex* (holly) was far more abundant in sample 6. Recovery of *Ilex* pollen associates holly with the midden deposits either because it grew there or because it was processed, used, and subsequently the remains were discarded in the midden. Holly might have been processed as a medicine or used as a decoration for Christmas or perhaps at other times. Recovery of aggregates of *Ilex* pollen in sample 6 indicate that if holly did not grow in this area of the midden, then flowering branches of holly were discarded here. *Lonicera* pollen, representing honeysuckle shrubs or vines, and Cyperaceae pollen, reflecting sedges, were recovered only in sample 5. Small quantities of Rosaceae and *Typha angustifolia*-type pollen, indicating a plant in the rose family and cattails, were observed only in sample 6.

Cerealia pollen was noted in both samples, documenting discard of kitchen debris including flour and possibly baked goods in the midden.

Sample 5 exhibited a large quantity of fern spores and a large quantity of microscopic charcoal suggesting dumping ash. Total pollen concentration for sample 5 was approximately 900 pollen per cc of sediment. Sample 6 yielded fewer fern spores, less microscopic charcoal, and a total pollen concentration of more than 1400 pollen per cc of sediment.

The phytolith records from samples 5 and 6 are similar to that of samples 2 and 3 from the kitchen with the exception that no *Commelina* seed phytoliths and no lenticular starch were recovered. Both contained small quantities of cross bodies, reflecting tall grasses. Sample 6 yielded a slightly elevated dendritic elongate frequency suggesting discarding cereal flour in this area.

It is interesting that there are almost no dicot bulky irregular phytoliths in either of these samples, as these forms are noted in mature *Ilex* leaves. Given the absence of these phytoliths it is less likely that holly grew on the midden and more likely that the midden was the recipient of pollen obtained through processing holly, perhaps as tea.

Colonial Kitchen

Two samples were collected from the kitchen. Both yielded very large quantities of microscopic charcoal, but in sample 3 the microscopic charcoal completely overwhelmed the pollen signature. Sample 2 yielded moderate quantities of *Pinus* and Amaranthaceae pollen and slightly smaller frequencies of *Quercus* and Poaceae pollen representing pine, plants in the amaranth/goosefoot family, oak, and grasses. Small quantities of *Carya*, Low-spine Asteraceae, High-spine Asteraceae, and Liguliflorae pollen indicate hickory, ragweed, other plants in the sunflower family, and dandelion-type plants. The small quantity of Cyperaceae pollen probably reflects sedges growing as weedy plants with grasses or perhaps in a wetland community.

Table 147.
Observed Pollen Types

Arboreal Pollen	
Carya	Hickory, pecan
Pinus	Pine
Quercus	Oak
Ulmus	Elm
Non-Arboreal Pollen	
Amaranthaceae	Amaranth family (now includes Chenopiaceae based on genetic testing and the pollen category "Cheno-ams"
Asteraceae	Sunflower family
Low-spine	Includes Ragweed, Cocklebur, Sumpweed
High-spine	Includes Aster, Rabbitbrush, Snakeweed, Sunflower, etc.
Liguliforae	Chickory tribe, includes Dandelion and Chicory
Caryophyllaceae	Pink family
Cephalanthus	Buttonbush
Corylus	Hazel
Cyperaceae	Sedge family
Dalea-type	Prairie clover
Eriogonum	Wild buckwheat
Euphorbia	Spurge
Ilex	Holly
Lonicera	Honeysuckle
Poaceae	Grass family
Rosaceae	Rose family
Typha angustifolia-type	Narrowleaf cattail
Cultigens	
Cerealia	Economic members of the Grass family including *Triticum* (wheat), *Avena sativa* (oats), *Hordenum vulgare* (barley), and *Secale cereale* (rye)
Indeterminate	Too badly deteriorated to identify
Spores	
Monolete – smooth	Fern
Trilete – smooth	Fern
Other	
Microscopic charcoal	Microscopic charcoal fragments
Total pollen concentration	Quantity of pollen per cubic centimeter (cc) of sediment

This sample exhibited a total pollen concentration very similar to that in sample 1, estimated at more than 2,650 pollen per cc of sediment. Large quantities of microscopic charcoal were observed in both samples, probably reflecting use of a wood stove in the kitchen. In sample 3 the very large quantity of microscopic charcoal prevented a full pollen count and reduced the total pollen concentration to approximately 550 pollen per cc of sediment.

The phytolith records from these two samples were dominated by chloridoid phytoliths, representing short grasses that grow in sunny locations and tolerate drought. Few festucoid or cool season grass short cells were observed and most of those were rondels. A few bilobate and polylobate forms represent tall grasses. Grasses also are represented by elongates, trichomes, and bulliforms. A single *Commelina* seed phytolith was observed in sample 2, reflecting local growth of weedy dayflower. Its seeds produce unique phytoliths allowing identification at the genus level. Elongate dendritic forms were observed only in sample 3. Lenticular starch was part of the record in sample 3, indicating the presence of cereals. Diatoms and sponge spicules were observed in both samples, documenting dampness

or ground moisture. Charred Asteraceae tissue was observed in sample 3 suggesting burning a member of the sunflower family, possibly as part of weed control efforts.

Colonial House

Sample 1 yielded a pollen record dominated by *Pinus* pollen, reflecting pine trees growing in the general vicinity of the house (Figure 205 and Table 147). Pollen released by these trees overwhelmed other pollen in the sample. Small quantities of *Carya* and *Quercus* pollen reflect hickory and oak trees. Recovery of small quantities of Amaranthaceae, Low-spine Asteraceae, High-spine Asteraceae, *Cephalanthus*, *Corylus*, Poaceae, and Cerealia pollen represent a weedy plant in the amaranth/goosefoot family, ragweed or similar plants, members of the sunflower family, buttonbush, hazel, grasses, and cereals such as wheat or rye. The location sampled appears to have contained stored or discarded cereals. It is marked by a substantial quantity of microscopic charcoal and yielded a total pollen concentration of more than 2,650 pollen per cubic centimeter (cc) of sediment.

The phytolith record yielded moderate quantities of rondels and chloridoid saddles representing cool season and short grasses, respectively (Figure 206). Recovery of small quantities of keeled rondel, *Stipa*-type bilobates and trapeziform phytoliths also indicate festucoid or cool season grasses. A few elongate dendritic forms were noted. Dendriforms originate in the bract material (lemmas, paleas and glumes) that surrounds the seed (caryopsis) of some wild and domesticated grasses. They are very common in the bract material of Pooideae grasses that are native to North America. This sample yielded only a few dendriforms; however, when multiple dendriforms (more than 2%) are present their recovery suggests processing grass seeds. This is because the dendriform-bearing plant material that encapsulates the grass seed is never entirely removed from all of the grains or grass seeds during processing. These dendriforms can then be cooked, digested, and incorporated into the archaeological records. Disarticulated dendriforms cannot be reliably ascribed to a particular grass, and are instead broadly representative of the consumption of cool season grass seeds including cultivated cereals. Dendriforms are particularly abundant in the glumes of festucoid or cool season grasses. Thus, they are anticipated in quantities greater than 2% when grass seeds or cereals have been processed. Recovery of only a few elongate dendritic forms suggests processing ground cereals into a white rather than whole wheat flour.[1] This interpretation can be made only because Cerealia pollen was recovered in the same sample indicating the presence of cereals.

Small quantities of bilobate and polylobate forms represent tall grasses. Non-specific grass forms noted include bulliforms, elongates, and trichomes. Only a few dicot-type phytoliths were observed and they were not specific at even the family level. Diatoms and sponge spicules were noted, representing algae growing in the sediments.

Root Cellar

Sample 4 was collected from the root cellar. The pollen record was dominated by *Pinus* pollen, reflecting local pine trees. A moderate quantity of *Quercus* pollen represents oaks growing on the plantation. Small quantities

[1] Burnett and Harbury both agree that white flour was readily available to the wealthy in the eighteenth century. Burnett indicates that it became more common throughout the eighteenth century, gradually ceasing to be "the luxury of the better-off classes," becoming the normal food of Englishmen (Burnett 1976:14). Harbury observes that, "more-refined white breads, such as manchets, made of fine white flour, were either made by the housewife of the manor or purchased in London shops" and was equally popular with the upper classes in Virginia (Harbury 2004:96). Dyer comments that, "The whitest bread was much admired, so an eighth or a fifth of the grain was milled off, or even as high a proportion as a quarter and a third. The resulting bran was not wasted but fed to the animals, often in the form of specially baked horsebread" (Dyer 1989:57) Thus, the evidence of refined white flour at Kendal is consistent with the high status of the settlement's occupants.

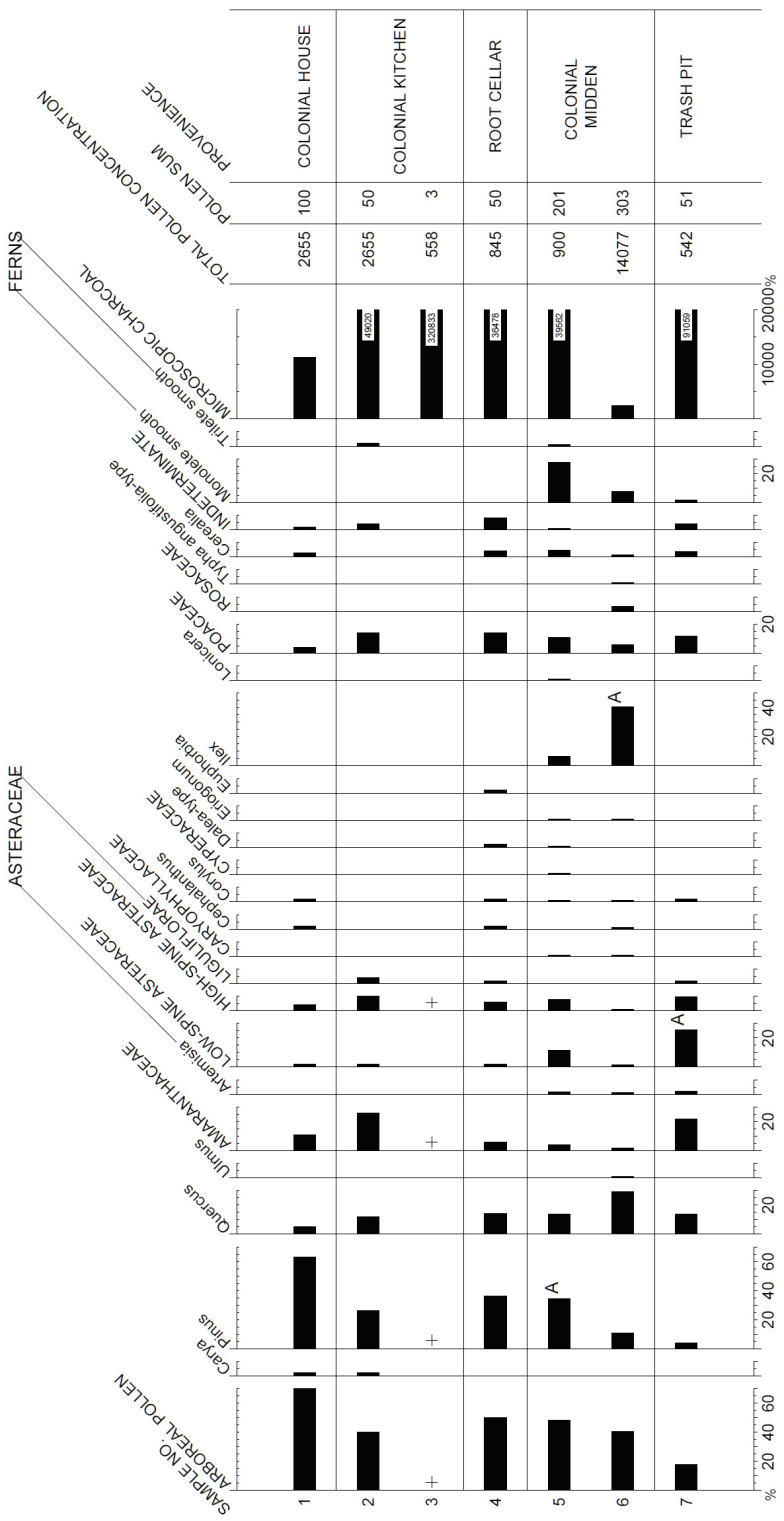

Figure 205. Pollen diagram for the Kendal Plantation samples.

