TRANQUIL HILL PLANTATION: THE MOST CHARMING INLAND PLACE

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TRANQUIL HILL PLANTATION: THE MOST CHARMING INLAND PLACE

Research Series 66

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We can learn from history how past generations thought and acted, how they responded to the demands of their time and how they solved their problems. We can learn by analogy, not by example, for our circumstances will always be different than theirs were. The main thing history can teach us is that human actions have consequences and that certain choices, once made, cannot be undone. They foreclose the possibility of making other choices and thus they determine future events.

-- Gerda Lerner

ABSTRACT

This study reports on data recovery excavations at archaeological site 38DR141, Tranquil Hill Plantation in Dorchester County, South Carolina. The work was conducted by Chicora Foundation prior to the development of the tract under an OCRM Memorandum of Agreement.

Although the parcel can be traced back to at least 1683/4, the plantation and its imposing mansion was active by at least 1732/3 and was apparently developed under Col. Charlesworth Glover, an Indian Trader. The name Tranquil Hill was adopted by Richard and Ann Waring, who acquired the property in 1773. Richard Waring died in 1781, but the property continued to be operated as a rice plantation by Ann Waring until her death in the late 1820s.

Investigations included excavation and mechanical stripping at the main house, the slave settlement to the west, a domestic slave settlement to the east, and in the large gardens to the south.

The main house excavations revealed a massive brick and frame structure measuring 40.5 feet in width and 36 feet in depth with a brick floored basement. The floor plan is thought to be a through-hall with two rooms each side off a central hall. The structure was at least two floors and possibly three. We believe that it was approached from the north. The mean ceramic date for this main house was 1772, although active use extends from about 1740 through 1820.

The slave settlement, typical of the eighteenth century, consists of a number of wall trench structures loosely grouped about 500 feet southwest of the main house. The mean ceramic date for the settlement is 1773, although the core dates of the settlement extend from about 1740 to 1820 – the same as the main house. The area is dominated by slave-made Colono wares, trash pits, and at least one large clay extraction pit (from which clay was mined either for pottery or for wattling the slave structures).

About 300 feet southeast of the main house we identified several structures thought to be associated with house slaves. One structure most clearly identified measures 17 by 16 feet. It was a frame structure set on piers with a brick chimney. The mean ceramic date for this settlement is 1793, although occupation extended from about 1760 to 1830. Nearby was the well for the plantation.

Comparing the collections from the two slave settlements, we see clear differences in the artifact collections, the architectural remains, and even the food remains. The Tranquil Hill study provides good data suggesting class distinctions among the plantation's enslaved African Americans.

We also note a variety of artifacts that may suggest evidence of religious or spiritual activities on the part of the African American community. Some artifacts are typically overlooked pieces of brass or window glass. But the investigations also identified at least one sherd with a possible Bakongo cosmogram.

Behind (or south) of the main house we identified the gardens briefly described by Elizabeth Poyas. Regrettably little plantation garden archaeology has been conducted in South Carolina, so the work at Tranquil Hill is of special importance. It demonstrates the extent of data that can be cost-effectively identified. Our work defined about half of one parterre of the garden, measuring 220 by 120 feet,

encompassing about 0.6 acre (each parterre would have measured about 220 feet square). Identified in the area were planting holes, post holes, and two brick structures, perhaps follies. Artifacts from the garden area appear later than other plantation areas, suggesting that the gardens may have been developed about 1800.

The Tranquil Hill study incorporates a variety of data sets. Not only are the recovered artifacts examined, but this study also includes information on the pollen and phytoliths found on the site, a study of the chemistry of the garden soils, analysis of the faunal remains present from the different site areas, a detailed ethnobotanical study, and analysis of the mortar from the main house.

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INTRODUCTION

Background

The data recovery investigations were conducted by Dr. Michael Trinkley of Chicora Foundation, Inc. for Mr. Van Malphrus of Tranquil Hill, LLC of Summerville, South Carolina. The field studies were conducted from September 8 through November 1, 2004 with a crew of four archaeologists (Tom Covington, Virginia Livingstone, Julie Poppell, and Nicole Southerland), plus the Principal Investigator (Dr. Michael Trinkley, who was on-site throughout the project). A total of 1,200 person hours were spent on the project. Additional eighteenth century documentary research was conducted by Charleston historian Sarah Fick and the Principal Investigator; land use data and limited oral history was also collected.

Site 38DR141 was first encountered during a 1980 survey of the Eagle Run channelization project by the S.C. Institute of Archaeology & Anthropology (Scurry 1980). At that time the site was just outside the project impact area and no additional work was conducted. The site form from this initial visit mentions that, "bricks have reportedly been robbed from the site for chimney construction at [a] new house," so years of collecting surface remains may have affected site integrity. The site form also revealed that primarily eighteenth century materials were found associated and that the remains were likely that of Tranquil Hill Plantation, situated on the edge of Eagle Creek. The site was again visited in 2002, but was still not tested (Hendrix et al. 2002:54-55). The 2002 reconnaissance noted the "presence of brick, mortar, and ceramics dating from the eighteenth and nineteenth century" (Hendrix et al. 2002:56).

In the spring of 2004 Chicora was requested by the property owner, Mr. Van Malphrus, to conduct a cultural resources survey of the 25-acre Tranquil Hill tract, which contained archaeological site 38DR141. This study incorporated shovel testing at 100-foot intervals on transects placed at 100-foot intervals along the western edge of the tract. Selective 50-foot interval testing was also conducted in those areas

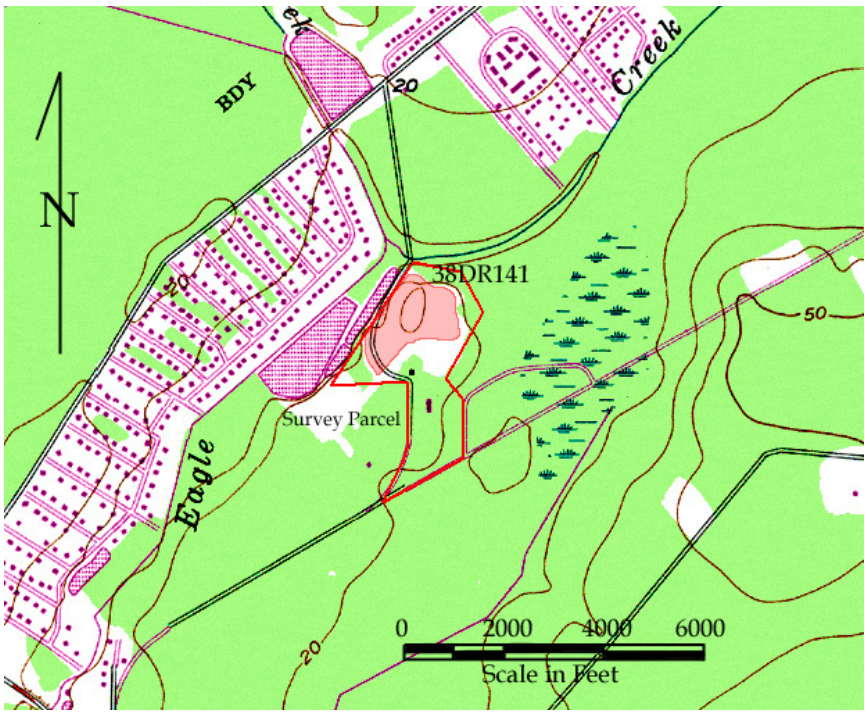


Figure 1. Site 38DR141 (Stallsville 7.5' USGS topographic map).

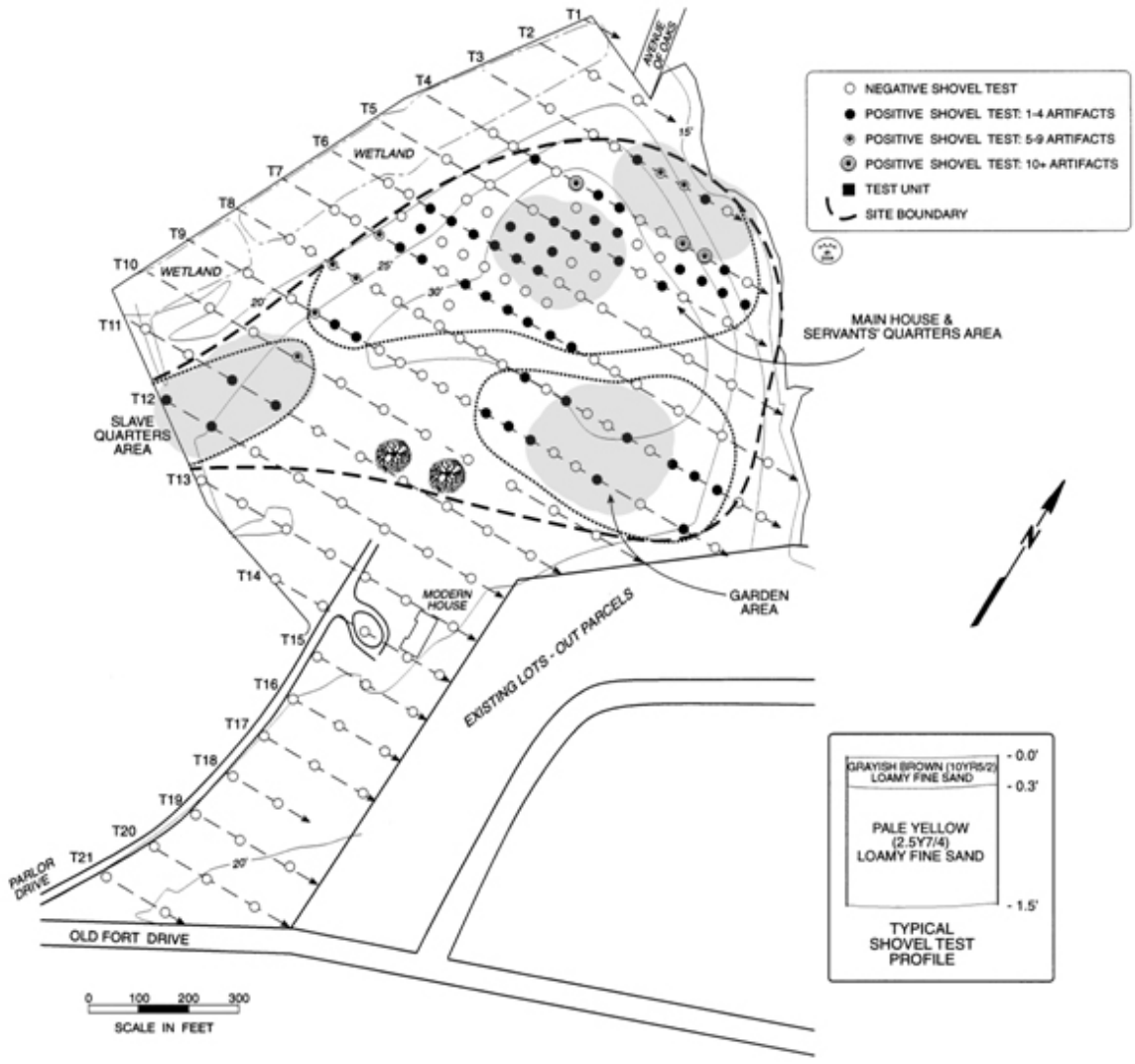


Figure 2. Sketch map and soil profile for the Chicora survey of Tranquil Hill.

exhibiting a high density of artifacts. All shovel test fill was screened through ¼-inch mesh. A total of 195 shovel tests were excavated along 21 transect lines (Figure 2). Of these, 102 (52%) were positive, producing a wide range of Colono ware, European ceramics, and other eighteenth and nineteenth century domestic trash (Trinkley and Southerland 2004). The ceramics recovered from that initial survey yielded a mean ceramic date of 1780 (Trinkley and Southerland 2004:30) and an artifact pattern that very closely resembled the Revised Carolina Artifact Pattern, characteristic of eighteenth and early nineteenth century English settlements.

The preliminary historical research was based largely on H.A.M. Smith (1988b:153), a detailed estate sale advertisement from 1732/3 that describes the house, and a single John Diamond plat from 1800. This work, and particularly the plat, revealed four distinct plantation areas:

- The main house area, encompassing a T-shaped structure and two subsidiary buildings to the west,

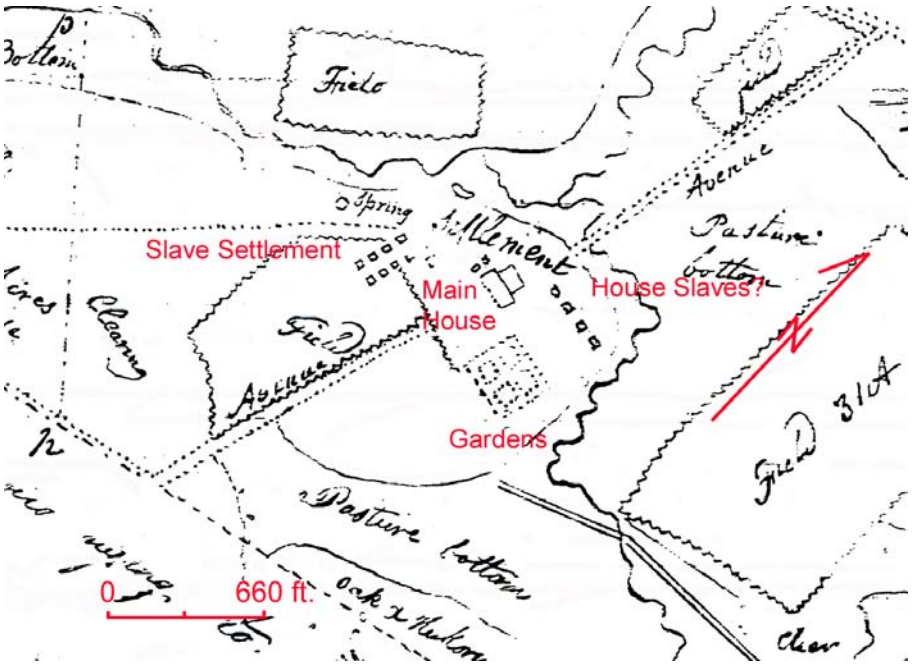


Figure 3. Portion of the John Diamond 1800 plat showing Tranquil Hill Plantation (McCrady 4888).

- A small settlement, consisting of four structures, situated to the northeast of the main settlement,
- A slave settlement with eight structures, to the southwest of the main house, and
- Elaborate formal gardens situated down slope to the east-southeast of the main house (Figure 3).

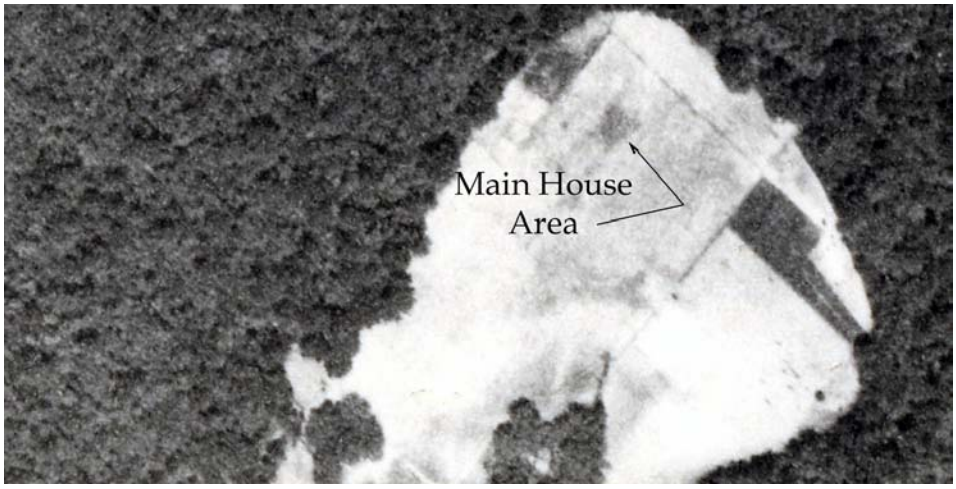
When we examined the location of positive shovel tests (Figure 2) and compare them to Figure 3, we found that the projected areas blur together. This, of course, was to be expected after years of cultivation. Nevertheless, even today the combination of artifact distribution, topography, and drainage features allows us to speculate that the main settlement was situated on the elevation still present in the field. The four structures thought to be the settlement for house slaves is situated on the slope down to Eagle Creek. And the slave settlement is situated at the western edge of the site, perhaps extending off the tract.

Examination of 1938, 1966, and 1970 aerial photographs of the tract helped confirm the extent of disturbances. These three aerials are shown in Figure 4. The earliest, from 1938, shows the parcel as an open agricultural field. The vicinity of the main house is shown as a dark, organic smear in the field. There is no clear evidence of the slave settlement, although to the east of the main house there is an unusual area that may represent some remnant of the original garden.

By 1966 there were significant changes to the property. A series of ponds had been created to the west. The main house area is still visible, as are a series of trenches, apparently for the purpose of robbing brick. The pasture in the garden area is now gone, although some remnants are found at the very edge of the property. This photograph also clearly shows a structure at the south edge of the property.

Only a few years later, in 1970, the main house area is no longer visible – the trenches have been filled in and the pasture has obliterated all evidence of the darker soil. Likewise there is no indication of the garden areas. The house at the southern edge of the tract, however, is still clearly seen.

These aerials not only provide important clues concerning the settlement areas and the changing land-use of the property, but also pose tantalizing questions. For example, the dark soil at the main settlement suggests extensive refuse and



1938, ASN 3A-43

1966, ASN 1GG-43

1970, ASN 1MM-32

Figure 4. Aerial photographs of the study tract.

organic disposal in and around the main settlement – an area where we would have expected order, organization, and cleanliness. What might these very rich, organic soils suggest?

As a result of our initial survey, the State Historic Preservation Office (SHPO) found the historic components of the site eligible for inclusion on the National Register of Historic Places for its information potential (letter from Ms. Valerie Marcil to Dr. Michael Trinkley dated June 22, 2004). Given the large size of the site, the property owner had determined that green spacing was not an option. Consequently a research plan and associated memorandum of agreement (MOA) were prepared and approved by both the SHPO and OCRM (letter from Ms. Valerie Marcil to Dr. Michael Trinkley dated August 20, 2004 and from Ms. Shannon Hicks to Dr. Michael Trinkley dated September 15, 2004).