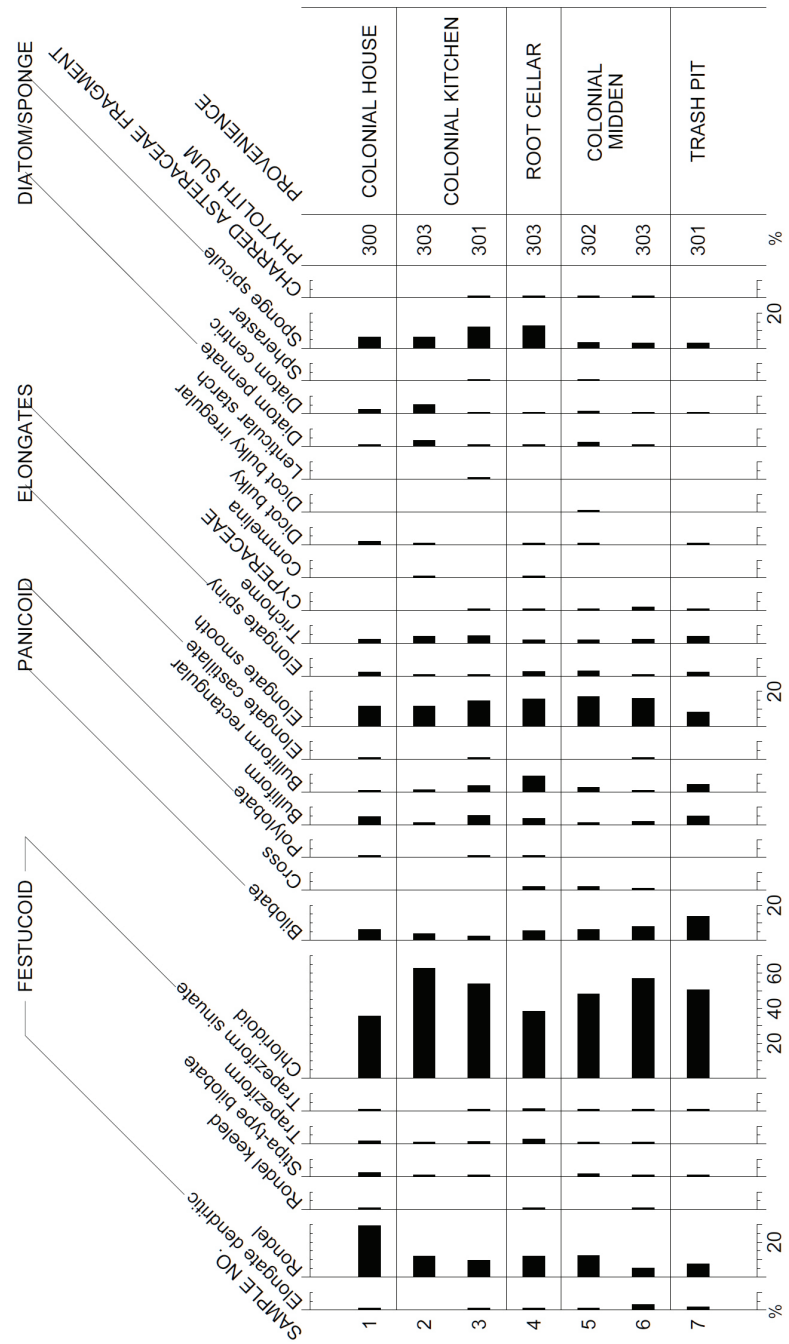

Figure 206. Phytolith diagram for the Kendal Plantation samples.

of Amaranthaceae, Low-spine Asteraceae, High-spine Asteraceae, and Liguliflorae pollen represent local weedy plants in the amaranth/goosefoot and sunflower families. Recovery of small quantities of *Cephalanthus* and *Corylus* pollen represents buttonbush and hazel growing in moist ground. Local growth of prairie clover, spurge, and grasses are indicated by *Dalea*-type, *Euphorbia*, and Poaceae pollen. Recovery of Cerealia pollen indicates cereals were stored in the root cellar. Less microscopic charcoal was recovered from the root cellar than the kitchen samples, although it was still rather abundant. Total pollen concentration was approximately 850 pollen per cc of sediment.

The phytolith record was similar to that from the Colonial house. Differences included recovery of a few cross-shaped phytoliths attributable to tall grasses and presence of a single Cyperaceae phytolith indicating sedges. Elongate dendritic forms were present, suggesting the presence of cereals. *Commelina* was present again, indicating local growth of dayflower. Weedy plants such as dayflower may grow in fields of cultivated crops such as wheat and other cereals. If *Commelina* seeds were accidentally harvested with cereals these phytoliths might be part of the weedy plant component that often accompanies cultivated crops. Charred Asteraceae fragments note burning a member of the sunflower family. No starch was observed and phytoliths do not appear to represent goods stored in the root cellar.

Mixed Middens

The pollen record from the trash pit in the mixed middens was most similar to that of the Colonial kitchen in quantities of Amaranthaceae, High-spine Asteraceae, and Poaceae pollen. It exhibited a larger Low-spine Asteraceae pollen frequency, probably the result of ragweed growth in the trash pit. Cerealia pollen was observed, indicating discard of cereal flour and possibly baked goods. The large quantity of microscopic charcoal suggests discard of ash, possibly from the kitchen. Total pollen concentration was low at almost 550 pollen per cc of sediment.

The phytolith record was similar to that of samples from the Colonial midden. The signature was dominated by chloridoid saddles and phytoliths from both cool season and tall grasses. Several grass forms including rondel keeled, trapeziform, cross-shaped, and elongate castillates were present in the midden samples, but not the trash sample. The dicot bulky irregular form, noted only in midden samples, also was not observed in the trash sample. No *Commelina* seed phytoliths and no lenticular starch were observed. A few elongate dendritic forms were noted, which is consistent with discard of white or processed cereal flour or baked goods. This sample contained a limited signature of dampness with fewer diatoms and spheraster than the midden samples. No charred Asteraceae fragments were noted even with the elevated amount of microscopic charcoal.

Summary and Conclusions

Pollen and phytolith analysis of general fill samples from the Colonial house, Colonial kitchen, Colonial midden, root cellar, and trash pit from a mixed eighteenth and nineteenth century midden at the Kendal Plantation provides evidence of availability of cereal grains, probably processed into flour. Recovery of only a few elongate dendritic phytoliths suggests the flour was heavily processed to yield white or refined rather than whole wheat flour. There is surprisingly little evidence of food other than cereal flour. No Apiaceae pollen was observed that might suggest use of celery seed as flavoring. Likewise, Myrtaceae pollen, indicating cloves, was absent. The pollen record appears to present an excellent environmental signature of trees and weedy plants growing on the plantation.

The phytolith record indicates local growth of drought-tolerant short grasses and only a few cool season or tall grasses. *Commelina* seed phytoliths were recovered from individual kitchen and root cellar samples suggesting the possibility that dayflower was a weedy plant growing in the wheat or other cereal fields. In this case it is possible *Commelina* seeds were introduced into the harvest and ground with the

cereals.

Recovery of *Ilex* pollen from the two midden samples and the absence of phytoliths typical of mature holly leaves suggests holly was processed into a medicinal beverage, a portion of which was discarded in the midden.

Oysters

The only shellfish found in any density at Kendal were oysters (*Crassostrea virginica*) [1], although occasional specimens of knobbed whelks (*Busycon carica*) were recovered, probably because they co-occur with oysters as a predatory species (Galtsoff 1964:435). Previous discussions have documented that while mortar production at Kendal relied on limestone rock, much of the plaster used shell-based lime. These discussions will briefly consider the oysters at Kendal in a dietary context.

Estuarine Environment

Oysters have an ability to adapt to a range of environmental conditions. Consequently, while oysters thrive in salinities ranging from 5 to 30 ppt, they will survive in ranges from 3 to 40 ppt (Burrell 1986:10; Galtsoff 1964:381, 404). Fluctuations generally do not adversely affect oysters, especially if of short duration. In fact, brief influxes of fresh water can assist oyster colonies by reducing predators and restoring bed productivity.

Oysters will grow equally well on hard, rocky bottoms or on semi-hard mud that is firm enough to support the oyster's weight. Shifting sands, soft bottoms, and areas with intensive siltation are unsuitable and oyster reefs in such areas will soon die and be covered (Galtsoff 1964:399). These environmental conditions are often reflected in the shape of the shell. Galtsoff observes that,

> Specimens growing in calm water on flat surfaces have a tendency to acquire a round shape and to have poorly developed umbones [hinges]. On soft bottom and overcrowded reeds the same species tend to form long and slender, laterally compressed bodies with hooklike umbones (Galtsoff 1964:2).

Examples of the latter are the so-called "coon oysters" that grow on overcrowded reefs exposed during low tides. Oysters grown under poor conditions may have thin, fragile shells (Galtsoff 1964:18).

Today, oysters considered marketable usually measure 4 to 6 inches in height (i.e., the distance between the umbo and the ventral valve margin; in contrast, the length is the maximum distance between the anterior and posterior margin).[2] Oysters of this size might range from 3 to 5 years old (Galtsoff 1964:20).

Today, the Cape Fear River exhibits some degree of salinity from its mouth to about 2 miles above Wilmington. In the vicinity of Kendal Plantation, a 1995 study found salinity levels of about 20 ppt (Benson and Parman 1995). A more recent year-long study found an average salinity

[1] It is usually difficult to distinguish juvenile *C. virginica* from *O. equestris* with the latter's maximum size range 35-55mm (Markwith 2010). No effort was made to do so in this study.

[2] Historically, however, size limits weren't established until about 1893, when a limit of 2½-inches was imposed on rock oysters. Prior to this the only real concern that North Carolina evidenced regarding oysters was to prohibit the dumping of shells in channels since doing so would impede navigation (Colonial and State Records of North Carolina, vol. 23, pg. 669; vol. 24, pg. 504). In 1822 North Carolina passed a law limiting oystering to the use of hand tongs and prohibiting the export of North Carolina oysters to other states (Daniels 2015).

of 14 ppt, with a range from 0.3 to 26.2 ppt. The lowest readings occurred in June and July at all of the monitoring stations, perhaps suggesting some off-normal event (Mallin et al. 2013:25). These data suggest the Cape Fear River and its creeks, in spite of rising sea levels, are still sufficiently saline to support healthy oysters.

Historical Accounts

The English were well aware of oysters and they were viewed as inexpensive in the London markets, with 200 being bought for 4s. in 1701 (Drummond and Wilbraham 1991:191-192).

One of the earliest descriptions of North Carolina oysters comes from Dr. John Brickell, who in 1737 wrote,

> They are of a different shape, from those with us, for those in Carolina are very long and large, and not round as ours are. They are excellent good, and nourish as much as any Fish whatever, and that without any manner of danger of Surfeiting. They strengthen the Stomach, cause an Appetite, and breed good Juices, being light and easy of disgestion, and are good in Consumptions, and several other disorders. These Oysters pickled, are well relished, excellent good for a Cold raw and squasy Stomach (Brickell 1737:243).

Lawson reported that oysters were found "almost in every Creek" and were "very good and well-relish'd," often being pickled (Lefler 1967:164). Oysters were worthy again of brief mention in 1773 when they were described as "of a fine flavor" and abundant on the coast (Scotus Americanus 1773).

It was not, however, until oysters became commercially valuable that the state of North Carolina began to examine the resource in any great detail. Even then, when Francis Winslow published his detailed report on North Carolina oysters in 1889 he focused on the north coast, just mentioning the Cape Fear once and providing no details on its oyster beds (Winslow 1889:102).

Kendal Oysters

Table 148 shows that oysters were primarily recovered from colonial contexts at Kendal (where nearly 350,000 g of shell were recovered), becoming scarce in the nineteenth century settlement (where only 14,000 g were recovered). Whether this was a result of changing environmental conditions, changing disposal patterns, or changing dietary patterns is unknown.[3]

Although present in a variety of eighteenth century contexts, most oysters were recovered either around the house or kitchen, the two areas where oysters likely formed some component of the Kendal diet (62% of the shell was recovered from the Colonial House, with an additional 30% recovered from the Colonial Kitchen).

Table 148.
Oyster Shell in Kendal Assemblages

Location	Shell wt (g)	Meat wt (g)
Colonial Kitchen	104,780	12,570
Colonial House	215,910	25,100
Colonial Midden 1	22,679	2,800
Colonial Midden 2	4,990	650
19th c House	9,979	1,275
19th c Slave House	2,722	360
19th c Store House	907	120

[3] We know that the environment was being affected by conversion of marsh to rice fields. In addition, there was a gradual increase in sea level which may have drowned areas that previously supported oysters. Disposal patterns almost certainly changed since we have a very low density of nineteenth century remains found associated with the Kendal House. Dietary patterns may also have changed with the reduced reliance on Kendal as a year-round settlement.

Figure 207. Oysters typical of Kendal.

The collection of these colonial oysters appears to have been relatively selective, with size ranges in the Colonial Kitchen ranging from 80 to 135 mm in height (with an average of 112 mm). In and around the Colonial House the oyster ranged from 70 to 130 mm in height (with an average of 95 mm). Some of the oysters are long and slender, although not as dramatically as cluster or "coon" oysters. Some of the oysters also exhibit a clearly ovoid shape more characteristic of subtidal settings. Nevertheless, the recovered oysters are consistent with intertidal oysters, being found above mean low water (see Figure 207). The chief means of collecting intertidal oysters is by hand and that was almost certainly the method used during the colonial period.