Research Questions

The data sets that we sought to focus upon included (1) the assemblages from the three different – and distinct – areas of the plantation (main house, slave settlement, and possibly house slave area), (2) the identification of faunal remains from the slave settlement, (3) the potential for structural remains, at least at the main house area where we have historic documentation of at least the early structure, and (4) the possibility of identifying garden remains. Our data recovery plan incorporated research in these four areas. Each of these is briefly discussed below.

Tranquil Hill provides an opportunity to examine the assemblage from three different plantation areas.

It is uncommon that there is an opportunity to examine master and slave – and it is even more unusual to be presented with the possibility of examining different social status and lifeways among groups of slaves (such as field and house slaves). Tranquil Hill offers the opportunity to compare and contrast three different settlement areas, examining architecture, material remains, and faunal remains.

The site appears to be a good example of a mid-eighteenth century country settlement, capable of providing data to contrast with other eighteenth century settlements at opposite ends of the spectrum. For example, Tranquil Hill was certainly less prestigious than Crowfield or Broom Hall – both of which have had some degree of main house and/or slave settlement study.

The site also holds the promise of exploring a small settlement, possibly of house slaves – a group of people for whom we have little data. Too often the residences of house slaves are either not shown on plats, have not survived, or are not incorporated into research. While the condition of this site area was not well known, it deserved additional attention.

We consequently proposed to examine architectural remains where they could be identified. In particular we were hopeful of identifying the main house area and comparing it to the historic account. While it is certainly possible that the original structure was modified through time, we believed that the footprint of the original core would be visible in the archaeological record.

The architecture of slave settlements is surprisingly better understood than that of main houses. Nevertheless, one area of research is whether the ca. 1780 slave structures had been converted to the "better" class of dwellings with piers and brick chimneys or whether, in the country, they were still ground-fast, perhaps of wall-trench construction.

And there is virtually nothing known of architectural techniques used for house servants. Sites such as the Edward's mansion on Spring Island suggest that house servants were given preferential housing (Trinkley 1990). But whether this one example is typical is uncertain. If structural remains could be found at the area northeast of the main house, this is a question that

we intended to address.

There was a similar range of questions that concerned the material remains. While there are few cases where the master possessed not only better, but also more, items than his slaves, we can't be as certain if differences will be apparent between field and house slaves. Authors such as Dusinberre (1996) suggest that privilege was dispensed and taken away as a means of social control. He would argue that there was little that a driver or house slave would accumulate. On the other hand, we have examined at least one site where the remains were so anomalous that special privilege was the only explanation we could find (Trinkley 1993).

Figure 5. View of the main settlement area from the slave settlement.

We continue to be interested in looking at slave assemblages in new ways. For example, we remain convinced that some items take on different meanings in slave contexts – a few shards of window glass may not represent window glazing but may have been collected and held by African slaves for other reasons, perhaps magical (see, for example, Wilkie 1995, Trinkley and Hacker 1999).

A theme of continued research interest is the documentation of the types of materials found in rural plantations. We believe the examination of the refuse at such sites provides insight on whether the owners were using their plantation as a display of conspicuous consumption or whether the property was a working farm with little emphasis on display. There is some evidence, such as the gardens at Tranquil Hill, that this was intended to represent a country seat – a settlement intended for display and hospitality. If so, would the slave settlements be incorporated into this display, would they be hidden from view, or would they simply be ignored?

The examination of faunal remains is a variation on these themes – exploring intrasite differences (assuming that remains can be identified from the three areas), as well as providing additional documentation for comparison to existing plantation patterns. We are finding that efforts to replicate much of the faunal pattern pro-posed are difficult, even when the same analytical techniques are used. Of course, some (perhaps even much) of these differences may be the result of small samples and other biases. Nevertheless, we believe that it remains a distinct possibility that there was far more variation in faunal patterns – in foodways and diets – than has previously been realized.

In addition, Tranquil Hill provides an opportunity to explore a late eighteenth century garden area.

The current site incorporates the garden

Figure 6. Area of house servants' settlement looking downslope from main house.

area, allowing studies that were not possible at Broom Hall (where the garden was already destroyed) and expanding on the initial efforts at Crowfield (where the gardens, preserved, were only briefly examined, see Trinkley et al. 1992). H.A.M. Smith, who lived at a time when remnants of many plantation gardens were still recognizable, identified the 18 most outstanding Colonial gardens of the state – and Tranquil Hill was on his list (cited in Shaffer 1939:28).

Although a broad range of research could be conducted here, we have chosen to limit our work to two areas. The first involved an effort to determine if we could identify garden features, such as plantings, terraces, or other artificial areas. The second involved an examination of soil samples for pollen and phytolith evidence that might point to domesticated species. The former approach required opening several cuts through the gardens, while the latter approach required identifying non-plowzone strata or features where there was a potential for the recovery of remains.

Strategies for landscape and garden archaeology have been developed over the past decade and a half (see, for example, the seminal work of Kelso and Most 1990, Miller and Gleason 1994), yet the techniques are laborious, and hence expensive. In examining work here in South Carolina, other than our Crowfield efforts (Trinkley et al. 1992), we have found no evidence that researchers have even made an effort to record evidence of early plantings. We hope that the current research will demonstrate the usefulness of the approach and spur support by the State Historic Preservation Office for additional investigations.

Proposed Data Recovery

Historic Research

We proposed additional historic research to help resolve issues surrounding property ownership and use of the plantation. As previously mentioned, there has been no historical research conducted at the plantation since the very early descriptive work of H.A.M. Smith. This work not only completed the title search, but also attempted to reconstruct elements of the tract's social and economic history. We also sought additional information pertinent to garden design and activities in Colonial South Carolina.

Field Research Methods

Main House Area

The main house area was thought to cover an area about 260 by 260 feet. We proposed to begin by using an 18-inch auger to conduct additional tests at 20-foot intervals – requiring 196 tests. The soil from these would be screened through ¼-inch mesh. Artifacts would be tabulated; brick and mortar would be quantified

and discarded in the field. The two, taken together, would be used to develop density information. This information would be used to determine the placement of five 10-foot units. The goal of this hand excavation would be to collect a large assemblage and, hopefully identify architectural remains. Features identified would be plotted and investigated. The extent of excavation would depend on the nature of the feature and the materials recovered. Some might be excavated in their entirety, others might only be bisected. Five-gallon flotation samples would be taken of features that have dark, organic soils indicating the potential for the recovery of floral remains. In addition a similar 5-gallon sample would be taken of all features for water screening for the recovery of small artifacts, such as beads.

At the conclusion of the hand-excavations, we proposed to use a track hoe with a cutting blade bucket in order to strip areas where there was evidence of structural remains. Features identified would be plotted and limited excavation would be conducted in order to identify the nature of the features and provide materials for dating.

If artifact concentrations were encountered in the auger testing that were outside the area of hand excavations or the stripping proposed above, additional stripping or hand excavation would be conducted to explore these concentrations.

House Servants' Area

In this area we proposed to conduct auger tests over an area measuring 100 by 300 feet, again at 20-foot intervals. This would result in 96 data points and all tests were to be screened through ¼-inch mesh. The artifacts (and quantified information on brick and mortar) would be used to identify high density areas. We then proposed four 10-foot units dispersed in the dense site area to obtain a better sample of remains and also to identify structural features. Features identified would be plotted and investigated. The extent of excavation would depend on the nature of the feature and the materials recovered. Some might be excavated in their entirety, others might be bisected. Five-gallon flotation samples would be taken of features that had dark, organic soils indicative of floral remains. In addition a similar 5-gallon sample would be taken of all features for water screening for the recovery of small artifacts, such as beads.

At the conclusion of the hand-excavation, we proposed to again use a track hoe to strip areas where there was evidence of structural remains. Features identified would be plotted and limited excavation would be conducted in order to identify the nature of the features and provide materials for dating.

If artifact concentrations were encountered in the auger testing that are outside the area of hand excavations or the stripping proposed above, additional stripping or hand excavation might be conducted to explore these concentrations.

Slave Settlement Area

In this area we proposed to conduct auger tests over an area measuring 140 by 300 feet, again at 20-foot intervals. This would result in 128 data points and all tests would be screened through ¼-inch mesh. The resulting data would be used to identify high density areas. We then proposed four 10-foot units dispersed in the dense site area to obtain a better sample of remains and also to identify structural features. Features identified would be plotted and investigated. The extent of excavation would depend on the nature of the feature and the materials recovered. As in the case of the other areas, five-gallon samples would be collected for either flotation or water screening, depending on the presence of visible organics.

At the conclusion of the hand-excavation, we anticipated stripping areas using a track hoe to expose additional structural remains.

The Garden Area

A detailed discussion of garden excavation is offered by Yentsch and Kratzer (1994), who suggest that some "preview" is

critical. In other words, gardens can be very large and the probability of recovering significant data based on "cold" excavations is very low. The "preview" is a means of attempting to focus in on those areas most likely to produce garden data.

Yet they then point out that virtually every cost-effective approach has proven to be rather unreliable. Consequently, in this case we relied on the Diamond plat as our "preview" and hoped that we could correlate the garden location using identified structural remains and/or topographic features (given the cultivation we recognized that topographic features would be difficult to identify).

The use of the plat has some support. Diamond is known anecdotally as a careful and accurate surveyor whose plats are realistic portrayals of the actual place. In addition, similar plan depictions are rather common, suggesting some foundation in reality.

In terms of recovery techniques, it seemed that the only successful approach had been stripping or trenching. Both offer the promise of opening relatively large areas quickly – allowing an opportunity to examine planting beds or features. And it is from these areas that we hoped to obtain soil samples suitable for pollen and phytolith studies.

Our approach was to estimate the probable garden area and then to recognize that the Diamond plat shows central walkways north-south and east-west. Since we wouldn't know exactly where these pathways were located, we proposed to orient our work at a 45° angle – providing the best chance that garden beds and pathways would be exposed. The stripping, as with other areas, would be conducted by a track hoe.

With the exposure of the garden area we then proposed to clean the area, looking for evidence of plantings. Up to 10 of these planting areas or features would be sampled for pollen and phytolith studies. Photographs would be taken to document other areas, especially pathways. If other features were identified (such as in situ walkways or steps) they would be drawn and photo-documented.

The Natural Setting

Physiography

The project area is situated in the southeastern portion of Dorchester County, just west of the Berkeley County border. Much of the settlement is situated on a hill that rises about 10 feet above the surrounding generally level topography and overlooks Eagle Creek to the north.

Dorchester County is situated in the Lower Coastal Plain of South Carolina. It is bounded to the north by Orangeburg County, on the east by Berkeley County, on the south by Charleston County, and is separated from Colleton County on the west by the Edisto River. The county is drained by the Edisto and Ashley Rivers, with the project area itself drained directly into the Ashley River, just south of the project tract. Elevations in the county range from about 3 or 4 feet above sea level along parts of the Ashley River to about 120 feet above sea level near Reevesville (Eppinette 1990:1). Elevations in the project area range from about 8 to 65 feet above mean sea level (AMSL). Drainages, such as Eagle Creek, flow southwesterly to the Ashley River, which drains into the Atlantic Ocean.

Tranquil Hill Plantation is about 17 miles north-northwest of Charleston and 1.5 miles northeast of Dorchester, situated in St. James Goose Creek Parish, just over the boundary with St. Andrews Parish to the west.

Geology and Soils

Coastal Plain geological formations are unconsolidated sedimentary deposits of very recent age, primarily Pleistocene and Holocene. They are found lying unconformably on more

ancient crystalline rocks that are rarely exposed by nature (Cooke 1936; Miller 1971:74).

The soils formed from these Holocene and Pleistocene soils were typically deposited in various stages of coastal submergence. Soil formation is affected by the parent material (primarily sands and clays), the temperate climate (discussed later), the various soil organisms, the flat topography of the area, and time.

Mainland soils are primarily Pleistocene in age and tend to have more distinct horizons and greater diversity than the younger soils found on the sea and barrier islands. Sandy to loamy soils predominate in the level to gently sloping mainland areas although fertility is low. Allston mentions that the sandy soil "bears well the admixture of salt and marsh mud with the compost" (Allston 1854:13).

As the colony was being settled and promoted, the soils were described simply. John Norris told his readers in 1712:

> the Soil is generally Sandy, but of differing Colours, under which, Two or Three Foot Deep, is Clay of which good Bricks are made (Greene 1989:89).

In the last quarter of the eighteenth century, William DeBrahm's Report provided little more information, stating only that, "the Land near the Sea Coast is in general of a very sandy Soil" and noting that this soil "along the Coast has as yet not been able to invite the industrious to reap Benefit of its Capacity" (DeVorsey 1971:72).

By the nineteenth century, Robert Mills in his *Statistics of South Carolina* provided slightly more information concerning the current understanding of the soils:

> First, the marsh or tide lands, adapted particularly to the culture of rice; second, the swamp lands which are equally rich, and planted mostly in cotton and corn; third, the high lands in their vicinity which are chiefly valuable on account of the timber growing upon them (Mills 1972 [1826]:504).

A number of period accounts discuss the importance of soil drainage. Seabrook, for example, explained in 1848:

> subsoil so close as to be impervious to water; so that the excess of the rains of winter cannot sink. Nor can it flow off, because of the level surface…The land thereby is kept thoroughly water-soaked until late in the spring. The long continued wetness is favorable only to growth of coarse and sour grasses and broom sedge…acid and antiseptic qualities of the soil…sponge-like power to absorb and retain water…is barren, (for useful crops) from two causes – excessive wetness and great acidity. The remedies required are also two; and neither alone will be of the least useful effect, with the other also. Draining must remove the wetness – calcareous manures the acidity (Seabrook 1848:37).

Hammond was still providing a somewhat similar account in the postbellum:

> drainage . . . has of necessity always been practiced to some extent. The remarkably high beds on which cotton is planted here, being from 18 inches to 2 feet high, subserve this purpose. The best planters have long had open drains through their fields. These were generally made by running tow furrows with a plow and

> afterward hauling out the loose dirt with a hoe, thus leaving an open ditch, if it be so termed, a foot or more in depth (Hammond 1884:509).

The number of drainages found in the vicinity offers mute testimony to the problems planters encountered on these soils and their efforts to make the land productive. These problems have also been briefly mentioned by Hilliard, who comments that soils in the region were, "seldom well enough drained for most crops" (Hilliard 1984:11).

Eight soil types are found within the historic plantation. One of the most abundant soils is Yauhannah loamy fine sand. These soils, generally found on slopes from 0 to 2%, have an A horizon of grayish brown (10YR5/2) loamy fine sand to a depth of 0.3 foot over a pale yellow (2.5Y7/4) loamy fine sandy to a depth of 1.5 feet. The water table on these soils is 1.5 to 2.5 feet below grade and flooding is rare.

Two other soils in the immediate area, Grifton fine sandy loam and Elloree loamy fine sand, are prone to flooding. The Elloree soils have a seasonal water table found at the surface to a foot in depth, while the Grifton soils have a seasonal water table from 0.5 to 1 foot below the surface. Grifton soils generally have an A horizon of dark grayish brown (10YR4/2) fine sandy loam to 0.5 foot in depth over a light gray (10YR7/2) fine sandy loam to just under 1.0 foot. Elloree soils have an A horizon of very dark gray (10YR3/1) loamy fine sand to a depth of 0.7 foot over a dark grayish brown (10YR4/2) loamy fine sand that can occur to a depth of 1.7 feet.

Figure 7 illustrates the historic boundaries of the plantation and land uses as shown on the 1800 Diamond plat. Rice fields were found on Coosaw and Mouzon soils. Curiously, only the Mouzon soils tend to naturally flood. The Coosaw soils are found on low sand ridges and generally have a water table 2 to 3 feet below the surface. Clearly these rice fields were upland and/or inland in nature. In other areas of the plantation Coosaw and Mouzon soils were used for fields or were in woods.

Areas specifically opened for cultivation were primarily the better drained Yauhannah soils, although tremendous variation is seen, with Elloree (water table 0-1 foot), Mouzon (water table 0-1 foot), Yemassee (water table 1-1.5 feet), and Chisolm (water table 3-5 feet) were all cultivated. It does not appear that cultivation was based on drainage, or at least that drainage was balanced against other, equally important, features. These might have included fertility, access, or even ease of clearing.

The comparison of historic plats to modern soil surveys does not seem to have attracted the attention of either historians or geographers. Authors such as Silver (1990) view the issue at a macroscopic level and focus primarily on issues such as clearing fields and the colonists' preference for densely wooded areas (the abundance of natural vegetation was thought to offer proof of soil fertility).

Thus, these lower, more frequently flooded soils may have been viewed as especially productive. They would have, however, had to be ditched for drainage and the drains would require constant maintenance – both laborious and unhealthy tasks assigned to African American slaves.

Taken together, we see low, poorly drained soils on much of the plantation, with only limited agricultural productivity. The impact of this on the agriculture and wealth of the Tranquil Hill owners is an issue worthy of additional discussion.