Table 148 also shows the calculated meat weight represented by the identified shell (Quitmyer 1985:40). while the nineteenth century deposits reflect a very modest 3.9 pounds (less than a single bushel). This suggests a dramatic change in the use of oysters between 1730 and 1900.

There are numerous accounts of how oysters might be prepared or be used in dining. Carson notes that they were "commonly boiled or stewed," usually after they were shelled, and then "stewed in white wine and seasonings," although

buttered shellfish were also a favorite dish (Carson 1985:37). Virginia's Langdon Carter echoes the prevalence of "very good oysters for Sauces of all kinds" and added that he had oysters prepared in "every shape, raw, stewed, caked in fritters, and pickled" (quoted in Harbury 2004: 88). She cites cookbooks that boiled pullets and oysters, combined oysters and eels in baked loaves, and provided a recipe for pickling oysters with white wine and vinegar (Harbury 2004:254, 262, 274). Carson reports that Carter had oysters harvested "twenty bushels at a time, serving part of them immediately – either raw, stewed, in fritters, or 'for Sauces of all kinds' – and pickling a few bushels for later use" (Carson 1985:92).

Shields (2015:137) describes oyster stuffed turkey, with the oysters boiled by steam and the liquor of the oysters used to create a sauce. Other common dishes included scalloped oysters, fried oysters, and vol au vent oysters (Shields 2015:126, 130).

Child recommends heating oysters on a gridiron, removing them from their shells as an addition to, "Butter melted in boiling flour and water is proper sauce for boiled lamb, mutton, veal, turkies [sic], geese, chickens, and fish" (Child 1830:57). Carter includes recipes for creating oyster and anchovy sauce, a sauce similar to that recounted by Child, fried oysters, oyster soup, oyster ragout, (Carter 1803:17, 22, 73-74, 109, 131).

Not all compilations of recipes, however, specifically list oysters. For example, the 1770 receipt book of Harriott Pickney Horry from the South Carolina low country fails to provide a single oyster recipe. Oysters are, however, mentioned in other recipes. For example, in "To Ragout a Breast of Veal," Horry used "oysters fried and stew'd" (Hooker 1984:53). It may be that to many coastal residents it seemed needless to describe the cooking of such a common resource.

Summary and Conclusions

Yentsch, in her study of Maryland's Calvert family, explains that a "rich" site is one with "many artifacts and features" or when the artifact assemblages "speak of wealth within the community" or when it "stretches the imagination" (Yentsch 1994:325). She explains how the Calvert site fits all three criteria. We believe it is reasonable to borrow this interpretation from her and apply it to the Kendal site in Brunswick County, North Carolina.

With three months of excavation and the opening of 5,000 square feet, over 115,000 artifacts were recovered. Clearly, Kendal qualifies as a "rich site" in terms of quantity. The remainder of these discussions will demonstrate not only the wealth present at the colonial occupations, but also how the Kendal investigations expand our understanding of colonial and antebellum archaeology in the Lower Cape Fear.

Living Like a King

Moving to North Carolina

Adams suggests that it was naval stores that lured planters such as Roger Moore from Goose Creek to the Lower Cape Fear (Adams 2002:65). Indeed, the motivation of "enormous immediate financial returns" likely encouraged many to give up whatever they might have had in South Carolina and move northward. But was this the case for Roger Moore and his "family"?

Certainly historical evidence reveals that Moore was engaged in naval store production in the Goose Creek area as early as 1720. But there is also evidence that he was raising cattle. We also know that he was engaged in extensive property speculation, buying low and selling high. Land remarks that, "the land speculator became a fixture of the planting society" and that many of the wealthiest families owed their success to this speculation (Land 1969:30). While he may have planted some rice, there is really no convincing evidence to support this. Brunswick exported little rice and Roger Moore's will lists nothing that can be tied to rice production. Even Clifton acknowledges that it is unlikely that more than 500 acres of rice were grown during the colonial period (Clifton 1973:368). It seems that no one has suggested indigo was a significant crop in the region (see, for example, Clifton 1973:369).

Land was difficult to acquire in South Carolina[1], but perhaps even more importantly, the colony faced a severe depression coupled with steeply rising taxes to pay for the government. The Moore family railed against all of these problems.

We identify a variety of land policies that encouraged settlement. In addition, there was a political climate in North Carolina that allowed the Moore "family" to amass vast land holdings, while others were unable to acquire any land worth owning. The Moores were staunchly opposed to paying quitrents and faced accusations of stealing lands. Roger Moore became the wealthiest of North Carolina's Royal Councillors, owning 59,155 acres of land and 253 enslaved Africans. The next

[1] It should be remembered that one reason many of Roger Moore's Goose Creek associates from the Barbados came to South Carolina was the inability to obtain land on that island (Roberts and Beamish 2013). Thus it should be no surprise that as South Carolina began restrictive land policies, they began searching for alternative locations.

wealthiest at about the same period was Cullen Pollock with only 150 slaves and 21,625 acres. Roger Moore and his "family" came to dominate Lower Cape Fear politically and economically.

Roger Moore and his immediate family established an impressive kinship network through connections with the Ashe, Swann, Moseley, Port, Davis, Jones, and Lillington clans (see Wood 2006 for a more detailed discussion).

In all of these efforts Roger Moore benefited from a dysfunctional court system, and beginning in the late 1720s the North Carolina judiciary essentially "fell apart." One researcher describes North Carolina law as a "weapon" used to achieve political goals. There is at least one historical account that suggests Roger Moore was not especially cooperative in helping a Charleston merchant retrieve owed funds.

Therefore, we suggest that while naval stores certainly provided a convenient economic base, it was the system – not any one product – that promoted the agenda of Roger Moore and his "family". It was this system that encouraged Roger Moore to make the move to North Carolina.

We'd be remiss, however, if we didn't at least mention another possible motive for leaving South Carolina. James Moore, Roger's father, who engaged primarily in the Indian and slave trade, and ranching, died in late 1706, when Roger was about 12 years old. The Anglican priest Le Jau remarked how Colonel Moore's reputation was "wrong fully Stained in a Libell," but it has taken a careful study of legislative acts to reveal that Moore died so deeply in debt to both the Proprietors and others, that if his personal estate were seized and sold, it would "not pay and Discharge the Said Debts." Moreover, even his lands were of little value since they "Lie unimproved." Other records reveal that he was indebted to the Proprietors in the amount of £2,300 (funds he collected as the "public receiver" but never turned over), and other debts amounted to over £1,800 owed to 12 individuals. His estate was valued at only £1,865.

Given the financial and legal stain on James Moore, it may be that his children (except for eldest son, James) sought a new start and a region with little law offered the perfect opportunity for a new beginning.

If we perhaps know *why* Roger Moore and many of his family members and friends moved to the Lower Cape Fear, can we determine when this move took place?

The land that would become Kendal and Orton was first acquired by Maurice Moore, but he held it only a few months before assigning the deed to his brother, Roger Moore on March 25, 1726. We know also that Roger's Goose Creek plantation, which he acquired in 1719, was sold in 1727.

Two additional deeds from 1727 were written, allowing Roger's wife, Catherine, three months to renounce her dower, something that was typically done at the time the deed was conveyed. This suggests that Catherine was not readily available to sign the renouncement, perhaps because she was in North Carolina?

A May 1731 deed identifies Roger Moore as being "of New Hanover, merchant, attorney" and a January 1735 deed identified Moore "of North Carolina." In addition, we have the 1734 account of a "Young Gentleman's" trip through the Cape Fear where he describes Roger Moore's brick house on Kendal Plantation.

It isn't. however, until 1746 when a deed identifies "Roger Moore, Esq. of Orton," indicating that Orton was a late addition to Roger Moore's sizeable estate.

Thus, we believe that about 1726 Roger Moore was making definitive plans to leave South Carolina, having already acquired the Kendal tract from his elder brother, Maurice Moore. Roger was fully established at Kendal by 1731, with his brick house only a few years old when described by a gentleman traveler. About 1746 Roger Moore moved across the marsh creek from Kendal to Orton, where he died in 1750 and was buried in a

brick vault midway between the two plantations.

Nevertheless, it is something of a misstatement to say that Roger Moore abandoned South Carolina or sold his property and left. He appears to have maintained very close business and financial ties to the southern colony, including buying and selling of South Carolina property up until at least 1747.

When Roger Moore died in 1750, his will identifies more than 20,000 acres of land, close to 250 slaves, horses, cattle, and sheep, as well as debts owed to him. Plate and household furniture was mentioned at Orton, suggesting the shift from Kendal was complete. While the number of slaves correlated well with previous accounts, the acreage seems low, but there has never been a careful analysis to determine if lands may have been divested by Moore prior to his death.

His will also mentions five carpenters, including one by name – Higate. Moore also mentions the presence of "House slaves," including Bess. What Moore does not mention are any slaves with special skills in rice or indigo, suggesting that naval stores and ranching remained his primary focus in the Cape Fear area.

Early and Evolving Architecture

While we may not know for certain why Roger Moore's first plantation was called Kendal, we can venture to suggest that the spot for his plantation was well chosen. Agnola Pandolfina, a Florentine statesman and merchant, wrote in Il Governo della Famiglia (The Governing of the Family, 1425-1430) that a house should be chosen that would last a lifetime, paying particular attention to the locality, ensuring there was clean air and that the wine would be good. It seems likely that Moore was equally careful in making his selection (although he eventually migrated across the creek to what would become Orton).

The Colonial Kitchen

The earliest settlement in the area is that of Charles Towne on Town Creek, which was occupied from 1664 to 1667. Largely defensive, this settlement was only 45 by 50 feet, consisting of earth-fast structures and ditches. The ceramics are primarily delft (35%), lead glazed earthenwares (16%), and salt glazed stonewares (11%) (Loftfield 2005). Recognized as primarily administrative, the assumption is that there were outlying farming settlements (as yet undocumented). The earth-fast structures may have been constructed of logs, which Bishir notes was common. Such structures could be "built quickly – in a day or two – and without highly specialized skills" (Bishir 2005:5).

Kendal, 60 years later (likely built by Roger Moore between early 1726, when the property was acquired, and 1727, at which time his Goose Creek plantation was sold), was nothing at all like Charles Town.

The first structure built was of brick, measuring 43 feet east-west by 20 feet north-south. It included at least a basement, an elevated first floor, and likely a garret above. At the west end of the basement was a brick chimney measuring 7.5 feet in breadth and 4 feet in depth. There was a brick hearth, but the remainder was likely floored in wood. At the east end were two small rooms, each 14 by 10 feet, for slaves. Partition walls were only one brick in thickness and the rooms had an adjoining fireplace measuring 3.5 feet in breadth and 1.7 feet in depth.

Little is known about the floors above, although they were plastered, unlike the basement. Walls, at least below grade, were laid up in English bond, made from alternating courses of headers with courses of stretchers. This is among the oldest bonding patterns and was popular throughout the seventeenth century and into the eighteenth century.

This structure may have been similar to the simple, rectangular Newbold-White House in Perquimans County (dendrochronology indicates the timbers were cut in 1730). This structure has a steep gabled roof, framed with common rafters, with front and rear central doorways. The rooms were of unequal size, with a hall into which visitors

enter and a smaller parlor to the right. Stairs in the back corner of the hall lead to the upper floor sleeping chambers. Bishir notes that the structure follows a plan common in the Atlantic seaboard from the seventeenth century on (Bishir 2005:13).

This was the structure present when Kendal was visited by the "Young Gentleman" in 1734 and one builder's trench yields a mean ceramic date of 1735. We suspect, however, that the structure was completed at least by 1730, with construction perhaps beginning as early as 1727.

Although small, this combination dwelling and kitchen was a substantial structure. Land recounts one planter who listed his expense in building a house at £200 (Land 1969:64). Bishir observes that Thomas Pollock of Chowan Precinct struggled for several years and spent £300 to build his son a "good house." Pollock complained to his Boston agents that he was "ingaged with the plague of Building," denouncing Carolina carpenters as "very indifferent, Lasy and Slow" (Bishir 2005:12, 540). Whether Pollock's experiences were common or not, it seems reasonable that Roger Moore might have used South Carolina workers, which were abundant and readily available. For example, Hart identifies "over seven hundred free white bricklayers and carpenters who worked in in eighteenth-century Charleston" (Hart 2009:212).

Bishir observes that houses such as Newbold-White (and we believe Kendal), "grew out of a tradition of craft-intensive architecture, rooted in England . . . a display of bricklayers' skill amid the small wooden houses . . . offered a proud statement of exceptional success and status for the family and the artisan who built it" (Bishir 2005:15).

We need look no further than adjacent Brunswick to see the abundance of "small wooden houses," many built about the same time, such as the Hepburn-Reonalds (Reynolds) House (ca. 1735; South 2010:69), Jones-Price (ca. 1731), Judge Maurice Moore House and Kitchen (ca. 1726; South 2010:33), and Nathaniel Moore's House (ca. 1728; South 2010:137).

Two types of bricks were found in the kitchen. The first is smaller, denser, and may be called a paver. The other is larger, less dense, but is still a very well-made construction brick, in spite of its salmon color. Both were fired at temperatures exceeding 1,000°C. The paver is rich in clay, while the construction brick has much higher quantities of sand. Both, however, were rich in MgO – a finding typical of coastal soils, suggesting a local origin. Looking at mineralogy, it appears that the two bricks are from completely different raw material sources. The wall brick is characterized by substantial angular quartz; the paver was intentionally produced from a blend of clays with a grog filler. The analysis reveals that colonial craftsman producing these bricks exhibited a high degree of technological knowledge and awareness.

It may also be important that the Colonial Kitchen (and House) were made using brick, without the addition of ballast stone which is prevalent in nearby Brunswick Town. We suspect that the reason for this has more to do with status than with period of construction or access.

The lime mortar used at Roger Moore's structures was also examined. We found that while some was produced using burnt shell, much of it was actually produced from burnt limestone. The analysis indicated a natural cement, but this was likely the result of silt, brick dust, or other pozzolan-like materials that sped up the setting of the mortar. This analysis reveals that the masons creating the mortar for the structure were aware of the technology and produced a quality product.

These findings support Bishir's comments concerning the skill of the craftsmen employed and suggests that while slave labor may have been used by Moore, they were being directed by individuals with considerable knowledge and skill. In fact, Hart, again using Charleston data, found that, "the vast majority of Charleston house-building accounts include bills for work performed by white craftsmen, although labor may have been provided by slaves or indentured servants (Hart 2009: 213).

Looking at the architectural remains at the Colonial Kitchen, we find that the bulk of the nails were of a size likely used for either wood shingles or lath, on which plaster would be installed. Larger nails, while present, represent only 38% of the total assemblage. Framing nails represent only 10% of the assemblage, providing clear support for the use of craft framing practices.

Window glass indicates that glazing was present; the small fragments may suggest small windows, such as those found at the Newbold-White House.

While humbler colonial structures made do with hand-forged thumb-latches, wealthier owners used knob latches – such as those found at the Colonial Kitchen. The presence of wrought H or HL hinges and strap hinges document both exterior and interior doors.

We believe this Colonial Kitchen was occupied for about 100 years, from Roger Moore until about the time the property was acquired from Benjamin Smith by Gabriel Holmes, Jr. in 1823.

But it was only intended as a temporary residence for Roger Moore, who likely had his mind set on an even larger and more impressive structure even as the first building was constructed.

The Colonial House

The next structure, which we have called the Colonial House, matches the kitchen in brick construction and the use of English Bond. The width of the walls, however, is more uniform and this may suggest that more effort was taken in its construction – perhaps because there was more time available?

We believe the basement, with no indication of functioning chimneys, measured about 40 by 15 feet. It very likely served as a wine cellar and provided storage. The first floor above, overhung the basement and measured about 40 by 21 feet with offset chimneys – nearly identical in size to the kitchen.

It is worth noting that Smith has failed to discover any evidence that when a new colonial building was construction, the earlier building was attached as a service wing. Instead, they remained – as at Kendal – two separate structures with separate and distinct functions (Smith 1999:108).

We are unable to provide a definitive beginning date for the structure, but we suspect it was constructed quickly on the heels of the kitchen – perhaps within a decade (and certainly after the "Young Gentleman's" visit in 1734).

The bricks are indistinguishable from those at the Colonial Kitchen, suggesting the same clay sources, if not kiln, were used. Nails appropriate for wood shingles and lath again account for 60% of the wrought nail assemblage. The hardware is primarily high-style materials, such as door locks.

What separates the kitchen from the house, however, is the plaster. While the kitchen (or more correctly the floors above the kitchen) produced abundant two-coat plaster, there was no evidence of struck moldings. In Roger Moore's house, however, we found multiple fragments of very elaborate colonial moldings. Some are typical of what would be found as crown molding. Others were probably installed as decorative frames above fireplaces.

Although one source notes the cornice molding is a common eighteenth century form, Smith helps place this plaster in context, noting that in South Carolina, "decorative plaster ornament was rare in the colonial plantations and seems to have been mostly confined to the early period" (Smith 1999:224).

Another possible difference is the quantity of window glass. At the kitchen, there were 1.3 glass fragments per square foot of excavation. At the Colonial House, this number increases to 5 fragments per square foot. Even if we are to assume

that half of all of this glass is from the antebellum Kendal structure, there is still twice as much glass at the Colonial House. This suggests larger or perhaps more numerous windows. These windows would have allowed Moore to overlook the creek entrance to his settlement; what Gibb has called, "a framed . . . portrait of the sources" of the planter's wealth (Gibb 1996:149).

Why was this second structure built? It certainly further reinforced Roger Moore's power and status in the Lower Cape Fear. But might there have been a deeper reason. Goodwin (1999:146) explains that an essential for polite entertaining was the compartmentalization of spaces, providing different spaces for different levels of acquaintances. By doubling his space Moore may have created additional compartments – or he simply may have decided that his children required more space.

Gibb explains that architecture addresses how wealth was used (Gibb 1996:245). Ames (2007:501) concurs, identifying housing as a "common marker of high status." This may include the size of a structure or the materials from which it is made. Leech also links the increase domestic brick architecture to its use by the colonial elite. It symbolized power and the unity of the political elite. It clearly marked those with brick houses as those who controlled both the landscape and other people (Leech 2009).

Similar houses, about 40 by 20 feet, were being built during the first quarter of the eighteenth century in Virginia. Bick construction was labor intensive, allowing the emergent gentry to demonstrate, visually, their power (Fiedel et al. 2012).

What should create some interest is that while during this period we see increasing Georgian symmetry, typical in English country estates (see, for example, Barile 2004), the layout at Kendal lacks any real evidence of Georgian design. There may be many explanations, including the frontier North Carolina location and the failure for the Georgia worldview to yet make inroads. It may be that Roger Moore was caught between a medieval worldview (which was traditionally governed by nature, communal, and emphasized kin relations) and the growing Georgian worldview (which was innovative, governed by reason, and emphasized individual achievement) (Deetz 1977).

Eventually Orton

While not part of this study, Orton was the final element in the evolution of Roger Moore's settlement. Sometime about 1746 Moore had shifted his estate to Orton, where he was to die in 1750.

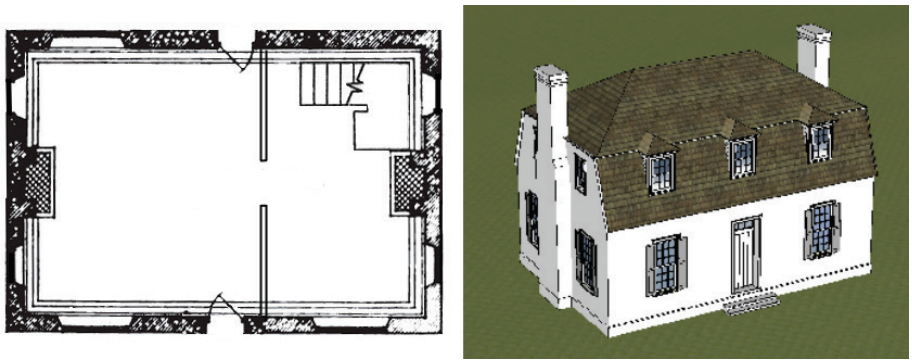

Figure 208. The Orton house, built about 1745 (3-dimensional model courtesy Nick Dawson, Belvedere Property Management, New York).

While the construction of the Orton structure is commonly attributed to 1729-1732, this seems unlikely given the evidence at Kendal and the limited historic documents. We suspect a construction date of about 1745-1746. Unfortunately, Orton itself is mute, lacking any detailed architectural and archaeological study.

What can be reconstructed from the limited evidence is that the Orton structure built by Moore was nearly identical to the earlier two structures still standing at Kendal. It measured

about 25 by 38 feet and was likely a story and a half, likely with a partial basement for storage (see Figure 208). It took nearly 100 years for the mansion to begin to look "grand."

So if Orton was no significant improvement over the structures at Kendal, why did Roger Moore move? Perhaps with a new wife (Mary Vail, who he married about 1747), he felt he needed to distance himself from his grown children? Perhaps he sought a more prominent location overlooking the Cape Fear, rather than the small creek separating the two tracts? This may be an issue that archaeology cannot successful document. What is certain is that Orton was little different from Kendal.

Early Production

Historic documents suggest that Roger Moore practiced ranching and the exploitation of naval stores on his Lower Cape Fear lands. Archaeology can provide at least a little support.

For example, cattle dominated the faunal collections; evidence reveals on-site butchering, and the elements present indicate entire cows were being butchered. This certainly suggests that Roger Moore had ample access to large cattle herds.

A cow bell was also recovered, suggesting that at least some cattle were singled out, probably for milking (and abundant milk pans are present in the colonial assemblage).

Evidence of naval store production is far more ephemeral. Naval stores required abundant wood barrels, suggesting that those active in the collection and processing might have coopers on the plantation. They would require a range of wood working tools. As prized possessions, it seems unlikely, however, that many would be found in archaeological deposits. Moreover, many of the same tools used to make barrels would have been used to build Roger Moore's houses.

The colonial assemblage includes an adze, two saw blade fragments, a triangular file, a gouge, and a chisel. These provide ambiguous evidence for naval store production.

Wooden hoops were found primarily on tobacco hogsheads and casks for dry goods exported from the colonies. Otherwise, metal hoops were primarily used, being bent and riveted cold, so no blacksmith was necessary. The colonial deposits produced 40 strap fragments with a wide range of widths. The width of the hoop depended, of course, on the size of the barrel. Consequently, with widths ranging from ½-inch to 1½-inches, Moore had a variety of barrels on his property. These straps, however, may just as easily have been on items – such as wine or beer kegs – brought onto the property as they were for barrels leaving.

The presence of a scythe, shovel, and hoe in the colonial collections might, however, give support to Roger Moore's efforts to create a garden at Kendal as it tends to support the 1743 advertisement for Peter Broddrick, an indentured servant, who "professes Gardening."

Foodways

The evidence at Roger Moore's dwellings for diet and drink is detailed and varied. Lines of evidence include the faunal remains; charred food remains; pollen and phytoliths; remnant shellfish; the ceramics, glassware, and tableware; other artifacts ranging from fish hooks to a fragment of a quern; and even skeletal evidence. Each will be briefly reviewed in turn.

Faunal Remains

Kendal yielded a large assemblage of faunal remains, primarily from the kitchen and the associated midden. Both Reitz (1995) and Walsh (1992) conclude that beef was preferred over pork by southern coastal planters. This is supported by the colonial data from the kitchen middens, and the kitchen. Only at the main house is pig slightly more prevalent than cow. In all of the colonial proveniences sheep ranks a distant third.