Climate

The weather was all-important in Colonial society, affecting the crops that in turn affected trade and wealth. Just as importantly, the Carolina climate affected, usually for the worse, the planter's health. Greene notes that:

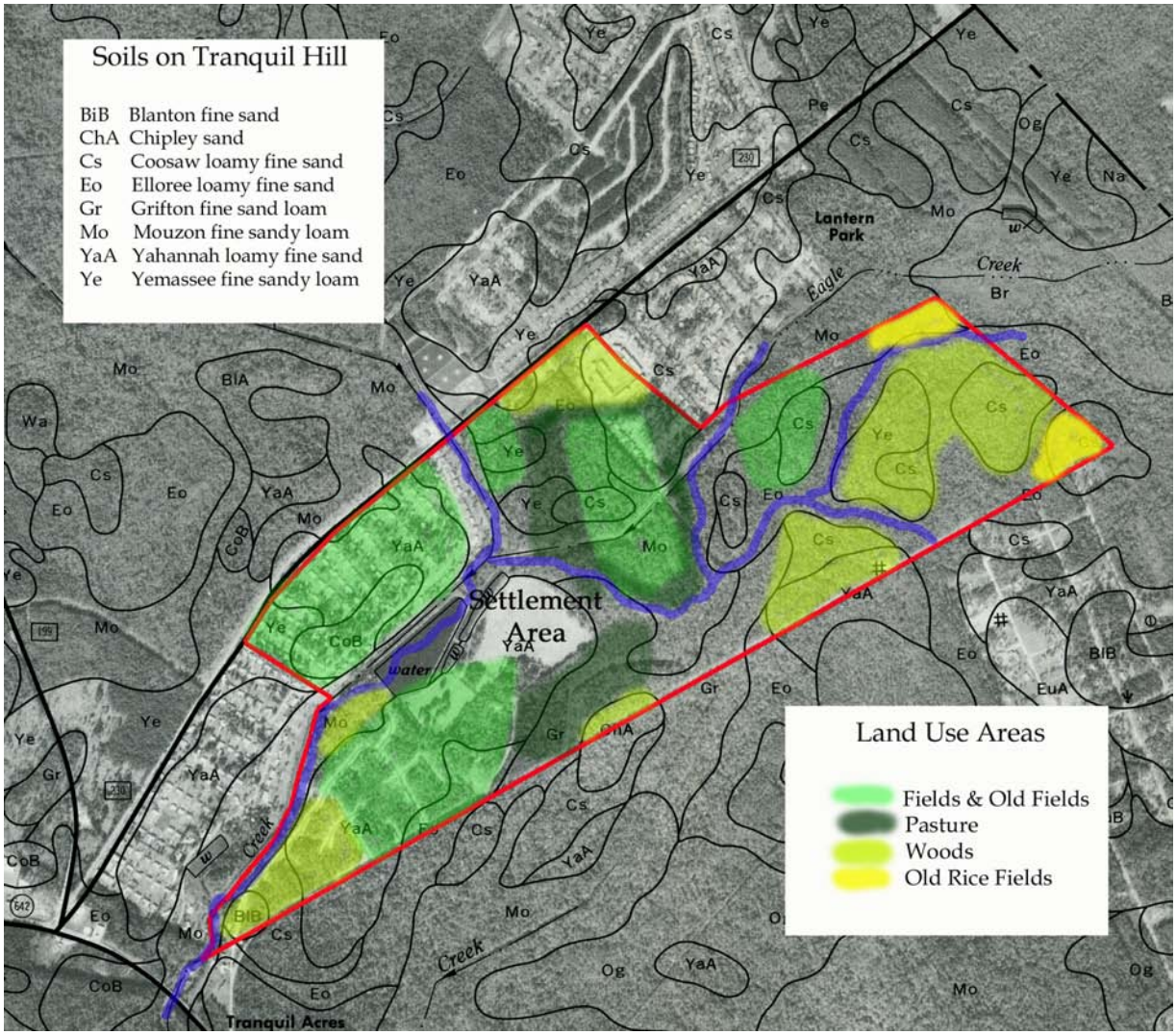


Figure 7. Soil map of the project area showing the historic boundaries of Tranquil Hill (in red) and the various historic land uses (based on the Diamond plat).

the prospects of obtaining wealth with ease . . . meant little in a menacing environment, and both Nairne and Norris took pains to minimize the unpleasant and dangerous features that already had combined to give South Carolina an ambiguous reputation. They had to admit that throughout the summer temperatures were "indeed troublesome to Strangers." But they contended that settlers had quickly found satisfactory remedies in the form of "open airy Rooms, Arbours and Summer-houses" constructed in shady groves and frequent cool baths and insisted the discomfitures of the summers were more than offset by the agreeableness of the rest of the seasons. [They also suggested] that ill-heath was largely limited to newcomers before they were seasoned to the climate, to people

> who insisted in living in low marshy ground, and to those who were excessive and careless in their eating, drinking, and personal habits. "If temperate," they asserted, those who lived on "dry healthy Land," were "generally very healthful" (Greene 1989:16).

While making for good public relations, the reality was far different. Roy Merrens and George Terry (1989) found that in nearby Christ Church Parish, 86% of all those whose births and deaths are recorded in the parish register died before the age of twenty. Equally frightening statistics have been compiled by John Duffy (1952), who found that the average European could expect to live to the age of about 30 in South Carolina during the first quarter of the eighteenth century. Yellow fever, smallpox, diphtheria, scarlet fever, malaria, dysentery all were at home in Carolina. Using the Society for the Propagation of the Gospel (SPG) records, Duffy found that from 1700 to 1750, 38% of the missionaries either died or were compelled to resign because of serious illness within the first five years of their arrival. Within 10 years of their arrival, 52% had died or resigned because of their health. After 15 years in the colony, the combined death toll and resignations from sickness reached 68% — two out of every three missionaries.

African Americans fared no better. Frank Klingberg (1941:154), using SPG records, found that in a single four-month period over 400 slaves died of "distemper." William Dusinberre, exploring rice plantations along the Carolina coast, entitled one of his chapters "The Charnel House" — a reference to the extraordinary morbidity of African Americans on rice plantations. He reports that on some plantations the child mortality rate (to age sixteen) was a horrific 90% (Dusinberre 1996:51), while the probable average for rice plantations was around 60% (Dusinberre 1996:239). Cotton plantations – that were probably most numerous in the upland sand soils of the Dorchester area -- were healthier, but even there fully a third of all slave children did not live to see their sixteenth birthday.

Beginning in the last third of the eighteenth century the life expectancy began to increase. Merrens and Terry suggest that this was the result of the occupants beginning to understand the cause of malaria:

> During the middle of the eighteenth century South Carolinian's perception of the wholesome environment of the lowcountry swamps began to change. People no longer preferred these areas on the score of health as a place of summer residence. Instead, residents began to view the lowcountry as fostering both mosquitoes and death (Merrens and Terry 1984:547).

Perhaps most importantly it is about this time when we also see the planter move his residence from the swamp edge (where he could easily oversee both slaves and crops) to higher, sandier locations. Slave settlements, too, appear to move to somewhat drier and healthier environs.

Elevation, latitude, and distance from the coast work together to affect the climate of South Carolina although Dorchester is clearly dominated by its proximity to the ocean. Much of the weather is controlled by the proximity of the Gulf Stream, about 50 miles offshore. In addition, the more westerly mountains block or moderate many of the cold air masses that flow across the state from west to east. Even the very cold air masses that cross the mountains are warmed by compression before they descend on the Coast.

Consequently, the climate of Dorchester County is temperate. The winters are relatively mild with a mean temperature of 48°F and the summers are hot and humid, with a mean

temperature of 79°F and average humidity of 55%. Rainfall in the amount of about 50 inches is good for a broad range of crops. About 31 inches of rain (or 60% of the total) occurs during the growing season, April through September. The average growing season is about 223 days, although early freezes in the fall and late frosts in the spring can reduce this period.

Floristics

Just as the early explorers described the climate as healthful, the Carolina vegetation was usually described as bountiful and fruitful. Catesby described the swamplands, typical of many areas in St. James Goose Creek, in the first decade of the eighteenth century:

> before they are prepared for rice, are thick, over-grown with underwood and lofty trees of mighty bulk, which by excluding the sun's beams, and preventing the exhalation of these stagnating waters, occasions the lands to be always wet, but by cutting down the wood is partly evaporated, and the earth better adapted to the culture of rice (Catesby, quoted in Merrens 1977:93).

He also mentions that these swamps, filled with "a profusion of fragrant and beautiful plants give a most pleasing entertainment to the senses, therein excelling other parts of the country, and by their closeness and warmth in winter are a recess to many of the wading and water-fowls" (Catesby, quoted in Merrens 1977:93).

The interior mixture of different communities was influenced by the action of humans — earlier by the Native Americans and later by the English planters. Areas of mesic mixed hardwood and pine might be found on the better drained soils. The dominant species would be white oak, often in combination with loblolly pine. Found as occasional overstory trees would be sweetgum, beech, southern red oak, post oak, maple, and hickory. Understory plants would include dogwood, redbud, and holly. Mills (1972[1826]:510) comments that,

> [an] abundance of the finest pine timber is found in this district. Rafts of it are annually transported down the Edisto, to Charleston. Besides the pine, there are the live oak, poplar, cypress, beech, hickory, walnut, chestnut, and a variety of oak, the palmetto, and indeed all the different kinds of trees and shrubs common to the adjoining districts.

While classic cypress-tupelo swamps are found in some areas along the coast, the study tract does not exhibit areas of alluvial soil with an open circulation of water. Instead, what are called upland swamps are present. While still having acid conditions and wet soils, the vegetation is often very different. The upland swamps are dominated by pond cypress, pond pine, and slash pine (Barry 1980:150-151).

Also present would be old growth pine communities, created by disturbances such as fire or clear-cutting the hardwoods. In these areas longleaf pine culminates in a closed canopy with a very sparsely populated understory. Hardwood introductions are exceedingly uncommon, but where present may include sweetgum, persimmon, and hickory (Barry 1980:172-173). These areas represented the pine flat woods shown on many plats and mentioned by many early accounts as being unproductive ("pine barrens"). These are closely related, biologically, to the pine savannahs that might best be described as longleaf pine pyric climax forests.

Vegetation today consists of mixed pines and hardwoods throughout much of the tract and a fallow field that encompasses the bulk of the settlement and garden area. Two small ponds (remnants of the Eagle Creek after channelization) are located in the northwest portion of the tract and are dominated by alligators and water moccasins.

Curation

An updated site form reflecting this work was filed with the South Carolina Institute of Archaeology and Anthropology (SCIAA). The field notes and artifacts from Chicora's data recovery at 38DR141 are curated at SCIAA using that institution's provenience system. All original records and duplicate records have been provided to the curatorial facility on pH neutral, alkaline buffered paper. Photographic materials include B/W negatives and color transparencies – both of which are being processed to archival standards.

A CONTEXT FOR THE STUDY OF LOWCOUNTRY GARDENS

Woodbridge offers a word of warning concerning the nomenclature used in the study of gardens, pointing out that the terminology is often vague and subject to considerable lumping or splitting. Definitions may also vary depending on one's background – architecture, art, history, or gardening. Thus, terms such as "mannerist," "baroque," and "rococo" may have different meanings to different audiences. In addition, garden styles were constantly evolving and rarely do they fit into the neat terms that are typically applied. Concerned that the use of self-limiting terms may stymie the study of gardens, or at least mislead those exploring their history, he suggests that it might be best to avoid terms and, instead, "look at each garden in a period as an effort in its own right, created in a given situation" (Woodbridge 1984:24). In spite of the wisdom of this approach, terminology such as design periods is often used as a "short-hand," allowing researchers to communicate – hopefully more, not less, effectively. Consequently, we shall use many of the terms that Woodbridge might criticize, although we hope that they will be taken by the reader only as general temporal and stylistic indicators.

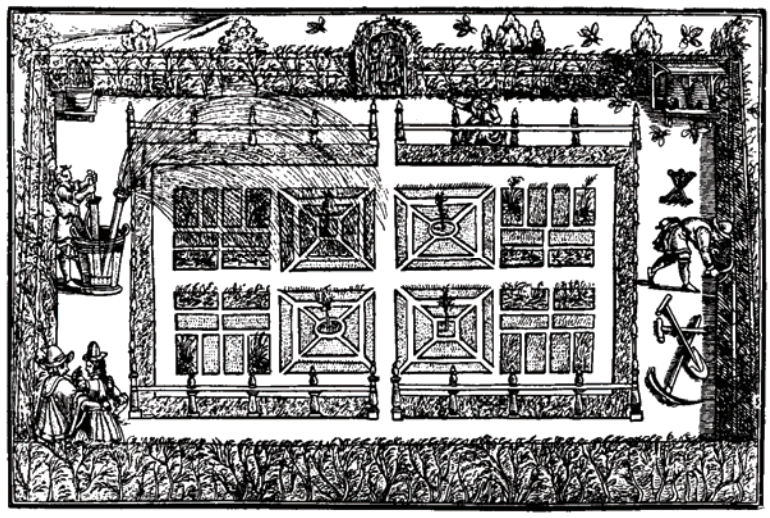


Figure 8. Layout of a typical garden from Hill's 1586 *Labyrinth*.

Another problem in the study of garden history involves the evolutionary nature of garden design – as new styles emerge, old gardens tend to be changed, making it difficult or impossible to examine a style as it was actually implemented (as opposed to drawn). The study of early, formal gardens is particularly difficult since Capability Brown and his successors often destroyed (in England) the earlier style gardens in their zeal to create landscape gardens (Brownell 1984:15).

Brownell (1984:7) also notes that, at least until recently, the history of gardening has been largely confined to England, with even Scotland and Ireland receiving scant attention. Certainly there are far more sources for English gardens than for American.

History of English Gardens

Early Gardens – Medieval and Tudor

Hadfield (1985) argues that a high standard of gardening did not exist until the late medieval period and that prior to that time gardening was focused on fruits, food, and herbs. In spite of this, it seems likely that some pleasure gardens did exist (see Taylor 1991:18).

Early gardening drew on publications such as Thomas Hill's *Briefe and Pleasant Treatyse, Teaching How to Dress, Sow and Set a Garden* in 1563 and in 1577 *The Gardener's Labyrinth*. Not only was the husband's orchard addressed, but also the wife's kitchen garden. In fact, he begins with

selecting the perfect location – with a gentle slope and facing southeast to catch the full morning sun. He recommended dividing the garden into quarters, each with a number of raised beds, separated by channels through which water would run. He urged the spreading of dung, as well as instructed on how to make straight beds using twine and sticks (Uglow 2004:94-95).

These Tudor gardens were generally small with a formal pattern of square beds, sometimes raised. Often enclosed by stone walls or hedges, there were arbors or alleys. The most characteristic feature, however, was the knot – a formal bed in which low hedges were worked into a regular pattern. These could be open with a background of sand or gravel, or closed with the spaces filled with other, contrasting plants. The knot was designed to be viewed from above for full advantage (Hadfield 1964:143; Taylor 1991:20; cf. Woodbridge 1984:19).

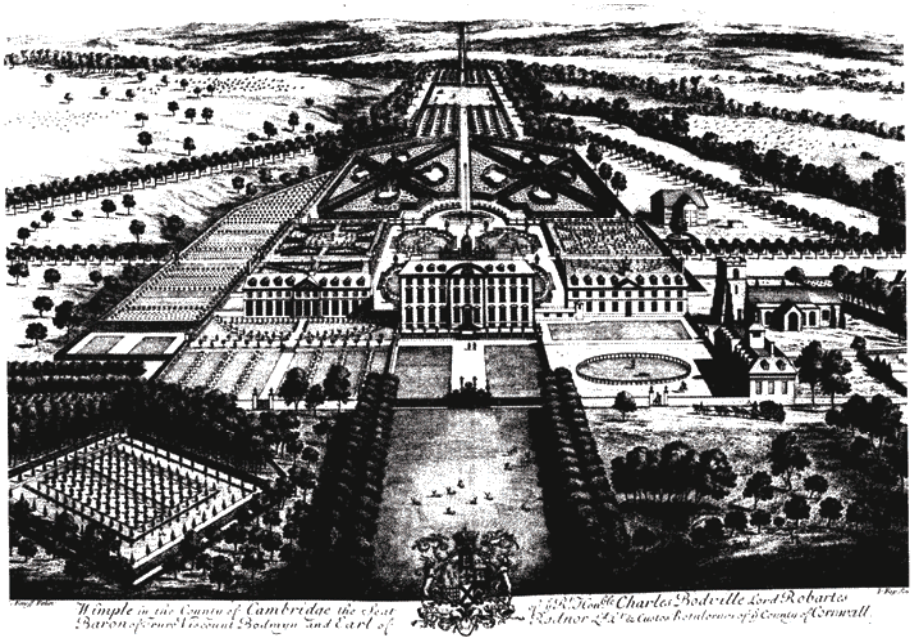


Figure 9. Formal gardens at Wampole by Knyff and Kipp in 1707.

The Seventeenth Century

The rise of English gardening, however, has often been associated with the Renaissance. Francis I of France and Charles VIII of Britain brought news of the Renaissance world, although it was Henry VII who built his palace at Richmond with gardens far more complex and fine than anything seen previously. Beauty of design began to replace utility and art became as important as craft. Toward the end of Elizabeth's reign, it was commented that earlier gardens, in comparison, were "but dunghills and laystows" (Hadfield 1964:18-19). What remains of these early Elizabethan and Jacobean gardens is limited to a few buildings, some walls, and a large number of writings – for example, the 1597 *Herball* by John Gerard and even the 1624 Francis Bacon essay, *Of Gardens*.

Gardens developed generally as a series of walled enclosures. Fruit was grown against the walls and greenhouses were erected to over-winter the evergreens. John Rea, for example, in 1665 published *Flora* which included detailed plans for flower gardens, walled enclosures with geometric beds, pole hedges of trained trees, and lattices of roses (Uglow 2004:110). Although the division of England into Cavaliers and Roundheads initially impeded any advancement, with the Restoration gardening was again a favorite art.

In France the formal garden under André Le Nôtre was at its height and set the example for England. Elaborate parterres, ornamental canals, fantastic topiary, and sculpture all made their appearance. Le Nôtre's signature, however, was the avenue – one main axis speeding from the house to the horizon, cutting across the broad

parterre with its patterned beds and gravel paths, and extending into the surrounding park and woods (Uglow 2004:115). Even the small estates could profit from these advances, as evidenced by the eleven editions of Leonard Meager's *The English Gardner* printed between 1670 and 1710.

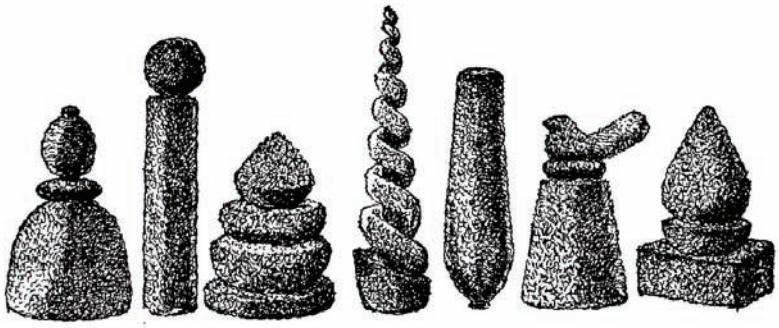


Figure 10. Topiary shapes (adapted from Hunt 1964:Figure 33).

The dominant figure in British gardening was George London. Out of obscurity, by 1681 he had joined with other famous gardeners to form a nursery at Brompton Park covering hundreds of acres. While many of the partners retired, London continued with his partner, Henry Wise. Wise would, by the time Queen Anne ascended to the thrown in 1702, be recognized as the British master of the grand Le Nôtre style. Others prominent during her reign included Leonard Knuff and Joannes Kip, both of whom produced numerous illustrations of country seats. Of equal importance was Blenheim which, with Hampton Court, came nearest to the grandeur of Versailles (Bisgrove 1990:70).

Taylor argues that Kip's designs show the triumph of the formal design, as well as the overpowering influence of Le Nôtre:

> the garden typically has a walled forecourt to the main façade of the house with an axial path leading to the entrance. The axis may be continued on the other side of the house penetrating deep into the countryside with rides through woodland on either side. Avenues, sometimes in the shape of *pattes d'oie* [goose feet], radiate out from the house linking it firmly to the landscape. Nearer the house there are parterres, frequently extremely elaborate in the style of Daniel Marot, the French Huguenot designer introduced by King William. There is often some water feature – ornate fountains, canals, or formal *basins* with an island and a pavilion. The "wilderness", a kind of giant maze of hedges . . . is often seen. Formal orchards, with trees in neat rows or espaliered against walls, are common (Taylor 1991:24).

Hadfield observes that it was during this period that "the ruler and the compass were supreme; avenues radiated with mathematical precision to form *pattes d'oie* ('goose foots'), these most typical features of the grand manner, and in the more intimate part of the garden *Parterres* and topiary ornamented the grounds" (Hadfield 1964:21). Hadfield goes on to note that when the history of the period is reviewed it appears almost as though the style and laws of gardening had become fixed and immutable.

Nevertheless, the pure French style did not translate well to England. The English light was too soft to provide the crisp perspectives, the landscape was too undulating to allow avenues to stretch into infinite distance (as Bisgrove [1990:63] notes, avenues simply disappeared over the next hill), and the British actually liked the natural look of clumps of trees (Uglow 2004:118).

Into this mix was added the "Dutch" style – with courtyards and ornamental canals, intricate topiary, and exotics such as oranges, myrtle and oleander in tubs (see Oldenburger-

Ebbers 1991). An example was William and Mary's plantings at Kensington Palace in London and the fountain garden at Hampton Court (Hunt 1964:37; Uglow 2004:121). These Dutch gardens broke up large expanses into "happily crowded" enclosures, introducing trellises and hedges, as well as curling parterres that mirrored ironwork. Also introduced were topiaries or "curious greens" – hews and hollies clipped into fantastic shapes with balls or pyramids giving way to birds, beasts, crowns, and even sailing ships. Bisgrove, however, explains that while both French and Dutch influences are present and visible, there developed an essentially English style – "accretions of garden compartments each grand and symmetrical in itself but stubbornly refusing to conform to an overall scheme" (Bisgrove 1990:63).

As early as 1681 John Worlidge (or Woolridge), author of *The Art of Gardening*, complained that the desire for formality in parterres had lead to the exclusion of many beautiful plantings. He rejected the pedantic symmetry of London and Wise as stiff and autocratic (Bisgrove 1990:75).

The Picturesque and the Landscape in the Eighteenth Century

Nevertheless, the next evolutionary step was not to be taken by a gardener, but rather by a small band of philosophers, poets, and writers who looked to Nature in her various guises as the inspiration for garden design. Alexander Pope, for example, satirized the fanciful topiary work and attacked regularity and formality in the layout. His garden at Twickenham, begun in 1719, became something of a "mecca," crammed with classical allusions and full of variety (Bisgrove 1990:83).

The word "picturesque" came into use, having the meaning of designing gardens in the "manner of the seventeenth-century landscape pictures by such painters as Salvator Rosa, Claude Lorraine and the Poussins" (Hadfield 1964:22). Found in common were a woody foreground, at mid-distance an anecdote such as an ancient building, and in the remote distance immense space.

Uglow (2004:125-127) attributes the shift to a more fundamental issue – the cost of the grand formality of Le Nôtre was horrific. Wars drained the English economy. Small estates were swallowed by larger manors. Landowners could no longer afford the costs of avenues, parterres, fruit trees, and topiary. Uglow also suggests that England may have been in the mood for a style of its own, tired of "borrowing" styles from the French and Dutch. There is yet another reason for the shift, "now that topiary was in every shopkeeper's backyard, the only thing for a man of taste to do was to turn his back [on this style]" (Uglow 2004:127).

The movement toward the picturesque, however, took place slowly. For example, there was first the introduction of irregularity into the formal garden design. For example, Stephen Switzer, a practical gardener, suggested that paths should have as many windings as the land would allow. Pope, himself a keen amateur gardener, is perhaps best remembered for his observation that "In all, let nature never be forgot. Consult the genius of the place . . ." (quoted in Hadfield 1964:23). In other words, rather than the gardener forcing the design on the landscape, the landscape should direct the design and form. Nevertheless, Hadfield notes that Pope's own garden – as daring as it might have been at the time – allowed very little freedom of design.

This same view is shared by Uglow, who notes that not only did the definition of "natural" vary, but the shift came in three phases. First there was the "straightforward softening of formality and opening of the garden to the country." This view clung to the idea that the garden and nature were separate and focused on a "belt" or "ribbon walk" that progressed through different scenes. This was followed by the pictorial, classical, allusive style for which the period may best be known. And finally, there was

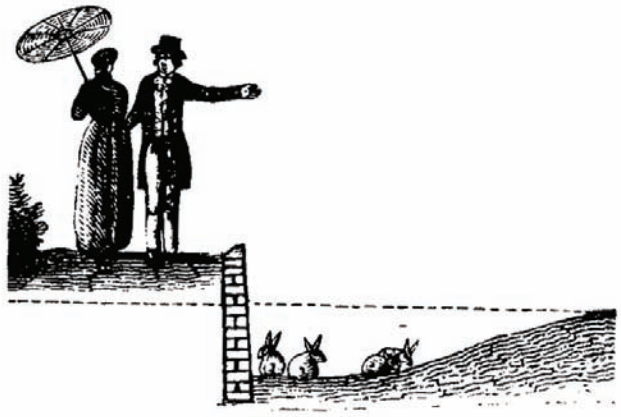


Figure 11. Ha-ha (adapted from Uglow 2004:128).

the radical parkland of Capability Brown and his followers (Uglow 2004:128, see also Hyams 1971).

It seems that the picturesque or landscape garden came into its own with the introduction of the Palladian manor – often attributed to William Kent in 1719. Now all of nature became a garden. Cultivated fields stretched out in broad expanses. Flocks of sheep were confined by the introduction of the ha-ha (a sunken ditch, invisible until one was on it, but impossible for animals to cross). The distant landscape would typically be dotted by cottages, but these were not adequately ornamental, so they were replaced by temples, sham ruins, or statuary – all serving as focal points or "eye-catchers." Linear arrangements – whether of trees, paths, or canals – were banned in favor of serpentine routes. Incorporated into the design was not only England's particular climate, but also an attitude of mind – a taste for the irregular and asymmetrical (Mosser and Teyssot 1991:14). Kent softened the outlines, opened distant prospects, and worked to create an idealized landscape – at least some of these influences, according to Bisgrove (1990:89) can be traced to various Chinese antecedents.

Le gardin anglais, as it became known, had two principal proponents – Lancelot Brown and Humphry Repton. Brown might be best remembered for his calm and gracious manner. Known as "Capability" Brown for his power to bring out the aesthetic "capabilities" of the setting, he designed landscapes that were broad and open with an "infinite delicacy of planting." This may be derived from the comments of François de la Rochefoucauld, who indicated that within a half a day Brown created a plan that transformed the landscape, evidencing an inspired eye for the "capabilities" of the place (Bisgrove 1990:96).

Brown worked with the natural ingredients of the landscape – trees and turf, light and shade, water and topography – relating each part to the whole, creating an idealized "total" landscape (Lasdun 1992:95). Brown's English landscape became more typically English than the real thing and was immortalized by paintings, prints, and even as views on pottery and porcelain. His landscapes also reflected the supposed perfection of a classical order – "a pervading sense of good taste measured against infallible rules of right and wrong" (Bisgrove 1990:123).

Regardless of his talent, Brown was creating an artificial landscape – trees were moved and clumped to hide offending features of rural life, such as the home farm or kitchen garden. Bridges were removed, dams were built, and even entire villages were removed out of sight in order to create the perfect landscape (Uglow 2004:160-161). Brown's parks were as contrived as the most formal gardens of his predecessors. Moreover, the improvements had disastrous costs. Uglow tallies over 21 million acres of open fields and common lands that were enclosed between 1760 and 1800. While this made perfect economic sense to the owners since the woodland and copses provided cover for game, the grass could be leased for grazing, and the trees provided timber, to the poor it meant the loss of their livelihood and often eviction.

Repton, Brown's successor, is thought by some to have been more imaginative, bringing more drama and formality to the area surrounding the house. Repton also saw his skill

as combining beauty and convenience. If the two could not coexist, then the necessary or convenient feature must be included, but carefully concealed or masked from view.

Consequently, the flower and vegetable gardens were kept convenient, but were hidden by secluded walled enclosures. This, however, did not mean that horticulture lagged behind design. Indeed, this was a period of particular importance as plants were introduced from abroad. The culmination of this interest is seen in the formation of the Horticultural Society of London (later the Royal Horticultural Society) in 1804.

While greenhouses were known from at least 1664, the early structures – to at least the mid-to late seventeenth century – were more architectural features than garden devices. Often slate roofed with small windows, they were designed to provide warmth, not light (Hunt 1964:130-131) and it wasn't until the end of the seventeenth century that the roofs became glazed. In fact, it was the repeal of the glass tax in 1845 that allowed more glass and brought light, air, and sunshine into the greenhouse (Bisgrove 1990:113; Hunt 1964:131). Regardless, by 1731 Philip Miller in his *Gardner's Dictionary* provided detailed instructions for the greenhouse, noting that he had been able to preserve "the most tender exotic trees and herbaceous plants" (Bisgrove 1990:114).

The increasing familiarity with greenhouses (or glasshouses as they were often called) led to much specialization: pineries for pineapples, vineries, melon pits, orangeries, and conservatories all became necessary adjuncts of the manor and might be found in close proximity to the kitchen garden. Gradually boilers and hot water heating replaced charcoal and stoves of various sorts for heating.

By mid-century many of the defining features of the picturesque movement, such as serpentine walks, classical inscriptions, and rococo gazebos were reaching the middle classes. Moreover, these artificially arranged rural landscapes with their ruins and other follies began to seem absurd, especially when crammed into the small spaces available. As a result, Uglow notes "the intelligentsia and the quality turned against the Arcadian ideal. It had become debased, they felt, a language of the suburbs, as topiary had been a generation before" (Uglow 2004:136).

By the end of the eighteenth century Repton was able to justifiably claim that England had not only originated the art of landscape or picturesque gardening, but that she lead the world in horticultural activities. With the death of Repton in 1818, however, things began to change. Hadfield suggests that these changes may also be related to the quickly declining days of Georgian taste and the rise of industrialism and the middle-class (Hadfield 1964:25). Certainly industrialism did drive away nature and the country-side. But there were other factors as well. Industrialism gave rise to cast stone and inexpensive ironwork. Physical and mechanical aids to horticulture were being introduced (for example, the lawn mower replaced the scythe in 1831). Science was joining horticulture. The traditions of the formal Georgian garden were almost entirely removed from the English landscape.

Uglow, however, notes that the Picturesque was attacked by such writers as Uvedale Price and Richard Payne Knight. They argued that the Picturesque lacked any painterly appreciation for the landscape and impoverished the nation by demolishing its old, irregular beauties.

The Nineteenth Century

J.C. Loudon wrote on the tremendous effects of this period. In particular he wrote for the newly established gentleman who sought to return to the countryside – and in 1838 penned, *The Suburban Gardener and Villa Companion*. Hadfield notes that Loudon helped the *nouveau riche* find the type and size of garden that was appropriate for his standing and means. Loudon

earlier wrote the one volume, *An Encyclopaedia of Gardening* – a volume that was reprinted numerous times and was recognized as the authority in the field for years. Uglow (2004:179) comments that Loudon wrote not for the wealthy elite, but for the masses, establishing what was to become the Victorian "gardenesque" style. His goal was to not only produce guidelines and model solutions, but also to help the smaller property owner – a subject that had been neglected for the past century (Bisgrove 1990:149).

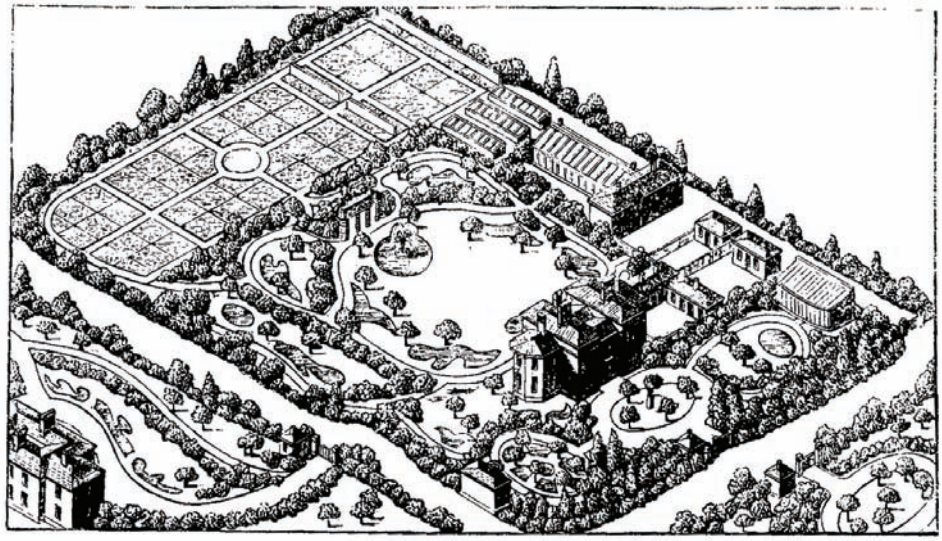


Figure 12. Loudon's plan for a suburban village from *The Suburban Gardener and Villa Companion*, 1838.

Loudon's style was still romantic – the house would be covered in "climbers" (climbing vines) and would have a conservatory. There would be a terrace with shrubs, urns, and statues. Winding paths would lead across a lawn encircled with trees and scattered with flower beds, toward some particular feature – perhaps a rockery, summer house, or pool. Behind the house would be the kitchen gardens and greenhouse. An important feature was that each plant would have its own space, allowing it to be seen separately and ensuring that it would flourish under the best conditions.

Bisgrove synthesizes the "gardenesque," noting that it involved three distinct concepts. The first was that a garden was a work of art – not of nature. Loudon emphasized that nature and art were distinct, even opposites and that art might well emphasize the "unnaturalness" of a landscape.

The second concept was that a garden might be made more artistic by growing plants that were inherently "unnatural" – at least in the British climate. Thus Loudon sought to use a wide variety of unusual plants, things that were the freaks of the later nineteenth century gardens.

The third concept of the gardenesque was that the garden was both a work of art and a scene of cultivation – a place meant to be worked in. He sought to space plants out, allowing their individual forms to be appreciated. Earth was intended to be hoed and mounded – it was no longer an allegory to classical Rome.

When Loudon died in 1843, the last link with the traditions of Kent, Brown, and Repton was severed. The aristocratic taste was no longer dominant and, in its place, rose a plutocracy. Of course, there were still numerous private gardens in the urban setting that maintained very formal lines. The scene was also changed by the overwhelming additions of new plants. Many failed to thrive in the English climate – giving rise to a new generation of greenhouse growers. Also introduced was carpet bedding – half-hardy plants in multitudinous variety (Hadfield 1964:29). Even rock gardens were developed during this period.

Gardens in the South Carolina Low Country

Previous Research

Although gardening history in the Mid-Atlantic has received admirable attention by Sarudy (1998), the more Southern colonies are far less carefully explored. Much of what does exist takes for granted that the gardens of the South Carolina low country followed the evolutionary route of those in England.

Rogers, for example, notes that "in the first half of the eighteenth century the colony's gardens conformed to the prevailing pattern of formality and practicality that characterized both town and plantation gardens in other colonies" and elsewhere notes that "by mid-century [there was] an awareness of the more naturalized mode of gardening that Pope through his Twickenham example and his writings was promoting" (Rogers 1984:148, 151). Although we have no reason at present to doubt this interpretation it is only fair to note that it is based on relatively scant evidence.

The approach, nevertheless, is repeated by Cothran, who states that the early gardens were not only influenced by European landscape design, but "were very French and formal in character in the style of André Le Nôtre with central and cross axes, decorative parterres, straight walks, statuary, elaborate fountains, and canals" (Cothran 1995:22).

Neither source tackles some of the tougher questions, such as whether there was a time-lag between the activities in England and those in Charleston. For example, while Pope's garden at Twickenham was begun in 1719, Alicia Hopton was *only hoping* to transform her parents' more formal garden into this natural style in 1771 – suggesting a 50-year lag.

The transfer from one style to another, if it did take place in any wholesale fashion, is not clearly demonstrated. While Rogers (1984:151-152; and it seems every other historian) describes with gusto the pictorial and natural style of Crowfield, was this the rule, or the exception? Middleton, as he was attempting to sell his plantation and return to England, described his landscaping only as "a neat regular garden," seemingly emphasizing the formal portion over the remainder.

Nor do these sources deal with any evidence of early gardening styles that might hearken back to the Tudor period or perhaps even earlier. Cothran does provide a brief quote that may begin to suggest the presence of earlier styles, although he doesn't discuss the idea. Thomas Ashe, in 1682, commented in *Carolina, or a Description of the Present State of That Country*:

> their gardens begin to be supplied with such European Plants and Herbs as are necessary for the Kitchen, viz: Potatoes, Lettuce, Colewarts, Parsnip, Turnip, Carrot and Radish; Their gardens also began to be beautified and adorned with such Herbs and Flowers which to the Smell or Eye are pleasing and agreeable, viz: the Rose, Tulip, Carnation and Lilly, Etc. (quoted in Cothran 1995:22).

Although not definitive, this suggests that the early gardens may have been small, formal affairs largely focused on fruits, food, and herbs.

It is difficult to resolve many of these issues since there seem to be no garden plans remaining. Rogers seeks to use sources such as Charles Fraser's sketches, but these seem unconvincing – at least to us. They certainly show Fraser's talent and understanding of landscape design (for example, his alteration of the Sheldon Church ruins to conform to a more Gothic impression), but this is not the same as providing careful landscape recordation. If anything, knowledge of Fraser's willingness to "bend" reality at Sheldon should make us more cautious of accepting his pictorials.