The assemblages also demonstrate that

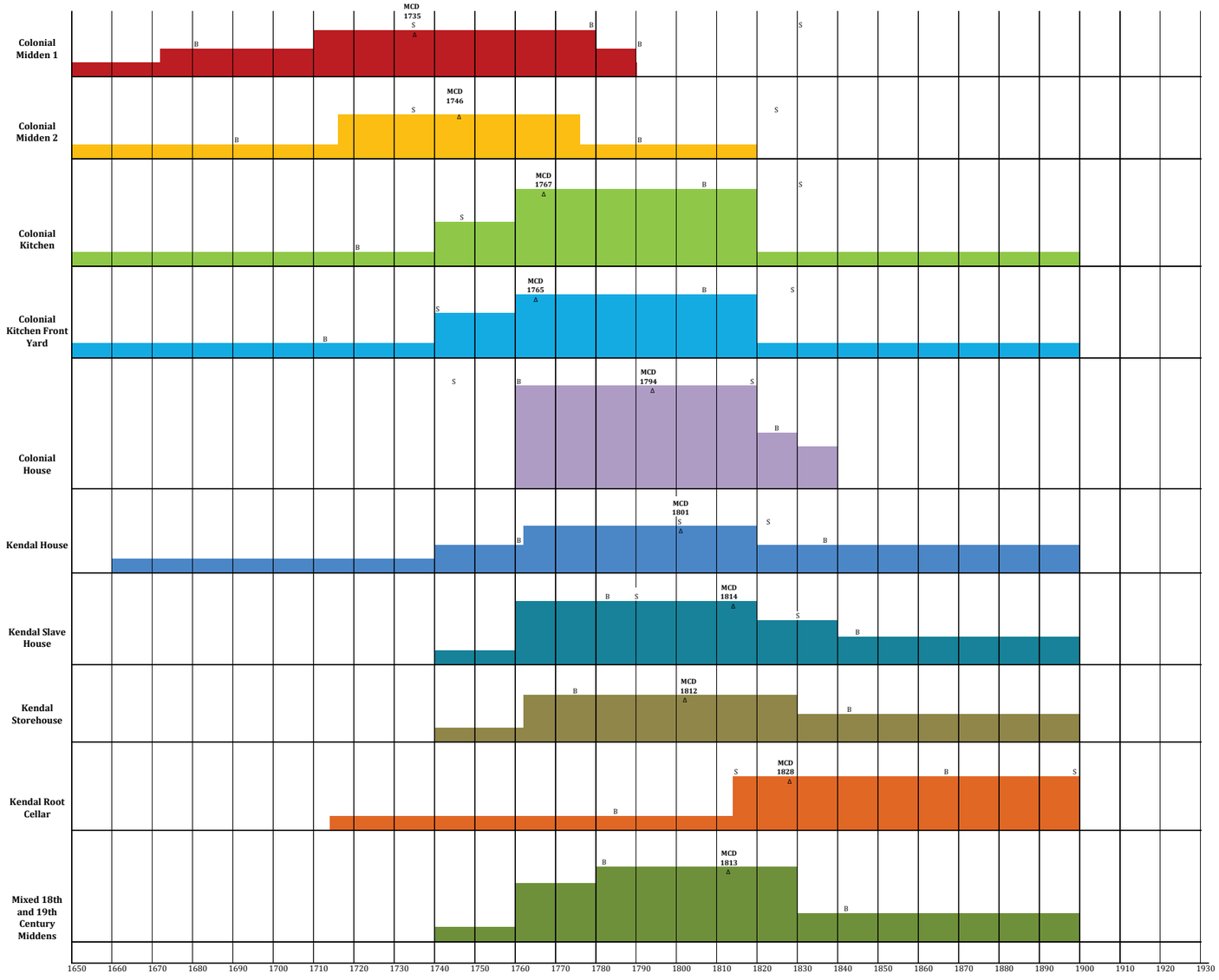

Figure 209. Comparison of the Ceramic Probability Contributions, along with both Bartovic's and South's Bracketing Dates, and South's Mean Ceramic Dates.

cattle were being butchered on-site, with the meatier cuts being preferentially found in refuse associated with the main house.

Bowen suggests that early on, colonists relied more heavily on wild resources (Bowen 1996:95). There is little evidence for this at Roger Moore's Kendal and this suggests that the Moore family, already well-established in South Carolina, came to the Lower Cape Fear well supplied.

But the diet was far from monotonous, with the Colonial Kitchen refuse including 37 different species, including deep water fish, a variety of birds, and mammals such as deer. Nevertheless, looking at biomass, 81% of the diet was beef, 5% was pork, and 1.1% was mutton. This is decidedly different than what Bowen (1996:103) reports for Virginia, where beef represented 63% of the diet, pork represented 25%, and mutton was 3.5%. Everything else represented the remaining 8.5%, while at Kendal other items account for 12.3%. The Kendal results are also distinct from the Chesapeake data, where cattle represent 50.7% of the useable meat, swine 17.3%, sheep 4.2%, wild animals 1.8%, and fish 0.7% (Walsh et al. 1997:70).

We suspect that with thousands of acres of readily available land, the Moores were able to rely heavily on free-ranging cattle. Just as Bowen (1996:112) found that the wealthiest families relied the least on wild resources, we suspect the same is true for Roger Moore. While during the Medieval period into the seventeenth century wealth and status was displayed by the presentation of great varieties of animals on the table, wealth and status during the eighteenth century began to be displayed by the presentation of meats from common animals prepared in new and "fancy" dishes (Mennell 1985).

It is not surprising, however, that venison is the most common of the wild species, representing nearly 30% of the MNI. Of course deer contribute a large amount of meat, but it also held special status. In England it was reserved for the aristocracy. Dyer (1989:61) emphasizes that game such as deer "symbolized the aristocratic style of life." In the Colonies it often signaled the use of slaves for hunting or indicated the owner had leisure time (Bowen 1996:100).

Poultry, while contributing little to the overall diet, was increasingly viewed as a delicacy. (Drummond and Wilbraham 1991:1098) and was part of "aristocratic" meals (Dyer 1989:60).

Fish seems to be far less common than might be thought based either on Kendal's Cape Fear River location or on the dietary requirements of the Church of England, with 166 fast days over the course of the year (Fagan 2006:242-243; Harbury 2004:61, 87).

Plant Foods

The ethnobotanical research unfortunately contributes relatively little to our understanding of colonial diet. The only plant foods or remains associated with colonial proveniences are peach pits and hickory nutshell. The former may well have appeared on the table, but it was also commonly fed to pigs. The latter might have been used as food, but it may also represent an accidental inclusion among fire woods.

The pollen and phytolith data are only marginally more informative. Most of the plants identified are likely weedy species growing in the yard area of the colonial settlement or pollen from pine, hickory, or oak (all found in the ethnobotanical record as probable fire wood). One colonial midden did yield cerealia pollen, mostly likely wheat, oats, barley, or rye. No rice pollen was identified, consistent with our belief that rice was not being cultivated on the plantation during the colonial period.

The colonial midden also produced an unusual concentration of holly pollen, leading to the suggestion that it was being processed for use in the kitchen. Holly could be used for an emetic, so this use is possible.

Of course, vegetables were not highly regarded in the typical English diet. Drummond

and Wilbraham (1991:125) explain that vegetables "were supposed to engender wind and melancholy." Dyer (1989:64) notes that not only were vegetables not regarded as essential elements of diet (unlike meat), but that garden items were often associated with poverty and had a low status.

Food from the Marsh

Colonial proveniences produced a small, but noticeable quantity of oysters – far more than were associated with the subsequent antebellum period. The recovered oysters were almost exclusively intertidal and ranged from 70 to 135mm in size, suggesting relatively large oysters were intentionally selected. The excavation sample analysis indicates a meat weight of about 90 pounds, equivalent to about 21 bushels of oysters.

Oysters were of course eaten out of the shell, but period cookbooks provide a variety of recipes where oysters were used for sauces and combined with other foods. Although not generally discussed at historic sites, we suspect that oysters might be another indicator of status, both because of the time required for their collection, but also because of how they were used in dining.

Skeletal Evidence

We are very fortunate to have bioanthropological data from the Moore tombs, including the tomb of King Roger Moore (Trinkley and Hacker 2014). The skeletal remains from the four vaults at Orton revealed the presence of 11 individuals: one adult male, two adult females, one teenaged male, and seven infants (two males, four females, and one of unknown sex). The individuals were subjected to DNA studies, revealing that the interments include Roger Moore, his adult sister and four of her children, an adult woman who may have been his wife Catherine, and four unidentified infants.

At the most general level, the skeletal evidence suggests that the individuals interred in the Orton Cemetery were healthy and well nourished, with no evidence of trauma (with the exception of one individual who lost a tooth in childhood). When compared to other colonial populations, the individuals at Orton were extremely healthy (although there was a high proportion of infant deaths, typical of the period).

The burial of Roger Moore was the only one suitable for parasite analysis and it produced no evidence for any associated parasites, even though parasites are generally thought to be ubiquitous during this period. The failure to encounter parasites is strongly suggestive, although not conclusive, that Roger Moore was in robust health and the plantation exhibited overall good sanitation.

Further suggestion of good sanitation is provided by the absence of rodent gnawing on animal bone recovered from the colonial settlement. This suggests that organic trash was quickly disposed of, or other means were employed to control the rodent population. We also found possible evidence of emetics or vermifuge at the plantation.

Samples of the four adult Orton samples were examined for lead content using ICP-MS. The results, ranging from 190 to 340 µg PB/g ash, represent the highest we have identified in the reported literature. These results suggest that the Moore family was exposed to very high lead levels consistent with their high social status. Males exhibited much higher lead levels than females, suggesting differential access.

Lead entered the diet through a variety of sources. Acidic foods incorporated lead from ceramic glazes. Even flint glass would contaminate their contents with lead. Pork was sometimes salted in containers with lead glaze. West Indian rum was often distilled using a lead worm. And milk pans were almost universally lead glazed (Taylor 1859:446-455).

Another very prevalent source of lead during the colonial period was wine. Wine bottles were frequently cleaned with lead shot, some of which might be left in the bottle. Drummond and

Wilbraham (1991:202) also reveal that "sugar of lead" was added for the purpose of sweetening a sour wine. Another source recommended the addition of a pint of good wine vinegar saturated with litharge (lead oxide) to each hogshead of wine and lead preparations were also used to clear a "muddy" white wine.

It seems that since wine consumption was largely a male "sport," this is the most likely the differential access. Levels of 190 µg PB/g ash were essentially the background levels from various food preparations. The exceedingly high levels likely came from wine consumption.

The skeletal analysis allowed the examination of stable isotope analysis using the carbon isotopes ^{12}C and ^{13}C and the nitrogen isotopes ^{14}N and ^{15}N were also conducted on the four adult skeletons. The findings are suggestive a meat and corn rich diet with little use of marine resources. The results are consistent with recent studies of other very high status colonial individuals.

It is also interesting to note that several infants had decayed teeth in the pattern today called "bottle mouth"; tooth development indicated that at ages 8-16 months each was taken off breast milk and hand-fed resulting in extensive dental decay. During the excavation of the colonial settlement fragments of pap boats were recovered.

The importance of breast feeding seems to have been well recognized in the eighteenth century. Caulfield comments, "the prohibitive mortality that usually accompanied artificial feeding in seventeenth and eighteenth century England made breast feeding essential (Caulfield 1952:673). Salmon states simply, "breast milk was regarded as a beneficial medicine (Salmon 1994:247). When mothers were unable to nurse or died during childbirth, "wet nursing was normally considered obligatory" (Caulfield 1952:675). Caulfield even claims that during the eighteenth century, breast milk was the most frequently advertised commodity in American newspapers (Caulfield 1952:677). For some reason neither the mother or a wet nurse were an option for these children and "dry nursing" or the use of a pap boat was chosen.

Other Evidence of Status

The Artifact Pattern

Beaman (2001; see also Gabriel 2012a, b), exploring the artifacts recovered from Tryon Palace, which he correctly characterizes as "one of the most unique elite colonial residences in North Carolina," found that South's (1977) Carolina Artifact Pattern was not adequate for such elite occupations, reflecting craft, middle class, and military occupations. Of course, Zierden and her colleagues (see, for example, Grimes and Zierden 1988) earlier proposed what they called the Townhouse Pattern, based initially on three domestic urban elite townhouses (Aiken-Rhett, Gibbes, and Rutledge).

Table 149.
Comparison of Three Artifact Patterns
(items in red deviate from the Carolina Elite Pattern)

	Kendal Colonial Kitchen	Kendal Colonial Midden 1	Kendal Colonial Midden 2	Kendal Colonial House	Revised Carolina Artifact Pattern[1]	Carolina Elite Pattern[2]	Townhouse Pattern[3]
Kitchen	49.3	59.1	67.1	47.2	51.8-65.0	42.1-64.2	58.4
Architecture	45.4	31.0	26.8	51.1	25.2-31.4	26.5-55.8	36.0
Furniture	0.3	0.3	0.2	0.1	0.2-0.6	0.1-0.8	0.2
Arms	0.4	0.9	0.1	0.3	0.1-0.3	0.1-1.0	0.3
Tobacco	3.4	7.7	5.6	0.7	1.9-13.9	0.2-4.7	2.8
Clothing	0.3	0.3	0.2	0.1	0.6-5.4	0.1-0.3	0.9
Personal	0.1	0.1	0.0	0.1	0.2-0.5	0.1-1.1	0.2
Activities	0.7	0.6	0.1	0.4	0.9-1.7	0.2-1.6	1.1

[1] Garrow 1982
[2] Beaman 2001
[3] Grimes and Zierden 1988
[4] Singleton 1980

The only substantial difference between Beaman's Carolina Elite Pattern and the Charleston Townhouse Pattern occurs in the clothing category where urban Charleston sites produce more

clothing items – perhaps as part of the need for conspicuous consumption in an urban setting.

Otherwise, both the Townhouse and Carolina Elite patterns exhibit significantly more architectural items than South's Carolina Artifact Pattern. Beaman observes that Lewis (1985:130) has suggested that high status households, having larger and more elaborate dwellings, would produce more architectural artifacts.

In two cases the colonial kitchen means are below the range associated with the Carolina pattern. This is typically explained by the artifacts having a higher degree of curation because of their value. In one case the kitchen mean is significantly above all of the patterns and we believe this is the result of that assemblage representing discard between owners.