Rogers is also rather cavalier in his assessment that "Shenstone's and Whately's ideas for the landscape garden must surely have been in the minds of the Izards as they set about improving the gardens at The Elms" (Rogers 1984:155). We have no idea what might have been in their minds – we have no proof that the Izards had acquired either publication. Nor is there enough of The Elms remaining to allow any good evaluation of either its original or modified form (see, for example, Shaffer 1939: 38-40). It is, in fact, Rogers that recounts to us in his first paragraph David Ramsay's 1808 admonishment that South Carolina planters "have always too much neglected the culture of gardens" (quoted in Rogers 1984:148).

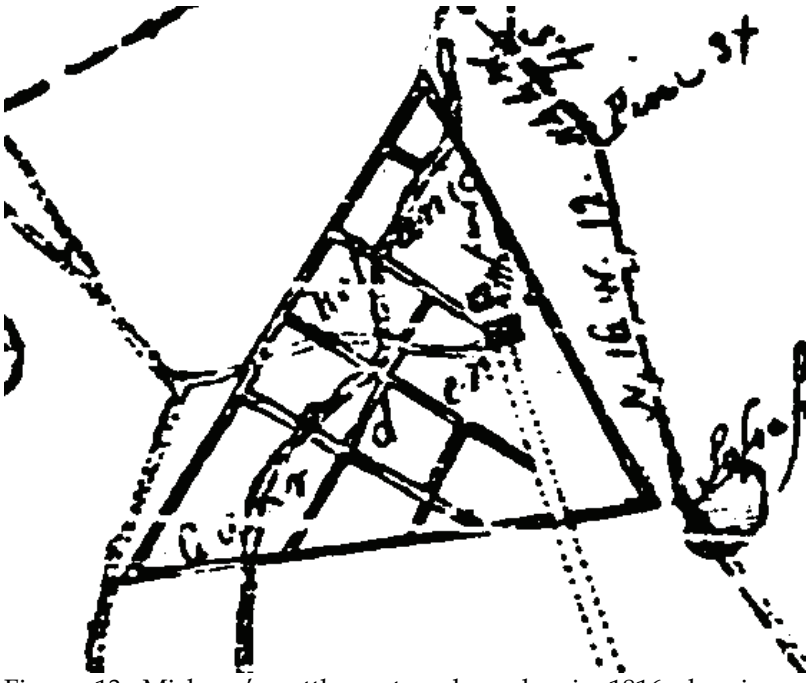


Figure 13. Michaux's settlement and garden in 1816 showing a formal arrangement (McCrady Plat 2178).

Shaffer and Grand Examples of Colonial Gardens

Of course some sources, such as Shaffer (1939) focus on grand gardens (which have often been massively altered), ignoring the larger issues of garden development. Shaffer notes that H.A.M. Smith identified the 18 "outstanding colonial gardens of the state," listing Michaux's, Skieveling, Cedar Grove, Oak Forest, Tranquil Hill (the subject of this study), Newington, Bloomfield, The Oaks, The Elms, Crowfield, Fair Lawn, Drayton Hall, Magnolia, Middleton Place, Archdale, Feteressa, Batavia, and Williamson's. Each of these deserves at least some brief comment.

André Michaux was sent to South Carolina in 1785 to collect specimens for Le Nôtre's work at Versailles. His garden was actually a nursery for these and the other plants that he was collecting from around the region. Established about 10 miles north of St. Michael's, in the Goose Creek area, it had been long abandoned by 1860 when visited by Mrs. Poyas. Afterwards it was used for the burning of charcoal and then as the Charleston Airport (Shaffer 1939:29). This site was briefly examined by Joyce in 1988, although the archaeological study did not explore the garden areas. An 1816 plat of the property (McCrady Plat 2178) reveals the "small house" reported by Michaux's son in 1805, along with a series of squared garden plots to the west side of the house. The layout is vaguely formal, certainly what would be expected from a botanist working with Le Nôtre.

The Skieveling plantation was on the south (or right) bank of the Ashley River between Drayton Hall and the present rail line. It was acquired by Ralph Izard, Jr. in 1785 and Shaffer (1939:30) associates the garden with Izard's development of the tract. He reports that no trace of the gardens could be found and they were probably destroyed in the process of truck farming.

Cedar Grove was opposite and about 1200 yards up-stream from the Middleton house

on the Ashley River. Shaffer also attributes this garden to the Izard family. Shaffer reports on various plantings, as well as remains of various drainage devices, but provides no overall account or vision of the garden (Shaffer 1939:32-33).

Oak Forest, also on the Ashley, was another Izard plantation. While Shaffer provides various historical details, his recounting of the garden is limited to "there are still considerable traces of terraces and lakes indicating a garden of considerable extent" (Shaffer 1939:34).

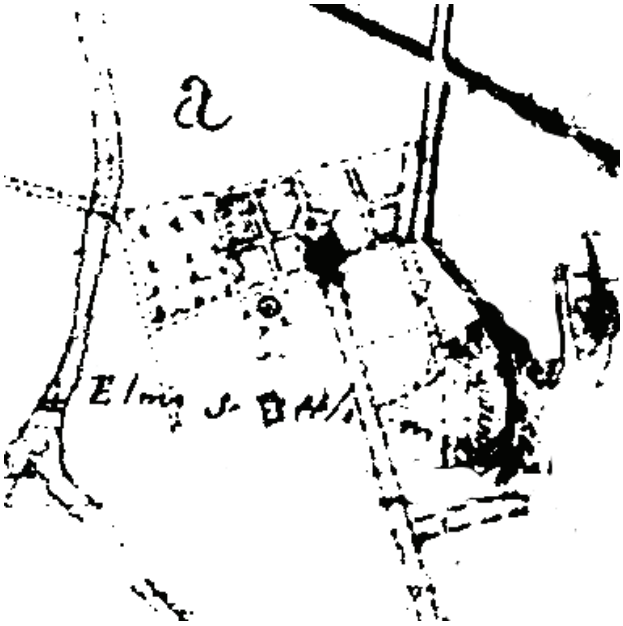


Figure 14. The Elms showing formal parterres (McCrady Plat 4229).

The next plantation examined by Shaffer is Tranquil Hill, the subject of this report. He briefly reports on the history of the property and the house itself. For the garden, he draws upon Mrs. Poyas, briefly mentioning the "beautiful southern courtyard, with its graveled walks, enclosed with living box, and containing flowers of every hue and tropical fragrance . . . beds of flowers, embowered walks, cool retreats and alcove seats" (quoted in Shaffer 1939:35). By the time of his visit, the site had been plowed and was later covered with a second growth forest. Although vague, this account certainly suggests some elements of a picturesque landscape, although we may still detect some formal elements, such as the courtyard, graveled walks, and boxwoods.

Newington Plantation's gardens were likely associated with the tenure of the Blake family from about 1710 to 1837 (Shaffer 1939:35). Shaffer reports that the garden, likely designed by Col. Joseph Blake, was "carefully laid out in the English manner of the early Eighteenth century" – suggesting a picturesque garden. There is additional evidence of some formality – including terracing and hedges. The archaeological site was briefly explored by the South Carolina Institute of Archaeology and Anthropology during the 1970s, but no report was ever published and nothing remains of the plantation house or gardens today.

The Bloomfield or Broom Hall plantation (Shaffer 1939:37) is reported to have had an "extensive flower garden" and Shaffer also mentions the fine spring associated with the garden. Extensive salvage archaeology was conducted on the Broom Hall site and while this work focused on the various brick ruins, some effort was also made to document the garden (Trinkley et al. 1995:243-247). Here we have a variety of garden features, clearly documenting both formal (for example, parterre-like arrangements with annuals and shrubs surrounded by box) and informal (*ferme ornée*) elements.

Next Shaffer (1939:38-40) considers The Elms, just north of Otranto and the seat of the Izard family. Although described by Shaffer as the "most forgotten garden in all Carolina," he provides no detail to help evaluate its design.

The Oaks was described in 1875 as still having its original avenue of oaks and "white oyster shell roadway." Also present was a "formal sunken garden directly behind the house" (Shaffer 1939:41). By 1939 the gardens were apparently "restored" and had likely lost any original features.

Shaffer (1939:42-46) next describes at length the Crowfield gardens, at least partially because this is another of the well documented sites in the low country. This is also one of the few plantations in the region that is still relatively well preserved and which has received rather

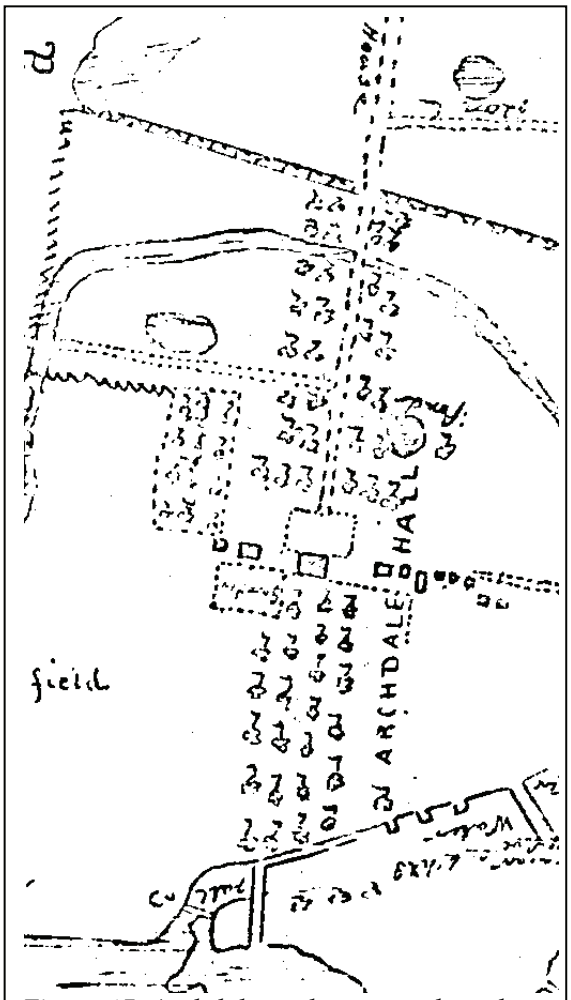


Figure 15. Archdale settlement and gardens in 1791 (Zierden et al. 1985:Figure 8).

detailed archaeological investigations, including study of the gardens (Trinkley et al. 1992, 2003). Crowfield's gardens were likely created by William Middleton, probably between 1729 and 1742. By 1774 the gardens were "decaying" and this provides us with fairly clear evidence that the gardens were largely constructed when formal designs were dominant. Garden elements include reflecting pools, parterres, a bosquet or small compartment of trees and shrubs, bowling green, garden structures, several mounts, and various water works. The investigations concluded that "the garden appears to represent a blending of both formal and very early picturesque techniques, yielding a design that is unique in the Carolinas" (Trinkley et al. 1992:58).

Fairlawn, situated in the Moncks Corner area had, by the time discovered by Shaffer, been completely destroyed by brick salvage and the construction of a tram. He reports that he "could find no trace of the gardens" (Shaffer 1939:91).

Drayton, Magnolia, and Middleton hardly need much discussion, being still very active. Yet it is this activity that makes them of questionable authority – we must search through the extant landscape to find evidence of what was there originally. We know that when visited by Rochefoucald-Liancourt, he commented that Middleton Place was "altogether undeserving the celebrity it enjoys," while Drayton Hall's garden "is better laid out, better cultivated and stocked with good trees, than any I hither to seen" (quoted in Rogers 1984:154). Drayton is also the subject of several archaeological studies. One (Lewis 1978) focuses almost exclusively on the structures, while the other (Wheaton 1989) provides a rare glimpse of greenhouse/orangerie construction and use. Regrettably the orangerie work was not able to document plants grown or stored in the structure, although the information provided on its construction is exceptionally useful for comparison with similar structures in the future.

Archdale is another plantation about which Shaffer has little to say ("little of the original garden plan can be traced"). Nevertheless, it has received at least some archaeological study, although most was directed toward the standing structures (Zierden et al. 1985).

Shaffer himself notes that Feteressa, Dr. Alexander Barron's garden at Ashley Ferry, was

already destroyed by phosphate works. Nothing could be found of Williamson's gardens near Rantowls, and Batavia had been incorporated into Middleton Place.

We have then a series of colonial plantations with gardens ranging from the largely formal (such as found at Crowfield) to the picturesque or natural (such as seen in the account of Rochefoucald-Liancourt for Drayton Hall). In between we have a variety of gardens that seem to include elements of both formality and informality.

Of course, we are hampered since the gardens selected by Shaffer are the most famous. They were owned by the wealthiest of the Carolina planters, individuals who had the capital to not only invest in garden design, but to periodically modify and "improve" their garden, reflecting changing styles and tastes. Not only that, but many of these gardens were "preserved" and, in the process, suffered various periods of "restoration" that may have significantly changed what was present historically. Otherwise, the gardens quickly dissolved into the semi-tropical Charleston climate or have been destroyed by more recent development.

It is therefore difficult to look at these surviving plantations for evidence of garden styles in the low country. It is also difficult to rely on historic accounts since they typically fail to provide the detail we would like or rely on vague statements concerning the "taste" of the owner.

Plats and Newspaper Ads

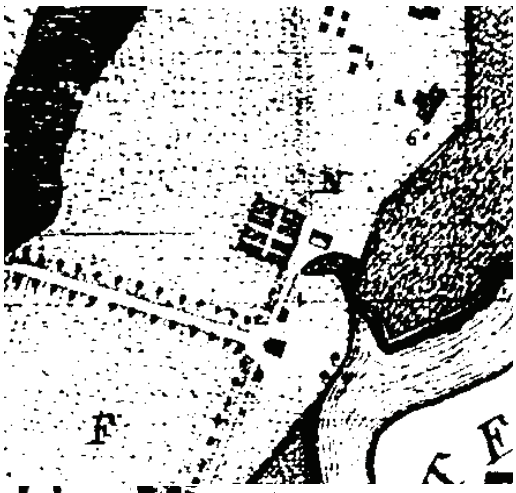
We are perhaps on firmer ground when we turn to plats and newspaper advertisements. Plats from the Chicora files (collected for various compliance projects and other, albeit non-garden, research) were examined and of the 30 Charleston examples, six were found that were both eighteenth century and also exhibited some degree of garden detail. One was The Elms (already illustrated) and the other five are illustrated here (Figure 16).

Although this is far from an adequate sample, these drawings consistently show the gardens as four (or in one case, more) parterres. This design feature is a characteristic of the formal seventeenth century gardens of Le Nôtre and his English imitators (see, for example, Hunt 1964:160-161). This suggests that while there may have been interest, at least among the elite, in the new style pictorial gardens, there continued to be, throughout the eighteenth century, a fundamental conservativism in garden design.

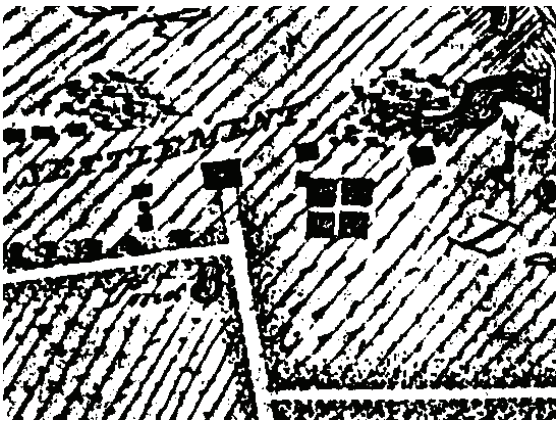
Although Richardson's (1943) discussions are primarily descriptive and she does not categorize her gardens as formal or picturesque, many of these same features are reported, based on other plats. For example, William Bolough's garden on Sewee Bay, dating to 1786, shows square beds or parterres in the front of the house, with a semi-circular bed to the rear on the bay (Richardson 1943:22). Other similar plats include Bethune's 1786 plantation on the Stono River, Champney's 1789 plantation on the Wando, and Postell's 1793 St. Bartholomew plantation.

Briggs identifies a February 23, 1786 *South Carolina Gazette* advertisement for the Champney plantation that described the "seven or eight acre" garden in greater detail:

> the late proprietor spared neither expense nor pains to store the gardens with trees, plants, shrubs, and flowers of every kind which can minister to use or ornament . . . nature and art are happily unveiled: nature is improved, but no where violated in this delightful spot; and when the whole shall be completed in the same taste and elegance with which it is begun, it will become



Upper right – Lewisfield Plantation on the Cooper River in 1706 (McCrady 1556)
Upper left – Liberty Hall Plantation on the Ashely River in 1773 (Charleston Co. RMC DB K6, pg. 200)
Left -- Springfield Plantation, Goose Creek in 1791 (McCrady 1329)
Lower Left – Holmes Plantation on Johns Island in 1795 (Charleston Co. RMC DB U9, pg. 405)
Lower Right – Washington Plantation on the Cooper River in 1796 (McCrady 2275)



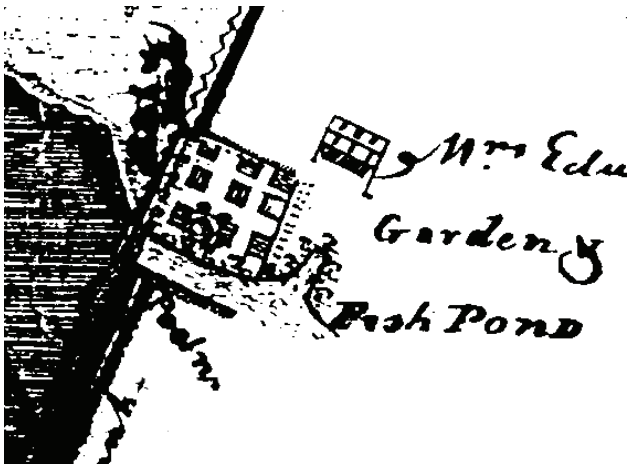


Figure 16. Selection of gardens illustrated by various eighteenth century plats. A common theme throughout is the division of the garden into four or more parterres.

> a seat not exceeded in the United States (quoted in Briggs 1951:103).

This account suggests that while the plat shows traditional parterres, the garden also contained picturesque elements. It seems unlikely that newspaper ads, however, will do much to reveal the popularity of different styles. We suspect that what was advertised were styles that were new, in vogue, different, or particularly worthy of comment. It seems likely that a traditional, formal garden might well have been dismissed with one or two words, or perhaps not even have been mentioned at all.

In order to examine the frequency of advertisements for both gardeners and seeds, we undertook a review of Charleston's *South Carolina Gazette* and the *South Carolina and American General Gazette* using the indices prepared by ESCN Database Reports, searching under occupations for "gardener" and under subjects for "gardens" and "seeds." The years examined include 1732-1735, 1740-1745, 1750-1755, 1760-1765, and 1770-1775.

During the 1730s through 1750s advertisements were very unusual, with only three identified for the occupation of gardener and none identified offering seeds for sale. The reasons for this are difficult to determine. It may be that early in Charleston's history gardeners were uncommon and gardens were set out by the proprietor using manuals and published designs. Given the importance of gardening in England and the social status that was ascribed to the garden, a less likely explanation is that there were few gardens and little need for gardeners. It is, however, possible that gardeners were simply not acquired through newspaper advertising and so we find little record of their presence. Another problem we discovered late in our research is that at least some were indexed under surveyors. An example is Peter Chassereau,

> newly came from London . . . sets out ground for Gardens or Parks, in a grand and rural manner – *South Carolina Gazette*, January 4, 1734

The reason that no ads were found for seeds is equally difficult to understand. It may be that seeds and similar garden needs were handled by factors and were rarely advertised. Or it may be that they were buried among other merchandise and were not caught by the indexing.

Regardless, by the 1760s the number of advertisements, especially for seeds, increased dramatically. We see not only gardeners, such as John Watson and John Edwards, offering seeds and tools for sale, but also see merchants such as Gibbes and Milner or Thomas Stone offering a wide variety of seeds. There are also at least a few planters advertising for gardeners, such as Stephen Drayton. It may be that the perceived importance of gardening had increased by mid-century.

These ads are typical of those being published by gardeners offering their services:

> This is to give Notice to Such Gentlemen and others as have a taste in pleasure and kitchen gardens, that they may depend on having them laid out, leveled and drained, in the most complete manner, and the politest taste, by the subscriber [John Barnes, Garden-Architect]; who perfectly understands the contriving of all kinds of new works, and erecting water works, such as fountains, cascades, grottos (*South Carolina Gazette*, February 25, 1764)

> The Subscriber [William Bennett] takes this method to acquaint the Publisher, that he will undertake to MAKE, or put in COMPLETE ORDER, the GARDEN of any

> Gentleman or LADY in or within two or three miles of Charleston, at an Easy Expense . . . and can be well recommended by the Gentlemen he came out of England with (*South Carolina and American General Gazette*, May 13, 1771)

> The Subscriber [J. Bryant], well acquainted with the European method of gardening, being a native of England, and likewise well acquainted with it in this state . . . proposes superintending ladies and gentlemen's gardens in or near the city whether intended for pleasure or profit – he also plans and lays out gardens in the European taste on moderate terms (*The Charleston City Gazette*, June 6, 1795)

There are also occasional ads for run-away slaves where the individual is described as a gardener. Cohen (1953:69-70) provides two:

> RUN away, an old Negro Man . . . is a Gardener (*South Carolina Gazette*, May 26, 1746)

> Run away . . . a servant man . . . a Gardener by trade (*South Carolina Gazette*, January 8, 1750).

Other Accounts

The letterbooks of Robert Pringle (Edgar 1972), covering the period from 1737 through 1745, provide little information concerning gardening during the early period. There are but two mentions of seeds coming from Boston and London, but in both cases were for Pringle's own use. There is no mention of his handling seeds for other planters. Likewise, the occasional mentions of gardens are all concerned with his own personal city garden – there is no discussion of planters' gardens.

Turning to the Henry Laurens papers, the early accounts (from 1746 through 1758) fail to mention seeds and the only gardening mention concerns Laurens' own production of oranges at his city garden (Hamer et al. 1968:117).

Figure 17. Traditional Chesapeake garden layout showing the parterre design (adapted from Sarudy 1998:58).

Synthesis of Stylistic Changes

While clearly warranting additional research and attention, we are inclined to suggest a perspective different from that of Rogers (1984). We are far less certain than he that the changes seen in England were translated to the Carolinas. There are clearly descriptions and even some plats that show a mix of traditional and picturesque elements or even evidence of designs dominated by the eighteenth century styles of Brown and Repton. Nevertheless, there remain a vast number of plantation gardens that were consistently portrayed as a formal parterre layout.

This is identical to the situation described by Sarudy (1998) for the Mid-Atlantic. She notes that, "generally, Maryland country seat gardeners shared John Adams' negative attitude toward the excesses of the natural grounds movement of the English" (Sarudy 1998:50). She demonstrates that while these Chesapeake gardeners were well aware of the "new English style" and even integrated some aspects such as serpentine entry roads, "they overwhelmingly designed their gardens as traditional squares" (Sarudy 1998:51). She illustrates this with plat after plat showing

order, symmetry, and what is referred to as a quincunx. This later device, classical in origin, is a square with a tree at each corner and one in the center. Moreover, throughout the eighteenth century garden planners in the Mid-Atlantic continued to define garden spaces by outlining beds and squares with borders of fruit trees, box, or other shrub – a clearly traditional and formal approach (Sarudy 1998:58).

She also notes that while Chesapeake planters began to integrate fish ponds into designs in the early nineteenth century, they were as functional – put in to yield fish for the planter's table – as they were ornamental (Sarudy 1998:60-61).

Cothran argues that the formal style continued well into the nineteenth century:

> ornamental gardens of the antebellum period were traditionally formal in design, consisting of a parterre enclosed by a decorative fence or formal hedge, which defined the space and provided protection against the intrusion of livestock and domestic animals. Parterres were composed of a combination of geometric shapes, including squares, triangles, rectangles, and circles, arranged to create a variety of patterns. The designs of parterre gardens at the beginning of the antebellum period were based almost exclusively on standard geometric shapes (Cothran 2003:123)

All of these features, of course, were continued from the earlier seventeenth and eighteenth century formal garden movement.

Cothran also tackles the issue of "high-style" or picturesque gardens head-on, commenting that they were uncommon and there were "far fewer high-style ornamental gardens than historians have led us to believe" (Cothran 2003:124).

Our research serves to support this notion. Most of the plats show, at best, a mix of styles. Many more show very traditional gardens exhibiting no unique or outstanding features of design, planting, or details. There is little in the way of advertisements to suggest that new styles were being heavily demanded by Carolina planters – and in fact there is little evidence that gardeners were in much demand at all during the first half of the eighteenth century. When high-style gardens are discussed by historians, they are almost always owned by the wealthiest of the Carolina planters – suggesting that while the elite may have been striving to maintain status, the average planter was perfectly content with a traditional garden.

These views are echoed by Bushman (1992:129-130) who notes that most eighteenth century American gardens were both classic and formal. While new styles made inroads, moderating the more severe lines of formal gardens, the "informal and picturesque gardens remained subservient to the dominant influence of formal garden principles" (Bushman 1992:130).

There may be many reasons for this. Certainly the cost of attaining the new style would have been significant. We have previously discussed how English landowners sought to reduce costs by moving away from formal gardens; this commentary, however, does not address the actual costs of tearing out and replacing a garden.

South Carolina also saw a large influx of French Huguenots – individuals who may well have been very familiar with Le Nôtre and even the Dutch designs. This may have encouraged the native conservativism.

Sarudy (1998:141) offers a different perspective, suggesting that gardeners in the Colonies saw the world around them as raw and

untamed. That, coupled with their interest in "ancient precedents" made them inclined to actively desire "orderly gardens" – gardens that sought to tame, not promote, nature – gardens that made sense out of the wilderness. She notes that "just as the English were rebelling against their 'ancient' geometric garden designs," in America they "were clinging to the formality of the classical past." She suggests that perhaps the Americans were looking to the security of precedents to "reinforce their present unsteady situation." An important concept in botanical gardens was that by understanding and ordering plants, man was able to understand and order the world around him and the universe at large. Colonial planters may have been searching for similar paths to order and understanding – and the traditional garden was the best avenue for this understanding.

Moreover, it does make sense that the ordered, traditional, and hierarchical aspects of classical terraced gardens with neat parterres appealed to gentry, who were beginning to lose their sense of privilege and rank. Whatever the reason, she maintains – and we see evidence in Low Country gardens – that Americans were clinging to European gardening traditions rather than adopting the natural pleasure gardens of the new styles.

Put simply, South Carolina planters were on a daily basis battling nature around them – to clear fields, to drain swamps, to control their African American slaves, to maintain their health – they may have had no desire to "promote" or "encourage" nature – their world was all about control. And the formal garden helped them see fulfillment of this effort. Bushman extends this concept, noting that the manor garden was an extension of the parlor – "a place where polite people walked and conversed" (Bushman 1992:130). The garden was an extension of the house and the master wished for the garden to be as refined, genteel, and polished as the remainder of the house – and this was best accomplished by the formal garden design.

A Brief Word About Urban Gardens

Although we are focusing on the rural gardens, it is important to recognize that the elite also had gardens on their town lots in places like Charleston. Cothran (1995:30) notes that "fine gardens were by no means limited to the grand estates outside of Charleston but were equally prominent within the city as well." He notes two of the more famous – Mrs. Thomas Lamboll's ca. 1750 kitchen and flower garden on the west side of King Street about at the present location of Lamboll Street and Martha Logan's garden on Meeting Street. There is also Henry Lauren's 4-acre town house garden on East Bay where he planted a wide variety of materials, both local and imported.

These Charleston gardens frequently appear in the McCrady plats and even briefly scanning the plats reveals the commonalities mentioned by Cothran (1995:34-35). The gardens were generally surrounded by a brick wall and were laid out in simple geometric patterns using square and rectangular beds. Depending on the size there might be included an orchard,

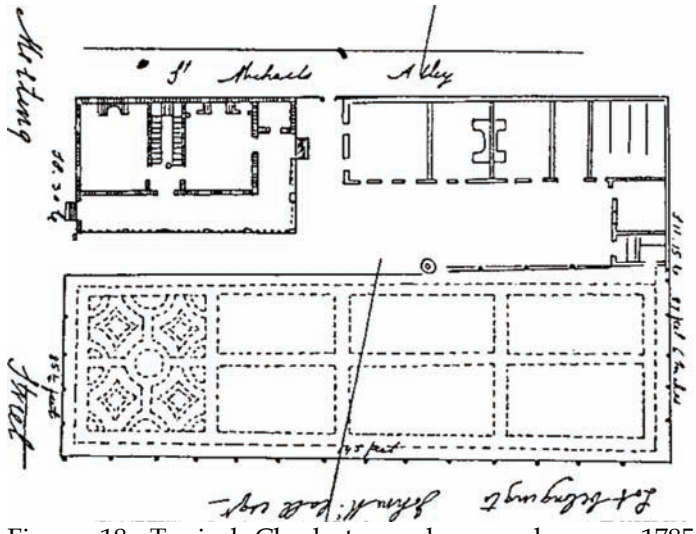


Figure 18. Typical Charleston urban garden, ca. 1785 (McCrady Plat 515).

vegetable, or flower garden – all in a formal design.

These designs clearly hearken back to the knot gardens. Designed to be looked down upon, this feature was perfect for the urban setting where the adjacent house would be multistoried and include piazzas overlooking the garden. Plantings and gravels combined to create patterns and walkways (Hunt 1964:144-145).

These urban gardens also adopted the traditional styles of the miniature formal Dutch gardens. Characteristics included an enclosing wall, arbors and bowers, low box hedges with decorative borders, flower beds, and potted plants placed on tiles. Lavish decoration increased, achieved by formal diversity in all the structural elements and a variety of smells and colors (Oldenburger-Ebbers 1992:164).

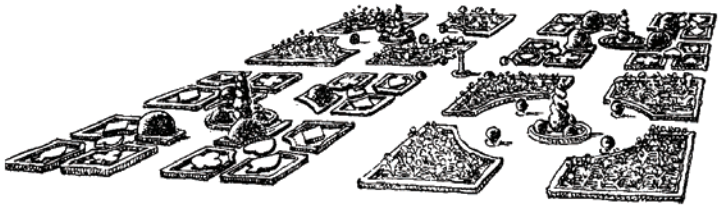


Figure 19. Example of a knot garden (adapted from Hunt 1964:144)

The study of these gardens is in some respects easier than plantation gardens since there are a variety of sources that typically are present, including family papers and plats. Nevertheless, these gardens have often been dramatically altered by years of mindless "restoration" lacking in any vague notion of garden conservation (see, for example, Goulty 1993, Reynolds 2001).

The Role of Archaeology

Given the British interest in gardens, their design, and history, it isn't unexpected that some of the earliest published garden archaeology is English. Taylor (1983) provides a brief overview that focused largely on the ability to recognize gardens through the evidence left behind on the landscape. A variety of aerial photographs reveal the impact of garden design coupled with the relative absence of other disturbing factors at that time. The text does not, however, offer any specific examples of archaeological study (for example, there is not a single plate of an archaeological excavation), and the reader is left to wonder if perhaps the archaeologist is just a keener observer of the obvious than most other people.

By 1990 Kelso and Most had published *Earth Patterns: Essays in Landscape Archaeology* and this publication is much of what Taylor's is not. The authors in this edited work recount a variety of archaeological approaches used to study various landscape and garden issues. Kelso (1990:9) notes that gardens are large and require massive amounts of archaeology, although this labor may be reduced through judicious use of aerial photography and historic documents – issues of considerable importance in Taylor's earlier work. Kelso goes on to emphasize the importance of both hand-excavated and machine cut trenches – the movement of large amounts of soil maximizing the opportunities for encountering features identified through historical research at the garden. Some of these features, such as tree roots, were examined through the production of casts; other features were examined using more conventional archaeological approaches. Finally, he notes – at least from his own example at Monticello – that garden artifacts are often uncommon but significant indicators of activity.

While intending to take nothing away from this seminal work, all but two of the authors in this volume focus on the use of conventional archaeological techniques coupled with fortuitously massive amounts of historical documentation. Those two are worth note since they urge archaeologists to begin integrating pollen and phytolith studies into garden archaeology (Schoenwetter 1990 and Rovner 1990, respectively).

These early efforts were a guiding light for the Crowfield archaeological study (Trinkley et al. 1992). Although the investigations were limited to a single week by a small crew, the study not only documented the physical landscape, but also explored below-ground evidence of garden construction. The landscape and its arrangement were mapped, helping to recognize individual features alluded to in the historic accounts. This work also began to allow the totality of the landscape to be viewed and better understood. Although the time allotted to excavation did not allow trenching in order to identify walkways, the investigations did document the addition of spoil to raise the terrace garden and create the birms. Linear plantings were also discovered along the interior edge of the birm where there was a planting bed several feet in depth. Investigations also explored the garden structures, documenting the plaster and its paint. Although these buildings have traditionally been viewed as "planting sheds," this research also suggested their similarity to exedras or "niches" such as those found at sites such as Bacon's Castle. Unfortunately, this work missed the opportunity to examine pollen and phytolith samples.

By 1994 Naomi F. Miller and Kathryn L. Gleason offered *The Archaeology of Garden and Field.* This work provides additional advancements, including the work by Miller and Gleason (1994b) on the use of macronutrients to document garden activities, with a brief mention of pollen and phytoliths (a topic further examined by Fish [1994]).

Perhaps the most useful article, however, is that by Yentsch and Kratzer (1994). They focus on the "reading" of the soil in order to identify and explore landscape features. They acknowledge that the process is time consuming – and hence expensive – and note that "previewing techniques" are indispensable. While there are no doubt others, they specifically list remote sensing, mechanical stripping, trenching, the excavation of intermediate units, topographic analysis, and various probes (Yentsch and Kratzer 1994:173). They also focus on the analysis, emphasizing that to be successful it is critical to establish the boundaries of the garden, identify its major axis, and locate the various passageways through it (Yentsch and Kratzer 1994:181). Finally, they encourage archaeologists to examine the design of the garden, recognizing that "eighteenth century garden design often used a proportional grid based on a simple geometric form, the 3:4:5 rectangle, ideal proportions in Renaissance design" (Yentsch and Kratzer 1994:195).

It would seem with this background combining science, gardening, design, and art, the exploration of gardens would be a central theme in the Carolina Low Country. Yet it is not. As one more recent example, Byra (1996) attempted to examine the Middleburg Plantation landscape, but failed to get past issues of dominance and power.

A far more impressive effort is the research conducted by Zierden (2001) at 14 Legare Street in downtown Charleston. Her work explores the architecture of the garden, identifying (among other features) the serpentine walks laid out in shell. Her research masterfully integrates pollen and phytolith studies with soil chemistry to present a unified interpretative approach. She also documents at least some of the nineteenth century changes to the eighteenth century garden, ensuring recognition that the landscape was not frozen in time.

Although the work at 14 Legare Street benefited from sponsors that were interested in the landscape for its own sake, as well as from the massive historical documentation available and the circumscribed nature of the urban garden, the research deserves to be imitated by others.

Research Needs

Certainly it seems that with the vast amount of compliance archaeology being done on Low Country plantations, coupled with the constant admonishment for historical archaeology not to simply repeat what has been learned in the

past, that garden archaeology would be far further advanced than it is. Several factors, however, appear to be holding research back.

The first is that when we leave the urban setting, historical documents (including plans, diaries, account books, and letters) decline precipitously. Recognizing that archaeology should not be the handmaiden of history, this should not necessarily pose a significant impediment. Nevertheless, lacking historical accounts to suggest significance, or even clear evidence that a garden existed, archaeologists seem more inclined to focus on structures.

Table 1.
Shaffer's Ten Most Important Colonial Gardens

Plantation	Current Status	Archaeological Study
Michaux	Owned by SCE&G	Limited
Skieveling	Probably destroyed	None
Cedar Grove	At least 50% destroyed	None
Oak Forest	Destroyed	None
Tranquil Hill	Destroyed	This study
Newington	Destroyed	None
Broom Hall	Destroyed	Limited
The Elms	Uncertain	None
The Oaks	Owned by Charleston Post	None
Crowfield	Owned by Westvaco	Limited

The second factor affecting garden research is that the very cultural resource protection legislation that allows so much research to be done through the Section 106 process also hinders new and innovative work. Cultural resource archaeology is a business and, as such, most contracts for data recovery are awarded on the basis of low bid – a process that does not encourage innovative or speculative research. Put another way, with no regulatory agency suggesting that garden archaeology might be an important factor to consider, there is little motivation to expand research into an area that is both costly and uncertain. This is especially true if the archaeologist fears that expending time and monies in the garden will result in a commiserate reduction in funding for the main house or slave row.

There is a desperate need to expand research since failing to do so will allow a finite resource to be lost with virtually no investigation. For example we return to the 10 "best" colonial gardens identified by Shaffer (1939) (recognizing that his identification of "best" does not necessarily mean that the gardens are "representative").