In the case of the two buildings the architectural artifacts comprise a significantly greater proportion of the collection that would be anticipated by the Carolina Artifact Pattern. As explained previously, this is thought to be the result of the very high status architecture.

The lower than expected proportions of clothing items has been suggested by Beaman (2001:67) to be the result of "more expensive and unique materials" that would be better cared for in high status dwellings.

Beaman also anticipates that Activities Group items, representing various diverse farm, construction, stable and barn items, might not be expected in high status dwellings. This appears to be the case at Kendal, where Activities artifacts are uncommon across the board.

It appears that the only assemblages that deviate from Beaman's pattern are those from the two colonial middens, which we suppose represent very different functions than either the Kitchen or House.

Artifacts of Dining and Tea

The four blocks comprising the bulk of the colonial artifacts yielded 20,408 ceramics. Evidence of status is clearly provided by the expensive Chinese porcelains comprising 10.7% of the collection. While the proportion is low in comparison with Broom Hall (where 41% of Area C ceramics were porcelains), Roger Moore's ceramic collection is essentially the same found at the Gibbes House in Charleston and even Drayton Hall (Zierden et al. 1987:77). In fact, it is typical of early eighteenth century sites in Charleston (Zierden 2009:278).

Overglazed porcelains represent an even higher status since they reflect an additional decorative step. At the colonial Kendal settlement, they comprise 22.2% of the porcelain collection. In comparison, 15.4% of the Gibbes House porcelain was overglazed and 27% of the John Rutledge House's porcelains were overglazed (Zierden et al. 1987:49; Zierden and Grimes 1989:95).

If we examine the MNI for the ceramic vessels, we find that the colonial settlement produced 276 porcelain ceramics (46.4% hollow wares, 49.6% flat wares). There were 1,145 colonial wares represented in the collection, with 39.6% being hollow wares, 49.3% being flat wares, 5.7% representing serving wares, and 5.5% being utilitarian wares. The majority of the ceramics are flat wares, suggesting a higher status diet, but we may obtain a clearer perspective if tea wares are considered their own category. In this case, hollow wares (primarily bowls and mugs) comprise 24.0%, flat wares (plates) 45.8%, serving wares 5.0%, with the tea wares contributing over a quarter of the assemblage (25.2%).

This helps demonstrate the importance of the tea ceremony to Roger Moore, but it also reveals an assemblage intended for plated meals.

Roth provides a great deal of insight concerning the prestige of tea and the expense of both the tea and its assorted paraphernalia, which limited its use to the upper classes. He notes that "it

was restricted to the prosperous and governing classes who could afford the luxury" (Roth 1961:64). Tea would be taken in the morning, at dinner about 2 pm, and about 5 pm, often with wine, madeira and punch (Roth 1961:66). The basic equipment included a teapot, slop bowl for the mote or foreign particles, container for milk or cream, tea canister, sugar container, tongs, teaspoons, and cups and saucers. All of this would be arranged on rectangular or circular tables, often with three legs. At times the teapot would be placed on a dish or small tile-like stand to prevent damaging the table (Roth 1961:74, 88).

Many of these artifacts, including teapots, bowls, teaspoons, and cups and saucers, are found throughout the colonial assemblage. Since too few delft tiles are found to convincingly suggest their use for fireplace surrounds, we wonder if they might have been used on the tea table?

Artifacts of Drinking

Thompson (1989) observes very simply that alcohol was important in colonial America, playing a central role in social activities. He notes that,

> Men could make statements regarding their social positions through the manner in which they drank. Such statements appeared most clearly in the rituals which governed the consumption of alcohol within the core group of genteel society (Thompson 1989:549).

The most popular alcohols were beer, rum, and cider, but it was wine or punch[2] that were the preferred drinks of leisured gentlemen and just as tea required specific equipment for proper use, so too did alcohol. Thomas (2007:1) finds that wine drinking was considered a "serious sport" in the colonial period that developed not only a detailed protocol, but also special equipment.

McInnis reports that one representative inventory from Charleston (admittedly an urban setting, very different from the Lower Cape Fear) included more than 1,600 bottles of Maderia, 108 bottles of French and German wines, and several demijohns (which might contain from 3 to 20 gallons) of other liquors. She also cites a dinner party where sauterne[3], Maderia[4], and champagne[5] were served during dinner, porter with cheeses, chamberti[6] afterward, and Chateaux Margaux[7] and Maderia with the dessert course (McInnis 2009:323).

Primarily colonial proveniences produced a wealth of items associated with drinking, including 136 "wine" bottles, 66 case bottles, 10 bottle seals for "R. Moore," 59 examples of stemware, 63 tumblers, 21 glass bowls, three glassware handles, three decanters, one glass jar form, and one glass plate.

The presence of blob seals, an embossed disc of glass attached to the wine bottle, entailed a cost estimated to be nearly 1.5 times that of an unmarked bottle (Palmer 1993: 349). Only those of wealth and status would commission such bottles, and their presence was a way for the owner to demonstrate his gentility (Hancock 2009: 369; Jeffries and Major 2015:150). Such seals are sufficiently uncommon in Charleston that Zierden (2009:279) mentions their discovery at the sites of only two very wealthy gentlemen, Charles Pinckney and Miles Brewton.

Wine glasses (stemware), although

[2] A mixed drink served hot or cold based on rum or brandy, with the addition of spices, sugar, and fruit juices. Popular versions include shrub and noyeau.
[3] A French sweet wine.
[4] A fortified Portuguese wine made in the Madeira Islands (Jones and Smith 1985:9; Tuten 2008).
[5] In this period a champagne could have been a still or sparkling wine, white or red (Jones and Smith 1985:9).
[6] A red wine from Burgundy, often a Pinot noir.
[7] A Bordeaux wine.

because of their weight costing less than tumblers, were socially and aesthetically "superior" (Jones and Smith 1985:38). Collectors distinguish 14 or more bowl forms (Bickerton 1971) and period advertisements use 18 or more terms, but Jones and Smith observe that, "it is almost impossible to determine which form was intended for which beverage" (Jones and Smith1985:38). Nevertheless, Thomas comments,

> The novelty of wine glasses was that their shape had a deliberate function. The long stem distanced the wine from the table, giving the liquid an unusual importance, and the small vase-shape at the top was thought to enhance the color and brightness of the beverage (Thomas 2007:214).

The colonial Kendal collection includes stems with knobs (often called knops) and air twists. The latter were created, "by inserting air traps into the stem of the glass and then drawing the air out into spiral patterns; this style was frequently referred to as a "worm'd" glass" (Thomas 2007:90)

Tumblers would be used on the same table as stemware and might hold a variety of liquids. They varied in size from just 2 ounces to 20 ounces, accounting for the broad range in sizes reported from the colonial settlement. Most are slightly conical and both etched and ribbed specimens were recovered.

Decanters were serving vessels, particularly used for wines that would "throw" sediment, although likely used to display a wide range of alcohols. They were generally purchased in pairs and a wealthy individual would have a variety of decanters, often in different sizes, allowing display of a range of wines (Jones and Smith 1985:25). All of the Kendal decanters were engraved in flowing motifs – an added expense (Thomas 2007:84).

While these discussions help document the status of the table wares from the colonial settlement, they nevertheless represent only 0.82% of the kitchen assemblage. While comparable to that found at the colonial occupation at the John Rutledge House and Gibbes House in downtown Charleston, it is less than the 1.9% identified from Area C at the Broom Hall Plantation in Goose Creek (Trinkley et al. 1995:107) and substantially less than the 4% from the Aiken-Rhett House or the 7% from Drayton Hall (Zierden and Grimes 1989:95; Zierden et al 1987:77). One explanation is that Roger Moore likely did not have the opportunity – or need – to impress as many individuals with his wealth. Regardless, he maintained a suitably equipped table for his status.

Table 150.
Coarse Earthenwares from the Colonial Settlement

	Colonial Kitchen Midden 1	Colonial Kitchen Midden 2	Colonial Kitchen	Colonial House	Totals
Coarse red earthenware, blk lead glaze	42	102	101	107	352
Coarse red earthenware, brn lead glaze	40	108	190	50	388
Coarse red earthenware, green lead glaze		12	9	41	62
Coarse red earthenware, clear lead glaze	35	40	38	64	177
Coarse red earthenware, no glaze	28	5	20	13	66
Coarse buff earthenware, blk lead glaze	27		2	2	31
Coarse buff earthenware, brn lead glaze	2	8	2		12
Coarse buff earthenware, green lead glazed		5	7		12
Coarse buff earthenware, clear lead glaze	12				12
Coarse buff earthenware, no glaze				1	1
Coarse gray earthenware, brn lead glaze		4			4
Red earthenware, black lead glaze			4	6	10
Red earthenware, brown lead glaze	13		9		22
Red earthenware, clear lead glaze	15	30	42	9	96
Buff earthenware, black lead glaze			1		1
Buff earthenware, brn lead glaze		23			23
Buff earthenware, green lead glaze		9			9
Refined red earthenware, clear lead glaze	17	50	8	1	76
Totals	231	396	433	294	1354

Coarse Earthenwares and Colono

The colonial settlement produced a large

number of redwares, mostly coarse and primarily lead glazed (Table 150). Generally, these wares are not discussed in depth since they are not useful in dating and are utilitarian in function. In fact, rarely are they even described in most literature. As Bloch comments,

> The bulk of utilitarian coarse earthenware tends to lack meaningful categorization, instead being relegated to catch-all categories like "redware," which could refer to any red-bodied, lead-glazed vessel made within a 500-year span on one of hundreds of sites in Europe or North America (Bloch 2016:235).

However utilitarian and unimpressive they may be, Bloch notes that they "are material evidence of the friction between British mercantilist aims and colonial economic goals" since they were produced both in England and locally (Bloch 2016:247).

Our distinction between coarse earthenware and red earthenware is clear at this settlement, with the coarse materials having some grit inclusion and the red earthenware being finer. We suspect these categories simply represent variations within the type. Combined, these two account for 86.6% of the collection.

We also suspect that some of the buff paste coarse earthenwares and buff earthenwares, especially those with green or brown lead glaze, might be classified as Border Wares - earthenwares produced along the border between Surrey and Hampshire in England, starting in the late sixteenth century and continuing to the beginning of the eighteenth century. Combined, these account for 7.4% of the collection.

Using elemental analysis, Bloch recently discovered that much of the redwares being found on archaeological sites in the Chesapeake can be sourced to local suppliers – something that was unexpected. While we were not able to conduct similar studies at Kendal, they might help to determine if the buff wares are Border Wares from England or a locally produced product.

A decade ago Adams suggested that redware was a surrogate for colono wares in areas where there was insufficient clay to allow colono ware production (Adams 2002). Her data for Brunswick County is limited to Nathaniel Moore's House in Brunswick Town, where she reports colono represents 2.0% of the ceramics, compared to redwares which comprise 6.5%. Examining three sites in Columbia County, North Carolina, an area with less clay than Brunswick, she found that colono averaged only 0.4% of the ceramics, while redwares averaged 13.3% (Adams 2002:Table 5.1). She does not, however, explain the very large proportion of colono found at the Hobson-Stone slave quarters where it may have been produced (Samford 2011:11-6).

At the colonial Kendal settlement, all of the redwares combined represent 6.6% of the colonial ceramic assemblage. In contrast, the colono wares represent only 0.86% of the kitchen ceramics (n=175).

Since we observed several areas with dense clay pockets in the immediate area of the colonial settlement excavations, we aren't prepared to accept this explanation, although we admit that it is intriguing. Moreover, it is the only available explanation to perhaps explain the low incidence of colono ware on settlements along the Lower Cape Fear River.

It is certainly curious that the incidence of colono ware is so low when we suppose that the bulk of Roger Moore's slaves came from the Goose Creek area of South Carolina, where colono pottery is very common. Loftfield and Stoner (1997:9) have suggested that the Lower Cape Fear was simply an extension of the South Carolina lowcountry. If it was (and we question this assertion), that it came without the abundant colono wares found further south.

It is possible that the African American

presence at the colonial settlement did not leave a recognizable footprint. It would be helpful to have colonial slave settlements associated with Roger Moore's settlement, but the closest we come is the kitchen, where we found slave quarters in the basement. In this structure, the colono represents 2.5% of the ceramic assemblage. The two middens contain 1.8 and 1.2% colono respectively. However, in the colonial house, colono ware comprises only 0.1% of the ceramic assemblage. This strongly suggests that whatever role colono had at Kendal, it was found almost exclusively where there were African Americans. The analysis (below), however, questions whether the colono was intended for their exclusive use.

A sample of 100 colono sherds was subjected to a detailed analysis for features including sand temper size, sand temper shape, frequency of sand inclusions, temper type, surface treatments, core cross sections, rim diameter, rim form, thickness, vessel form, presence of charring or sooting, and decorations. These attributes have been defined and described in previous colono research (see, for example, Trinkley et al. 1995). It is important to observe that the assemblage is represented by small sherds and this dramatically limited the depth of the research possible.