These 10 gardens – Michaux, Skieveling, Cedar Grove, Oak Forest, Tranquil Hill, Newington, Bloomfield, The Elms, The Oaks, and Crowfield – were all extant at the time of his writing over 60 years ago. Their status today is shown in Table 1. Of these 10 sites at least half have been destroyed or are significantly affected. One's preservation is uncertain. And only three of the 10 are sufficiently preserved to be suitable for future study – a rather dismal "success" rate for cultural resource protection or study.

Of course, if we were to consider the gardens of smaller plantations then the numbers increase and we retain the potential for much more productive study. Unfortunately, these gardens are typically poorly documented and often overlooked by archaeologists. As a consequence the most critical research need is an improved awareness of and interest in landscape research.

HISTORICAL OVERVIEW

Early History

H.A.M. Smith provides a reasonably complete historical synopsis for the property, noting that the site is "noteworthy for its choice site and elaborate gardens" (Smith 1988a:22).

Smith explains that the property, amounting to 210 acres, was first granted to James Varine (or Verin) in February 1683/4 (Salley and Olsberg 1973:335-336). The property was laid out for his immigration with his wife and son. Lesser (1995:391) notes that a Jacques Varine died about 1688, leaving only a fragmentary will. Although the first name is different, this may be the same individual.

This may also explain why, in 1694, Varine's land was laid off to a new owner, Edward Jones. "The above Land is Situated on the north Side of the Ashley River joyneing or bounding to George Barnetts & Paul Parkers Land yt: was the said two hundred & ten acres was formerly in the possession of Mr: James Verion in Berkley County" (Smith 1988b:152-153; see also Proprietary Grants 38:150, Salley and Olsberg 1973:466-467). Smith goes to recount a number of additional grants in this same area that were apparently to either Jones or his wife, perhaps totaling 820 acres (Smith 1988a:153).

Jones is briefly mentioned by Baldwin (1985:132) and he apparently formed a mercantile company, Edward Jones Co., with James Fisher (SCDAH, Judgment Roll, Box 62A, pg. 143A). The Proprietary Grant (SCDAH, Proprietary Grants, vol. 38, pg. 150) shows that Jones listed his occupation as cooper.

By uncertain means much of this property was then acquired by Col. Charlesworth Glover, an Indian Trader (Hicks 1998:117), possibly with part of an additional grant.

Little is known about Glover's career. Born in Henrico, Varina Parish, Virginia on April 23, 1688, he moved to South Carolina acquiring about 600 acres and marrying Sarah Sanders. He died December 28, 1732/3 (Charleston Co. Will Book 3 (1732-1737), pg. 8). With his death the study plantation was advertised for sale:

> To be sold at Vendue on the 22d of March a Plantation within a mile of Dorchester Town belonging to Col Glover's Estate Containing 600 acres of very good planting land with a beautiful Dwelling-House 45 Foot long and 35 Foot wide 2 floors 4 rooms on a Floor with Buffets Closets &c a dry cellar underneath with several and Convenient Rooms pleasantly Scituated a good Pasture Barn Negro houses &c (*S.C. Gazette*, February 17-24, 1732/3; quoted in Smith 1988b:153-154).

The property was acquired by Malachi Glaze – either from the sale or more likely through his marriage to Glover's widow. Malachi was the son of Gabriel Glaze, a small planter who represented Berkeley and Craven counties in the Third and Fourth Assemblies (Edgar and Bailey 1977:278). Malachi also served, representing St. George Dorchester in the Tenth Royal Assembly. He held a variety of other offices and was a captain in the militia. He married twice, the second time to Sarah, the widow of Charlesworth Glover. A 1726 census reveals that he was unmarried at the time, a dissenter, and owned 12 slaves (Edgar and

Bailey 1977:279). He died sometime in late 1740 (Charleston Co. Will Book 9 (1760-1767), pg. 273). Smith also notes that a November 25, 1749 plat states Glaze's executors sold 473 acres off the tract to Dr. Robert Dunbar (Smith 1988b:154).

Smith then recounts the property passing through a variety of hands:

> Dr. Robert Dunbar . . . conveyed to Mary Langley who transferred to Adam Daniel, whose Executors on 8 April 1768 conveyed to William Sanders, who on 8 February 1773 conveyed to Daniel Huger, and also with his wife Margaret conveyed on 1 March 1773 to Daniel Huger 53 acres off the "Eagles" tract. Daniel Huger with Binkey his wife on 2 December 1773 conveyed to Richard Waring the whole 526 acres (Smith 1988b:154).

Tranquil Hill Under the Warings

With the acquisition of the property by Richard Waring in 1773 the tract, previously known as "White Hall," became "Tranquil Hill." The ancestry of Richard Waring, however, is shrouded in some disagreement. Smith (1988b:154) says that Richard (b. 1748) was the son of Thomas Waring and Susanna Smith. On the other hand, Middleton (1953:171) reports that Richard (1748-1781) was the son of Richard and Sarah Waring. Pedigree charts for both reconstructions are widely available.

We have not been able to determine which ancestry is correct, although it appears that most researchers support the Thomas and Susanna line. Although it may be possible to further unravel this issue, it likely does not directly affect this historical synopsis.

On November 20, 1768 Richard Waring married Anne Branford, who died within a year of their marriage on September 12, 1769 after giving birth to a son, Richard, on September 1 (who died in August 1771). Waring then married Ann, daughter of John Coming Ball, on January 27, 1771.

At the time Richard Waring was described as "a gentleman of liberal education, benevolent heart, engaging deportment, and friendly disposition" (Ball 1998:224). With the acquisition of White Hall, renamed Tranquil Hill, the Warings became owners of a slave known as Boston King.

King was born on White Hall in 1760. His father, from Africa, was the driver on the plantation, while his mother was a nurse and seamstress. With the new owners, King was made a carpenter's apprentice in Charleston. What makes King's story unique is that years later he wrote his autobiography (King 1798). In the Spring of 1779 King, then 16 years old, ran away from the plantation, joining up with British forces that had taken over Charleston, never to return to Tranquil Hill. His account says little of Tranquil Hill; although he does note that his father worked in the fields until 3 in the afternoon and then would take the family into the woods, where he read to them until sunset (Ball 1998:233). The story seems somewhat fanciful and it would certainly have been unusual for an African slave to have learned to read.

Waring died in 1781 (Charleston Co. Will Book 19, pg. 204), but his widow, Mrs. Ann Waring, continued living on the plantation until her death in 1826. There is no listing for Ann Waring in the 1790, 1800, or 1810 census. One explanation is that Ann Waring was absent from the plantation when the census was being performed. She is listed in the 1813 City of Charleston Directory as residing at 82 Tradd Street (Hagy 1995:161).

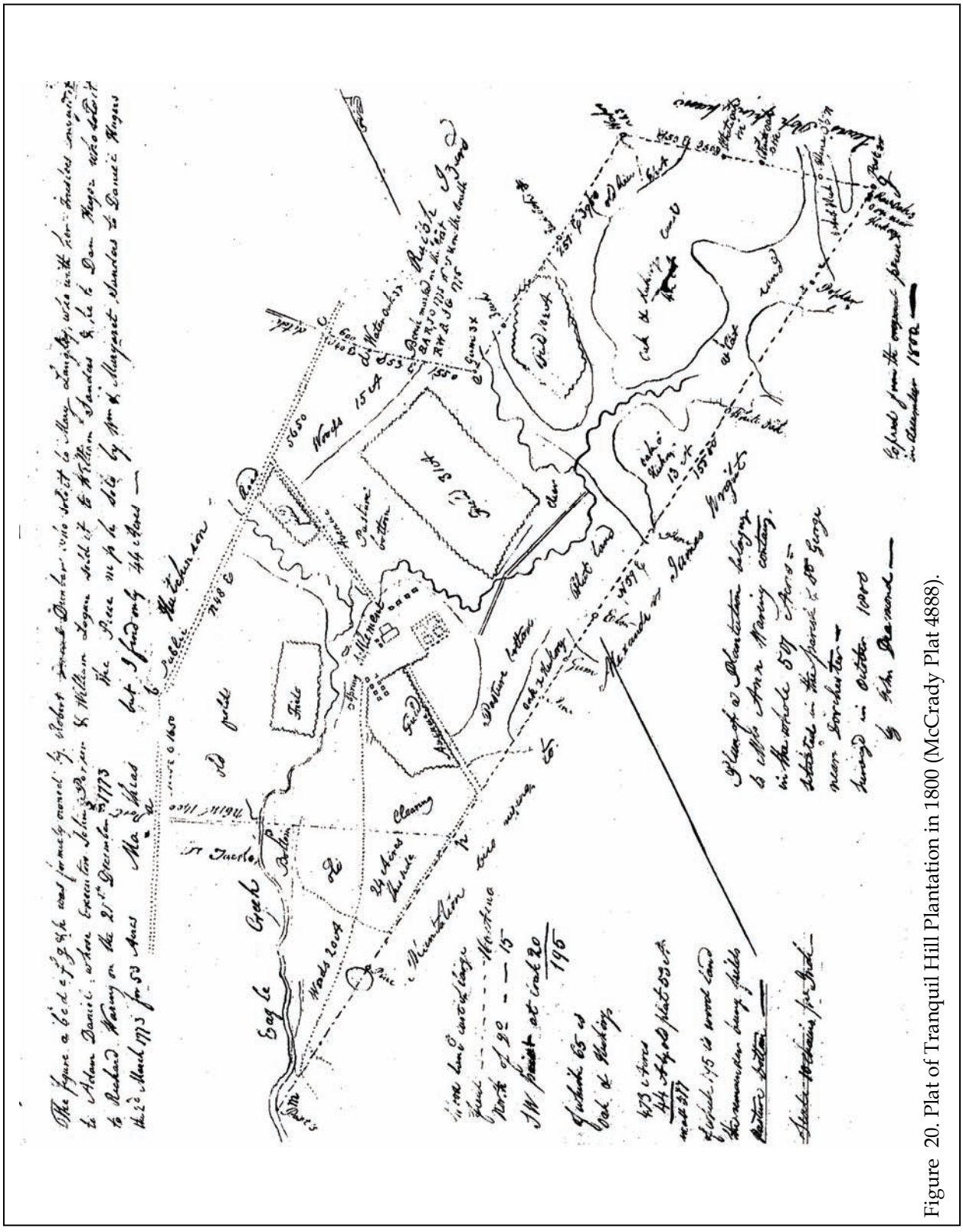


Figure 20. Plat of Tranquil Hill Plantation in 1800 (McCrady Plat 4888).

Sometime after the Revolution and the death of Richard Waring, an artist made a water color of the main house, entitled, "Tranquil-Hill, The seat of Mrs. Ann Waring, near Dorchester." It somehow survived and in 1972 was donated to the Gibbes Museum of Art/Carolina Art Association (Acc. No. 1972.019). Although the watercolor is unsigned, it was donated by Katherine Haskell McDermott and Mrs. James H. Lemons in memory of their grandmother, Mrs. Jennings Waring Perry (Joyce Baker, personal communication 2005).

The artwork will be discussed in more detail in a following discussion, but it reveals a variety of plantation structures, in addition to the main house. There is a shed without walls, perhaps over a well. Upslope and to the right are two structures which may be slave houses. Downslope is what appears to be a winnowing house on stilts, reminiscent to those found in the Georgetown and Santee area. Two additional structures are either at the edge of the painting or just beyond the main house. The painting also reveals two types of fencing – a picket fence around the house and on the left edge a pole fence.

The 1820 census lists Mrs. Ann Waring and her St. Georges Parish plantation. There were two white females on the plantation, both over the age of 45. One was certainly Ann Waring; the other may have been her niece, Miss Polly Ann Smith (Ann Waring requested that she be buried next to her niece, who died in 1825). Also present were 92 slaves (48 males and 44 females). Thirty four of these (37%) were under 14 years. Eleven (12%) were 45 years or older. The bulk of the slaves, 47 (or 51%) were prime working ages between 26 and 45. We estimate that there may have around 25 to 30 families represented.

Two years before her death, Ann Waring's tax return reported 507 acres and 41 slaves – only slightly fewer than the 1820 census (SCDAH, Individual Tax Returns for 1824, pg. 2676). We also know that during the 1820s Ann Waring's various transactions were conducted through Henry Smith Poyas (St. James Goose Creek), listed as her trustee. Poyas was a distant relative through the Ball family.

During her tenure the property was described as:

> a palatial mansion, and elegant residence, rendered more attractive by its beautiful southern court-yard, with its graveled walks, enclosed with living box, and containing flowers of every hue and tropical fragrance. To the warm, youthful feelings, the gardens were Hesperian, beautiful with beds of flowers, embowered walks, cool retreats and alcove seats. The widely extended fields were perfectly Elysian (Poyas 1860:80-81).

Elsewhere Poyas described the plantation as, "the most charming inland place, (with its numerous shady walks, its meandering creek, stylish gate and bridge) within the lower part of the State" (Poyas 1860:102).

The best view of the property comes from the 1800 John Diamond plat of 507 acres (McCrady Plat 4888, Figure 20). This plat shows a variety of fields, although no crops are listed; one "old field," signifying land taken out of cultivation for rest; "pasture bottom," suggesting the presence of cattle; and about 145 acres of wood land. This allocation of lands at the turn of the century suggests that the plantation was active.

Also shown are three settlement areas – a main house and two support structures that almost certainly were situated on the high rise still visible in the fields today, a series of four buildings to the northeast that may represent support structures or the house slave settlement; and a double row of eight slave houses to the

southwest. The gardens were situated to the east-southeast of the main settlement and appear to be formally laid out in four quadrants.

Smith notes that the Warings left no children and he did not continue to trace the title after 1826, although it appears that the property fell into rapid decline. He comments that when he first visited the property in 1883, it was already under cultivation:

> The site of the house is marked by a loose mass of broken brick; the walls of box, the flowers, the "stylish gate and bridge" were all gone. The meandering creek remained, and the fine house site rising boldly from the bed of the lowland. Since then the whole space around the remnants of the chimney hearth have been turned into a cultivated field, and the plough share driven over the hospitable halls of "beautiful Tranquil Hill." (Smith 1988b:155).

The Twentieth Century

At the turn of the century the property was in the hands of Richard S. Gantt as Trustee for Mary G. Jervey, et al. the eventual heirs of Ann Waring. The property was sold by R.S. Weeks, Master at auction in 1903 to James S. Simmons for $2,145.50 (Dorchester County Register of Deeds, DB 4, pg. 456). This was a final disposition of the Waring lands and the deed lists not only the John Diamond plat, but also a resurvey in 1862 by R.A. Young (with the tract determined to represent 654 acres) and a third, unnamed survey, with the property listed as 613 acres 3 rods.

Simmons held the property for only two years before selling it to the Anderson Lumber Company (Dorchester County Register of Deeds, DB 8, pg. 165) at a slight loss. Anderson apparently held the property only long enough to log the lands and in 1908 sold the property at a profit to Mrs. Nellie H. Holmes (Dorchester County Register of Deeds, DB 11, pg. 460). Holmes was the wife of Charleston attorney George Smith Holmes. In 1921 Holmes sold the property for $5 and other valuable consideration to George H. Moffett (Dorchester County Register of Deeds, DB 37, pg. 14). Moffett was also an attorney although we have not identified his relationship to Holmes.

We have identified the plat that was prepared for Moffett in 1921 by Richard C. Rhett (Dorchester County Register of Deeds, PB 7, pg. 220 [PB A, pg. 85]). This plat, reproduced here as Figure 21, shows the boundaries slightly altered from 1800 along the north side. The plat still shows, however, evidence of the original settlement, including a rice dam and two "old avenues" that likely approached the main house from the north and south. There is no evidence of the original house, but to the west there are six structures, possibly remnants of the slave settlement. The plat also lists as the authority an earlier plat by Ladson Webb, dated February 10, 1869 – which we have not been able to locate.

In 1934 Moffett, by that time in his mid-60s, sold the property to Kenneth M. Lynch, a 46-year old physician from Texas living on Church Street in downtown Charleston (Dorchester County Register of Deeds, DB 57, pg. 608). By this time the property was still modestly priced at $5,000. Lynch held the property until 1947 when it was again sold to a commercial firm, the Ellenton, SC based Hollywood-Beaufort Package Corp. (Dorchester County Register of Deeds, DB 91, pg. 504).

Up to this point Tranquil Hill appears to have been a country estate, passing from one relatively wealthy Charlestonian to another. The 1921 plat shows no evidence of agricultural pursuits, although it is certainly possible that the property was leased. It nevertheless seems to reflect the continuing interest among genteel Southerners to own country property.