Looking first at paste, 91% of the collection exhibited a fine paste and 92% of the sherds have sparse evidence of temper. Where temper could be distinguished it was typically angular quartz, although occasional micaceous sherds were observed (representing 2% of the collection). Most of the collection (78%) exhibited a burnished surface; the remainder were smoothed. Only 13% of the sherds exhibited any burnishing facets and most often these were on the interior of the sherds. It appears that either burnishing facets were intentionally eliminated, or the tool used was not prone to leaving marks. The average sherd thickness was 6.8 mm with a standard deviation of 1.5 mm.

Examining the firing, 46% of the collection was fully reduced and only 19% was fully oxidized. The remaining 35% of the collection was unevenly oxidized or reduced. This suggests that firing was not particularly well controlled, but that there may have been a tendency for the pottery to be fired in a primarily reducing atmosphere.

It is very difficult to determine vessel shapes from sherds 1-inch in diameter. However, when rims were present, they most often appeared to be bowl forms, with straight-sided jars a distinctly minority ware. Rim diameters averaged 9-inches, with a standard deviation of nearly 2.5-inches. These measurements, however, must be accepted with caution since rims were so small it became difficult to obtain reliable measurements. The lip thickness averaged 6.4 mm with a standard deviation of 1.3 mm – very similar to the vessel wall thickness measurements.

Two rims were identified with incisions on the interior side of the rims. In one case there was a single incision parallel to the rim; in the other case there were two parallel incisions. They appear to be intentional, but their function (if other than decorative), is uncertain.

The rims revealed two primary shapes. Flat rims account for 69% of the rims present, with round rims contributing 28%.

Only one sherd exhibited tentative evidence of coiling; six evidence laminar construction that is generally associated with slab construction or modeling. Two sherds evidence red inclusions which appear to be argillaceous clots; they not thought to be grog or intentional tempering. Only one sherd exhibits exterior charring. One sherd appears to have what is today a stripe of black pigment.

The colono from Kendal is consistent with the two studies of what has been called Brunswick from the Brunswick Town excavations (Loftfield and Stoner 1977; Richard 1998). Looking further afield, the pottery matches the type description for Joseph's (2004) Colonial Burnished, a ware that he believes was made by African Americans for use or trade in Charleston, rather than for use within the slave village. Other researchers might prefer to

classify the pottery as Lesesne Lustered (Anthony 1986, 2002, 2009).

Clothing and Personal Items

There are 103 clothing items from the primary colonial proveniences (the Colonial Kitchen, Colonial House, and the two Colonial Middens). The collection is dominated by 39 buttons. Most of these (n=37) are identified as coat buttons by Luscomb (1971). White (2005) would categorized 37 as either coat or waist coat buttons. Only two cuff buttons were identified. Thirty-five examples of buckles are present, primarily shoe buckles, although spur and other clothing buckles are also present.

Bushman comments that the gentry wore few ornaments, but "brocade trim, lace, and gold and silver buttons and buckles were part of aristocratic dress and unsuitable for the lower ranks . . . . Good buckles were necessary, and buttons were apparently an obsession" (Bushman 1992:70-71). Those buckles at Kendal that were not iron, were brass and likely plated in silver or gold. Many of the buttons were similarly plated.

There is also ample evidence of women's work, including eight pins, two thimbles, four scissor fragments, and five fragments of sad irons or heaters.

Personal items account for 44 specimens, although at least four of these are thought to be associated with the African American presence in the Colonial Kitchen.

All of the colonial coins are British, which is in contrast to Zierden's (2009:273-274) findings in colonial Charleston. There about 30% of all colonial coinage is Spanish and Zierden suggests this may be the result of Charleston's trade ties to St. Augustine and the Caribbean. She even notes that this proportion of Spanish coinage extends to lowcountry plantations.

There are three fragments of mirror in the colonial house and kitchen. Bushman places mirrors, or looking glasses, in the same category as wine decanter, dancing, or a well-fitted parlor, each "radiated its own degree of gentility" (Bushman 1992:28).

One of the items recovered from a trash midden is a fragment of brass on which is found writing specific to the Moore family. While an extraordinary find – akin to the Roger Moore wine bottle seals – this bit of trash tells a much more complex story. It demonstrates literacy, of course, but beyond that, as Bushman observes, "beyond the words, the writing itself in polite correspondence shows evidence of instruction and pains; a good hand was necessary to grace a genteel correspondence" (Bushman 1992:92).

Conclusion

Roger Moore may have been given the name "King Roger" because of his imperious behavior and there is certainly ample evidence of his high-handed, overbearing, and domineering conduct, just as there is evidence of his disdain of the limits imposed by the Carolina government and its efforts to collect taxes. But there is also no question that he created a lordly and genteel lifeway in the frontier of the Lower Cape Fear during the first half of the eighteenth century.

Whether we examine his brick houses (he built and successively occupied three), his expensive Chinese porcelains, his wine bottles with his name on the seals, the abundance of glassware, the foods he placed on his table, the number of Africans he owned, or the clothes he wore, there is no question that he lived "like a king" in the Lower Cape Fear.

Bushman remarks that gentility "envisioned an existence free of work, devoted to conversation, art, and the pursuit of pleasure" (Bushman 1992:411). This doesn't mean, however, there aren't juxtapositions. For example, we found no evidence of wig curlers, suggesting that Roger Moore and others in his family did not participate in their use. Since "wearing wigs was a highly visible emblem of male gentility" (Galke and

Stevenson 2015:333), their absence is surprising. We also found no convincing archaeological evidence of Colonial carriages and, in fact, the bioanthropological data suggests that Roger Moore was a robust walker (Trinkley and Hacker 2014:132). It appears that while Roger Moore adopted the trappings of gentility, he was still very much engaged in the work of running his plantation.

Antebellum Stagnation

With the antebellum came the rise of rice cultivation along the Lower Cape Fear. We might be justified in believing that this new pursuit brought prosperity and wealth. Curiously, the antebellum remains at Kendal do not tend to support great wealth.

The Antebellum Kendal House

The Colonial House continued to be used by George Moore after his father's death, was sold to the Davis family, then the Hooper family, with General Robert Howe owning Kendal during the Revolution. By the turn of the century Kendal was owned by the Smith family, with Benjamin Smith giving Kendal to his brother, James, as an inducement for him to come to North Carolina. Although James Smith had over a hundred slaves, we are still not able to document rice. Moreover, each of the eighteenth century owners seem to have had few ready resources and it is unlikely that many improvements were made to the property.

Almost immediately James Smith sank into heavy debt and he fought to hold off the inevitable by disposing of slaves. In 1823 James Smith "of Kendal" sold the property to Gabriel Holmes, Jr. and by 1838 rice is documented at Kendal. Although the number of slaves thought to be associated with Kendal is not great – perhaps ranging from 30 to 50 during the early antebellum – the Holmes family ownership is the first time since the Moore family that an owner of Kendal might have been sufficiently wealthy to make improvements.

Determining the origin of the Kendal House has proved very difficult since all of the artifacts tend to merge together. We know, however, that the Kendal House was built by at least 1856 and that the earlier colonial brick structures had been removed, based on a map of the property. In 1866 the "new" structure was illustrated in *Frank Leslie's Illustrated Newspaper*. Moreover, window glass dating suggests construction possibly as early as 1842.

With plantation operations consolidated by the Holmes family and rice being cultivated in the late 1830s, it is likely that money for new construction would have been available in the late 1830s and early 1840s.

The antebellum Kendal structure was a two story, wood frame structure measuring 40 by 24 feet. Over time there were at least two (possibly more) episodes of enlargement to produce the structure seen in Figure 55.

In spite of how intensively the Kendal House was used during the late nineteenth century by Frederic Kidder, we have no period accounts that describe the house or grounds – although a few photographs have survived.

The slave (later servant's) house built to the north likely dates to about the same time as the Kendal House itself: 1830s and early 1840s. Like the Kendal House, it remained standing throughout the early twentieth century and there are numerous photographs of it over time (Figure 69).

The storehouse may have been built prior to the Kendal House, but was certainly in use during the early antebellum. Measuring about 11.5 by 10.5 feet it was originally set on a ballast stone foundation. It was rebuilt at least once, using brick piers, but was demolished by the early twentieth century. The archaeological evidence provides no information concerning its use.

The root cellar was very substantially constructed with a brick foundation and floor, measuring 11.7 by 8 feet. Over this foundation was a frame structure, shown in several period

photographs. We suspect it was built at the same time as the Kendal House, sometime during the 1830s or early 1840s. At some indeterminate point it was converted from the storage of crops to the storage of miscellaneous farm items. With the loss of the Kendal House in 1919, it became a repository for trash, eventually being partially covered by soil.

Agricultural Production

As previously mentioned, we know that by at least 1838 rice was being grown at Kendal and continued to be grown by Frederic Kidder until at least 1904.

The agricultural schedules for 1850 and 1860 reveal that Kendal's value dropped by $8,000 (from $25,000 to $17,000), in spite of a significant increase in acreage, cattle, swine (which resulted in the livestock value increasing by 280%). The decline in value is also well over the estimated 8% inflation rate between 1850 and 1860. Most significantly, rice production fell from 156,000 pounds in 1850 to only 22,700 pounds in 1860.

Coclanis (1989:141) has identified that the net rate of return on rice in the South Carolina lowcountry on the eve of the Civil War was about -28.3%, declining precipitously from rates of -3.52 to -4.73 a few years earlier. If we assume that the economics were equally bleak in the Lower Cape Fear, it may help us to understand – or at least place in perspective – the findings of the 1860 agricultural census. It also sets the stage for the postbellum "recovery."

Between 1870 and 1875 a series of financial records for Kendal survive, detailing a partnership between Ann M. Holmes (later, her husband, Owen D. Holmes) and Walter G. Curtis. The records suggest that the plantation had been ravaged by the Civil War; Holmes and Curtis purchased new livestock, including a mule and oxen, plantation tools, and work was begun to rebuild the wharf and repair the rice field waterworks. Black laborers were hired and we see a variety of subsistence purchases for them, including tobacco, corn meal, and pork. By 1872 the value of the plantation was listed as $4,000.

Efforts to return Kendal to a profitable status don't appear to have succeeded. The plantation seems to have made much of its money by selling wood to local steamships and hay production on the cleared uplands.

Additional financial records have been identified from 1879 through 1881, when the plantation was owned solely by Curtis. It appears that he was again attempting to replace lost stock and repair facilities and even build a tram through the marsh. In spite of his best efforts, Curtis was unable to make Kendal profitable, losing over $1,900 on the 1881 and 1882 rice crops.

With the 1882 purchase of Kendal by Frederic Kidder, additional money was spent attempting to plant rice and make the property profitable. Kidder served as postmaster, opened a general store on his property, and continued to pay local African Americans to plant rice. By 1891 between 500 and 600 acres were planted and Kidder purchased new milling equipment.

Although Kidder continued to plant rice in the last decade of the nineteenth century, he also sought to diversify, beginning experiments with truck farming for the Wilmington market.

At the turn of the twentieth century there are very few news reports of rice and increasing attention was directed to Kidder's visitors and social activities. There is also an account that suggests Kidder was turning his attention to Florida. Whether this occurred or not has never been investigated.

We find only limited archaeological support for rice production, including several hoe fragments and a rice hook or scythe. There is evidence for continued interest in naval stores, including several turpentine pot fragments, a draw knife, and more metal hoop or strap fragments from barrels. Also present are remnants of industrial items, such as the large drive shaft found at the Kendal House, perhaps from the 1891

purchase of new milling equipment.

Just as Coclanis describes the South Carolina lowcountry's infatuation with rice, "the shadow of a dream," the same could possibly be applied to Kendal. We suggest that it was never really profitable and ultimately led to the fall of the area's economy, resulting in a "flower-crowned waste" (Coclanis 1989:159).

Status

If we examine the pearlwares and whitewares only for the primary nineteenth century deposits (the Kendal House, the Nineteenth Century Middens, the Colonial House, and Features 2, F, and I) we can develop an overall "feel" for the nineteenth century ceramics. The slave house will be examined separately.

The collection includes 450 vessels. The largest proportion of this collection (n=284, 63.1%) consists of flat wares. Hollow wares are second in frequency, at 30.2% (n=136 vessels). There are 28 serving vessels (6.2%). On the surface, this seems consistent with a planter's table and a reliance on plated meals with a variety of serving vessels, such as platters, bowls, pitchers, and tea pots.

But if we examine pearlwares and whitewares separately do we find differences?

Among the 286 pearlware vessels, expensive hand painted and transfer printed motifs comprise 55.9% of the assemblage. Moreover, over two-thirds of the collection are flat wares (n=194, 67.8%). Just over 6% of the collection consists of serving vessels. The pearlwares may not exhibit extraordinary status, but they certainly suggest a planter.

The whiteware collection is smaller, with only 164 vessels represented. Expensive motifs comprise 51.2% of the collection, with the less expensive plain, annular and edged wares contributing the remaining 48.8%. The hollow ware vessels have increased to 37.8% of the assemblage. Both the flat wares have declined to 54.9%. Serving vessels appear steady at about 6%. Thus, while the whitewares are still suggestive of a planter's table, we believe they also indicate a decline in wealth and status, especially when viewed in the context of the historical documentation.

Of course, we understand that such an interpretation needs to be examined cautiously since an alternative is that the owners did little entertaining at Kendal and felt no need to

Table 151.
Pearlware and Whiteware Vessel Forms from Nineteenth Century Assemblages

	Cup/Mug	Bowl	Saucer	Plate	Platter	Bowl	Pitcher	Tea Pot	Lid	Storage/ Jar
Pearlware, undecorated	4	1	1	9				1		
Pearlware, annular		12					1			
Pearlware, edged			2	94	1					
Pearlware, hand painted	12	10	12	13		3			2	
Pearlware, transfer printed	17	18	18	45	1	2	4		3	
Subtotals	74		194				18			0
Whiteware, undecorated	8	15	2	19	1	2				2
Whiteware, annular		10								
Whiteware, edged			1	20						
Whiteware, hand painted	6	11	3	23	1	1				
Whiteware, transfer printed	5	7	6	16		1	1	2	1	
Subtotals	62		90				10			2
Totals by Function	136		284				28			2
%	30.22		63.11				6.22			0.44

Table 152.
Pearlware and Whiteware Vessel Forms from the Slave House

	Hollow Ware		Flat Ware		Serving	Utilitarian	
	Cup/Mug	Bowl	Saucer	Plate	Bowl	Storage/ Jar	Pan
Pearlware, undecorated							
Pearlware, annular/cable		5					
Pearlware, edged				27			
Pearlware, hand painted		1	2				
Pearlware, transfer printed	9	4	5	10			
Subtotals	19		44		0	0	
Whiteware, undecorated	4	3	10	16			
Whiteware, annular		3					
Whiteware, edged				4			
Whiteware, transfer printed	3	2	1	11			
Subtotals	15		42		0	2	
Other ceramics							
Subtotals	0		0		0	0	
Totals by Function	34		86		0	2	
%	27.87		70.49		0.00	1.64	

demonstrate their wealth and status at a remote working plantation.

It is also informative to examine the edged wares. While archaeologists today typically view these as associated with enslaved African Americans, Hunter and Miller note that the pottery was intended for the middle-class table and that "some form of shell-edge was used in literally every American household during the Federal period" (Hunter and Miller 2009:9). It remained the second most common pattern until the Civil War (Miller and Hunter 1990:110).

Therefore, it should not be surprising to find shell-edged pottery at middling status planter sites. In the pearlware collection they account for 97 vessels, or 33.9% of the assemblage. They are far less numerous than whitewares, accounting for only 21 plates and saucers or 12.8% of the whitewares.

One explanation is that when edged wares were popular, they had a place on the planter's table. Over time, their popularity wore off and they represented significantly fewer purchases.

Turning to the Slave House, there are 122 pearlware and whiteware vessels. Flat wares account for 70.4% of the assemblage and hollow wares account for 34 vessels or 27.9%. This certainly doesn't appear to be a "typical" enslaved assemblage. One explanation might be that as the eventual kitchen for the main house, vessels for the owner's table were stored there. This seems unlikely given that there were no serving vessels identified in the Slave House collection.

In addition, 50.8% of the pearlware motifs were either plain, annular, or edged, while 71.2% of the whitewares were inexpensive.

We suspect a better explanation is that as "domestic" servants, they received preferential

Table 153.
Miller's Ceramic Index for the Kendal Assemblages

	Plates			Bowls			Cups/Saucers		
	#	Index Value	Product	#	Index Value	Product	#	Index Value	Product
Pearlware									
Undecorated	9	1.00	9	1	1.00	1	10	1.00	10
Annular	0		0	17	1.20	20.4			0
Edged	121	1.33	160.93	0		0	2	2.17	4.34
Hand painted	13	2.17	28.21	12	1.60	19.2	26	2.17	56.42
Transfer printed	45	3.33	149.85	22	2.80	61.6	40	3.67	146.8
Average Value			1.85			1.97			2.79
Whiteware									
Undecorated	35	1.00	35	18	1.00	18	24	1.00	24
Annular	0		0	13	1.20	15.6			0
Edged	24	1.33	31.92			0	1	2.17	2.17
Hand painted	23	2.17	49.91	11	1.60	17.6	9	2.17	19.53
Transfer printed	28	2.67	74.76	8	2.80	22.4	10	3.67	36.7
Average Value			1.74			1.47			1.87
Combined Average Index Value			1.95						

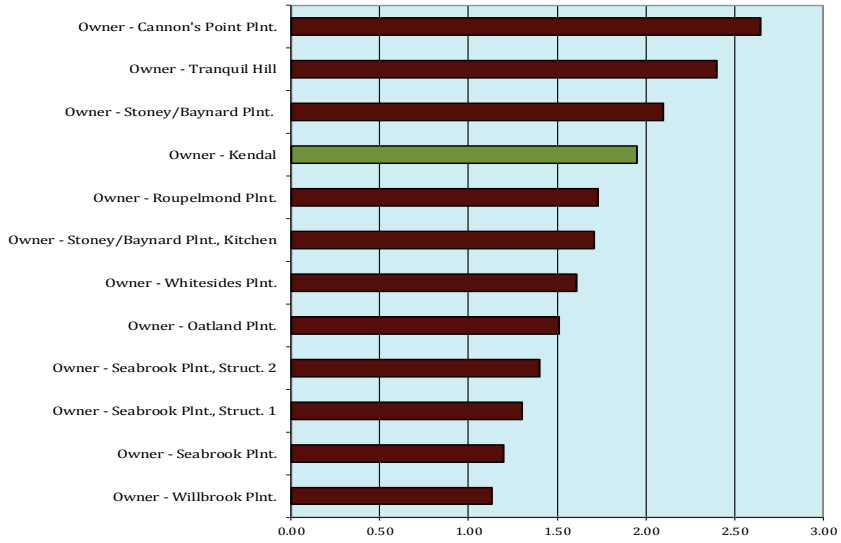

Figure 210. Kendal Ceramic Index compared to other lowcountry plantations.

foods and ceramics, or alternatively, were receiving the cast-offs from the planter's table. There is some support for the later interpretation when the proportion of edged wares in the Slave House is examined. They account for 42.9% of the pearlwares, but only 6.8% of the whitewares. This suggests as edged wares went out of style in the main house, they also went out of style in the Slave House.

Another way of examining status is Miller's (1980, 1991a) Ceramic Index. We don't have tightly dated, sealed deposits, so the indices are likely not especially accurate. Miller himself warned that, "Generating average CC index values for lumped assemblages representing over 20 years of occupation seems to be a meaningless exercise" (Miller 1991a:4). The data, however, are presented in Table 153 and Figure 210 compares Kendal with other lowcountry plantations (and we note that all of the data suffers from the same methodological concerns). Many of the problems inherent in this methodology are discussed by Magoon (1998), who should be consulted for additional concerns.

McBride and McBride (1987) suggest values of 1.2 to 1.3 can be interpreted as "middle income," with levels above and below equated with the "upper" and "lower" classes. If correct, that Figure 209 reveals that while a few planters might be "middle class," by far the majority are "upper" class. Thus, Kendal was upper status, but not as high as other planters.

Conclusion

North Carolina rice has been described as the "golden grain" (Clifton 1973). Clifton speaks eloquently of the value of North Carolina rice, yet there is little evidence that rice brought much real wealth to the region. Clifton himself acknowledges that rice plantations and slave populations were small in comparison with those in South Carolina (Clifton 1973:381). But even in South Carolina Coclanis (1989:111) suggests that progress lapsed into "economic stagnation" by the 1820s. There is certainly little at Kendal to suggest that there was any antebellum or postbellum money being made by rice agriculture. In fact, Kendal after the Civil War (and perhaps before) had lapsed into a simple subsistence economy, cutting wood, growing hay, and selling eggs to make ends meet. What profit that might have been made on rice seems to have quickly depleted by acquiring tools, supplies for the African American workers (slave or free), and attempting to plant yet another crop.

Enslaved Occupants of Kendal

While Kendal has told us a great deal about the wealth of Roger Moore and the gradual lapse of the plantation into stagnation during the

antebellum, it has provided little evidence of the enslaved who built Kendal, engaged in naval store production, prepared the food, and often cared for the plantation on a day-by-day basis.

During the colonial period we were able to glean some information from the kitchen, where two small rooms with corner fireplaces testify to the presence of African American slaves. The evidence of their lives, however, is largely intermixed with that of the colonial occupants. We were able to identify some colono pottery that likely served as bowls for their meals. We are able to observe that colono pottery occurs only sparsely. It is very similar to the pottery from Brunswick and closely resembles what Joseph (2004) describes as Colonial Burnished or what Anthony (1986, 2002, 2009) describes as Lesesne Lustered.

We also found probable evidence of their jewelry, including beads, woven wire rings, and hooped ear rings. Of special interest is the pierced and highly polished bear canine found in the kitchen and almost certainly an amulet worn by one of the enslaved kitchen workers. It is possible that the few stub stem pipes found in the kitchen were preferred by the African slaves since they resembled native West African pipes. Even seemingly simple objects such as the fragments of mirror, may relate to the magio-religious activities of Kendal's enslaved population.

What we were unable to locate at Kendal is a slave dwelling from the colonial period, so we are unable to make any comparisons to the wall trench structures found in South Carolina or the ephemeral camps identified by Adams (2002) at Samuel Neale's Columbus County plantation.

Even into the antebellum our view of Kendal's enslaved population becomes no more certain. The slave house has been difficult to interpret since it was used by both slaves and freedmen. The artifact pattern for the house resembles the Georgia Slave Artifact Pattern, developed for antebellum slaves on the Georgia coast. The major difference is the higher than anticipated kitchen artifacts, perhaps as a result of the structure likely preparing meals for the residence of the antebellum Kendal house.

The ceramics suggest that the occupants received discards from the planter's table, accounting for the abundance of flat wares and transfer printed ceramics.

Beyond these few observations, the story of Kendal's African American population must wait for additional research.

Afterword

These discussions, we believe, serve to demonstrate the richness of the Kendal Plantation site, in terms of artifacts and features, in terms of how at least Roger Moore and his family lived, and in terms of how it has forced us to change our thinking about early settlement of the Lower Cape Fear and most especially the place of Kendal and Orton.

As our introductory quote observes, reason and free inquiry are, in fact, the best and most effectual agents against error. We found no evidence to support the idea that Orton was the first structure built by Roger Moore; the archaeology and careful review of the history indicate that Kendal was the first plantation. We have found no evidence, at least in these excavations, to suggest protohistoric occupation or any Native hostilities with the Moores. Our work also suggests that Orton was not constructed as early as thought, but dates from the mid-1740s, not the mid-1730s. This research also reveals no evidence of the Moore family emigrating from the Barbados. Nor is there any convincing link between Roger Moore and the various Moores of Irish fame. Previous work has even debunked the burial tomb for Roger Moore.

None of this could have been accomplished without extremely detailed and careful historical research coupled with equally precise archaeological excavation, analysis, and interpretation; which is to say that reason and free

inquiry are always essential to progress.

But yet there remains much that is unknown. Orton, in spite of extensive architectural and landscape modification, has never been subject to any archaeological investigations – investigations that could confirm or refine our understanding of when the structure was built and its long history. While evidence at the main house may be muddied by past activities, there is the potential for information from the surrounding grounds. Survey at Kendal reveals several early sites that may hold clues to other early activities on the plantation. Many acres of both Kendal and Orton, originally cloaked in longleaf pine, have never received any archaeological survey and it is in these backwoods areas where evidence of early naval store industry will be found. Other areas, briefly surveyed, have the potential to provide evidence on the lives of the enslaved who built these plantations and the freedmen who continued operating them – but only with the same meticulous and precise historical and archaeological studies, accompanied by prompt and thorough publication as devoted to Kendal.

It is unfortunate that some questions will likely not be successfully addressed. For example, after the initial stripping of the Kendal site, which we carefully monitored, additional stripping was conducted which destroyed Colonial Kitchen Midden 1 – an area presenting some of the very earliest evidence of Roger Moore's occupation, including the bulk of his wine seals. Thus, that part of the story has been lost. So, too, have many yard areas associated with Kendal. In particular, evidence of antebellum structures, hinted at by several piers identified during stripping, have been lost to future investigation.

Thus, our study of Kendal, however illuminating it may seem, must be understood as "looking through a glass darkly."

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