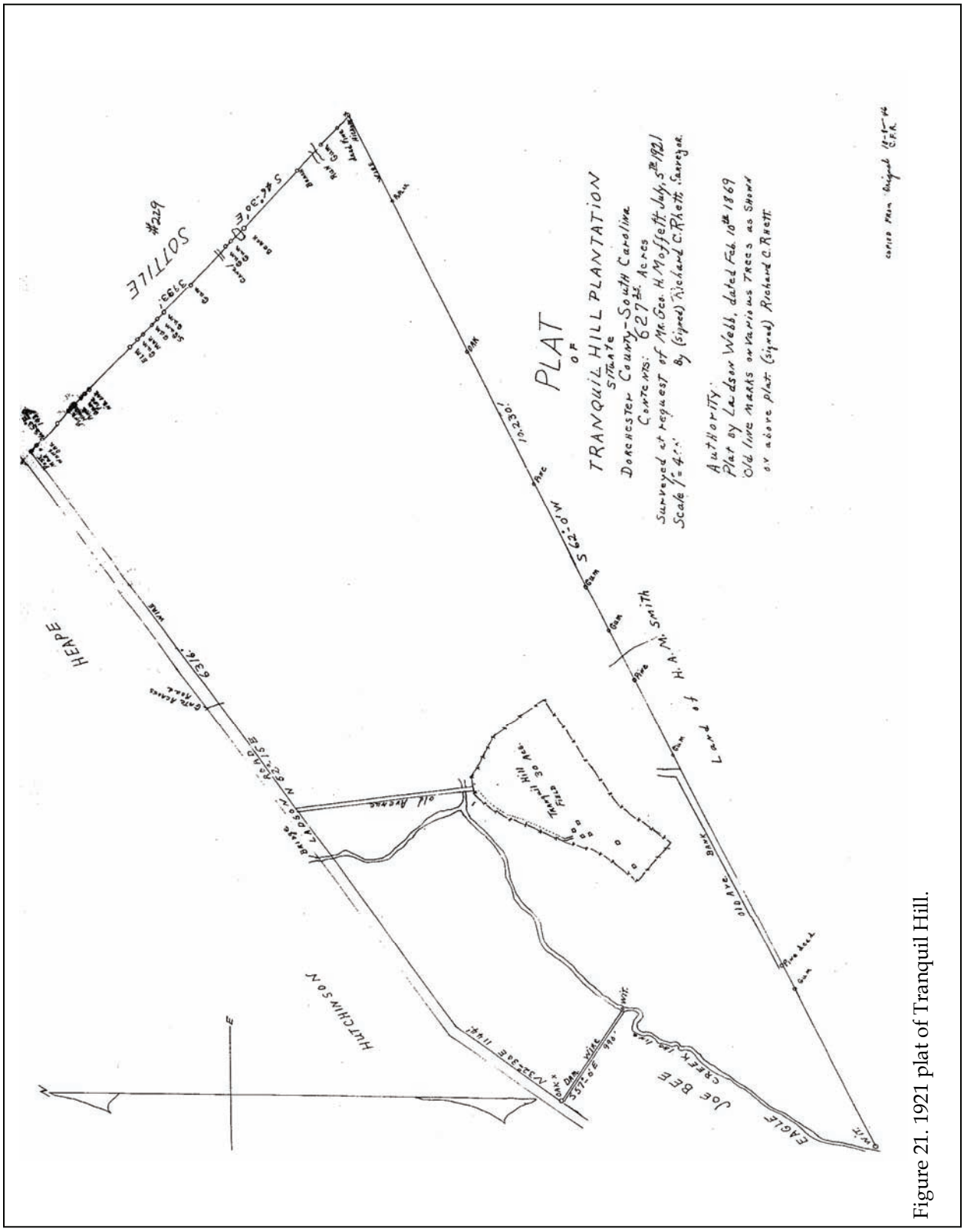


Figure 21. 1921 plat of Tranquil Hill.

Beginning in 1947, however, the property leaves private ownership and passes through a variety of commercial firms, each time with a steadily escalating price – a sign that the old South which Tranquil Hill reflected was quickly slipping away.

The new owners were firms such as the Hollywood-Beaufort Package Corp., Slade Manufacturing Co., Cotton-Hanlon, Inc., Ashepoo River Lumber Co., and eventually Branton Brothers of Dorchester County (Dorchester County Register of Deeds, DB 102, pg. 329).

William S. Branton sold the property to his brother Andrew Branton with the dissolution of their company in 1953 (Dorchester County Register of Deeds, DB 106, pg. 727). Among the items listed in the deed was the "old hammer mill," almost certainly a reference to a rice mill, although the location is uncertain (the firm also owned nearby Newington Plantation). Also sold were various cows, hogs, farming and logging equipment. This suggests that Tranquil Hill may still have been operating as a small farm during the period.

Andrew Branton and his wife, Ethel, began the development of the property, called Tranquil Acres. It was during this period that an effort was made to salvage bricks from the main house, apparently integrating some into various homes built in the new neighborhood (Shelby Lamie, personal communication 2006).

EXCAVATIONS

Methods

To provide horizontal control at the site we created a grid covering an area 900 feet north-south by 900 feet east-west. This was a modified Chicago-style grid based on an arbitrary 0R0 point located off the site tract. The most southwestern point that was identified in this grid is 100R100. Although this grid was set out using the general locations of shovel tests and their findings, it was not possible to tie the two grids together since the mowing in the field prior to our field work removed the original transect flags. Units were designated by their southeast corner and 200R100 indicates a point 200 feet north of the arbitrary 0R0 point and 100 feet right (or east) of that point.

A single vertical control point was used for the excavations at 38DR141 on the top of the hill. Established by Chicora, this point was at 780R740 and the point has an assumed elevation of 30 feet above mean sea level (AMSL). All of the excavations' vertical elevations were tied into this datum and are indicated by AE (assumed elevation).

Using this grid, auger points were established in the three identified settlement areas using a close interval grid of 20 feet (Figure 22). In the slave settlement, at the southwestern edge of the site, the initial grid was 140 feet east-west by 300 feet north-south (with 128 tests) and was later expanded to include an additional area measuring 120 feet east-west by 80 feet north-south (with 35 tests). The main house grid, situated on the highest elevation in the field, was defined as 260 feet square (with 196 tests). The house servants' area to the northeast of the main settlement was defined as 160 feet east-west by 100 feet north-south (with 60 tests). There were additional auger tests that served to connect each of these settlement areas, for a total of 455 auger tests site-wide.

The auger tests were excavated using an 18-inch power auger (producing an excavation with a volume equivalent to an excavation of 1.8 ft^2) mounted on a Bobcat (Figure 23). 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 then used to direct the placement of hand excavated units.

The minimal excavation unit was a 10 by 10 foot unit. 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. Formal excavations at the sites were conducted by hand, using mechanical sifters fitted with ¼-inch inserts for standardized recovery of artifacts (Figure 24).

Excavation was conducted by natural soil zones. Most of the site area exhibited a plowzone, generally 0.6 to 1.1 foot in depth, overlying a subsoil with occasional plow scars and plow ridges. Based on previous testing and shovel testing, we identified that all cultural remains were found in this plowzone. Consequently excavations were terminated at the subsoil. Munsell soil color notations were made during the course of excavations, typically on moist soils freshly exposed. A few of the units, especially on the toe of the slope to the north and west, revealed much deeper soils – generally 1.5 to 2.3 feet in depth. This documents considerable erosion from the upper portion of the site with soils deposited on the lower, less steeply sloping elevations.

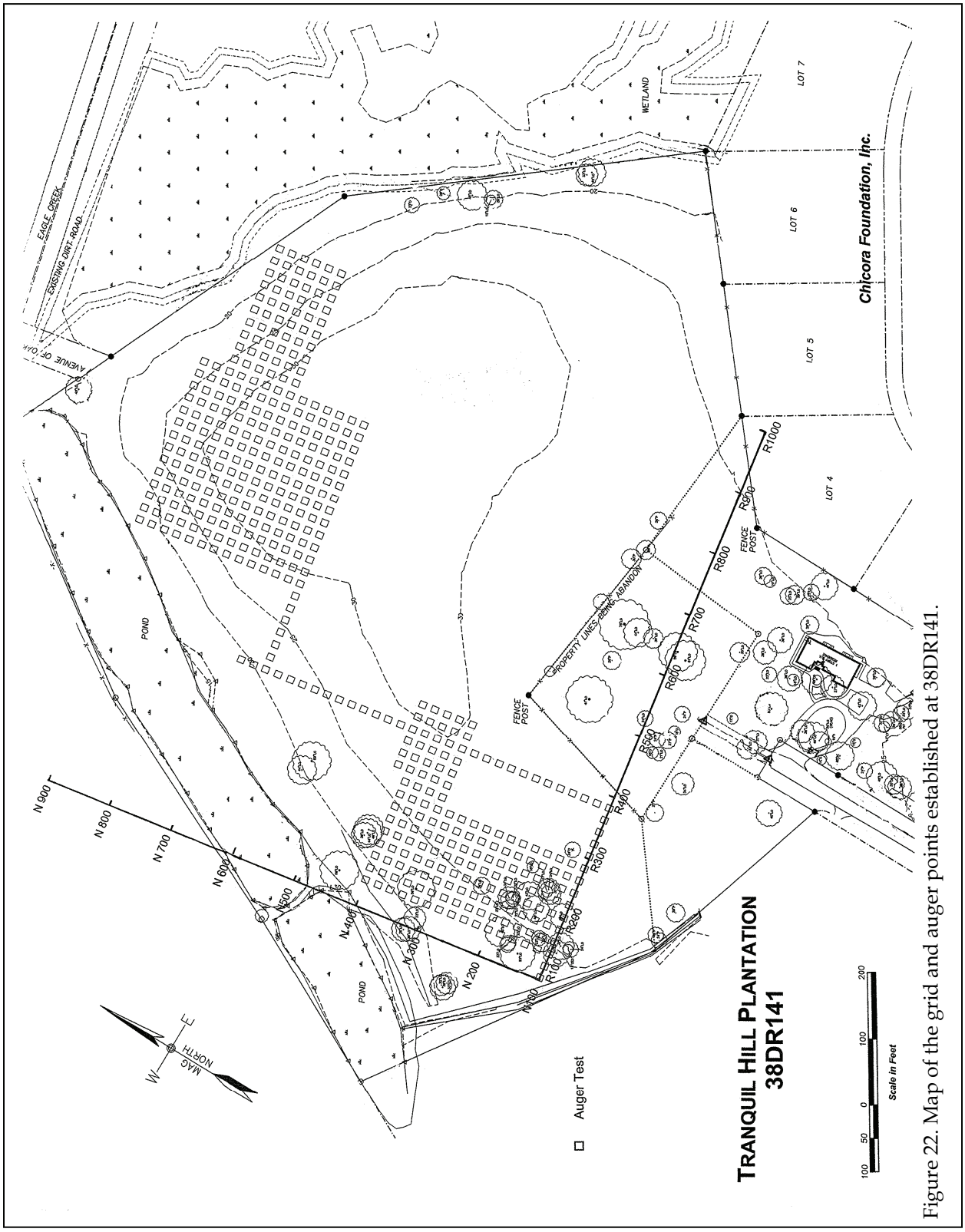


Figure 22. Map of the grid and auger points established at 38DR141.

Figure 23. Auger testing with 18-inch power auger.

All materials except brick, mortar, and shell were retained by provenience. Rubble and shell were weighed and discarded on-site. A one-ounce soil sample was retained from each zone. We have previously retained much larger samples, allowing the luxury of a variety of soil studies. With the current curation issues at SCIAA, this is no longer practical and we have abandoned the retention of large samples.

Units were troweled and photographed using black and white negative and color transparency film at the base of the excavations. Each unit was drawn at a scale of 1 inch to 2 feet. Features were designated by consecutive numbers (beginning with Feature 1). Postholes were consecutively numbered by specific unit. Features, depending on the evaluation of the field director, were either completely excavated or bisected (i.e., partially excavated). Feature fill was screened through ¼-inch mesh and features, upon completion of their excavation, were also photographed using black and white negative film and color transparencies. One ounce soil samples were obtained from all features. A 5-gallon sample was also retained from each feature – those with dark organic fill for flotation using mechanically assisted water float equipment, those with a lighter sandy fill for low pressure water screening through 1/16-inch mesh.

As a result of this work, 1,600 ft² were opened in the three occupation areas. At the slave settlement two areas (one 200 ft², the other 300 ft²) were investigated. In the main house one primary area (300 ft²) was investigated, as well as two other areas to the west at the toe of the slope (each was 100 ft²). At the northeastern house servants' area two excavation areas were explored – one was 500 ft², the other was 100 ft². A total of 1,941 ft³ was excavated in primary work.


Figure 24. Hand excavation in the slave settlement area.

We also proposed, at the conclusion of the hand excavations, to mechanically strip areas of the garden, and occupational areas that might produce structural remains. Consequently, a track hoe with a 5-foot toothless bucket was used to strip areas in the garden, the slave settlement, the main house, and the house servants' area (Figure 25).

A total of 5,970 ft² were opened in the garden area. A total of 2,237 ft² were opened in

Figure 25. Track hoe excavating in the garden area.

the house servants' area. Approximately 3,000 ft² were opened in the main house area. In the slave settlement area an additional 1,098 ft² were opened. In each case the stripped areas were flat shoveled looking for features. Identified features were plotted and further evaluated with some being excavated.

Results of Close Interval Testing

Figure 26 illustrates the results of the auger testing.

At the southwest edge of the site grid, in the area of the slave settlement, we found very spotty remains south of about the N300 line. Oral history, combined with evidence of modern brick piles, revealed that this was a structural area from the twentieth century. North of the N300 line, however, we began identifying dense remains thought to be associated with the Tranquil Hill slave settlement. We expanded the original grid to the east, taking in the extension seen in Figure 26 from R300 to R420, finding that the dense remains continued north and eastward, but had disappeared by about the R400 line. This left us with dense remains in the north central portion of the auger testing area.

In the vicinity of the main settlement we found very dense remains in the vicinity of about N760 to N880 and from R640 to R700 – situated about in the middle of the testing area. Another dense area was identified at the northwest corner of this block, centered around about 900R540. Otherwise we noticed the artifact density thinning noticeably to the west and south.

In the vicinity of the house servants' area – northeast of the main settlement – we noted particularly dense remains from about N800 to N880 and from R880 to R980. Artifact density seemed to thin to the south, but remain relatively heavy northward.

When the density map is examined as a whole, we note that each settlement area – slave area, main house, and house servants' – is very clearly defined. Elsewhere the density drops to a thin wash or is entirely absent. What this seems to suggest is that refuse, in spite of the rural setting, was not spread around the settlement, but was relatively tightly confined to the three identified domestic areas.

Other researchers (e.g., Zierden et al. 1986:7-2) note that most plantation settlements in the low country of South Carolina have extensive sheet middens (sometimes coupled with marsh or slough deposits) and a lack of subsurface pits.

Consequently, the pattern found at Tranquil Hill is entirely expected, although the proximity of the trash deposits to the various structures is perhaps even closer than at some other sites. In addition, we did not examine the low, wet areas outside the field, so we cannot

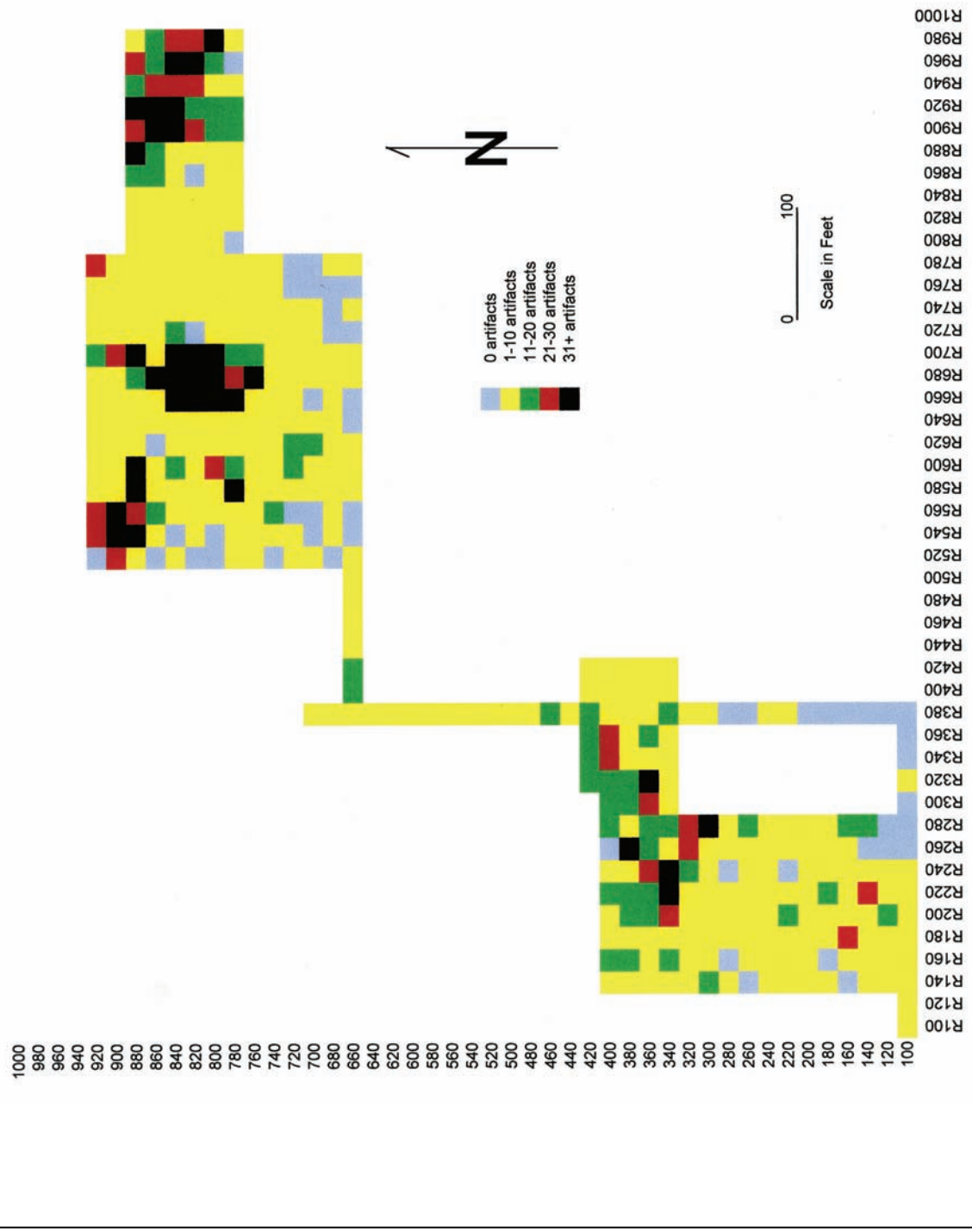


Figure 26. Artifact density from auger tests at 38DR141.

Figure 27. Screening auger tests in the slave settlement area.

make statements regarding trash disposal in these areas. We did note, however, that there was very little trash disposal on the toe of the slopes, suggesting that little deposition would be found further into the wetlands.

As at Lesesne and Fairbank (Zierden et al. 1986:7-5), the researchers found that plowing caused relatively little horizontal dispersion of artifacts. Of course, plowing at Tranquil Hill was relatively light, being associated with only occasional disking for the establishment of pasturage.

Results of Excavations and Mechanical Stripping

House Servants' Area

840R930-950, 850R930-940

Based on the auger study five units – 840R930-950, 850R930-940 – were laid out and excavated in the area of dense remains. To provide some idea of variability an additional 10-foot unit was laid out at 820R970, slightly upslope.

These units reveal about a foot of very dark gray (7.5YR3/1) loamy sand overlying a subsoil ranging from dark yellowish brown (10YR4/1) clayey sand to a very dark grayish brown (10YR3/2) sand. The clayey sand subsoil was interesting in that it produced small quantities of phosphate rock, along with partially fossilized sharks' teeth. Brick density increased from the northwest to the southeast (Table 2) and consisted entirely of fragmentary remains. Shell was sparse throughout, consisting only of oyster. Artifacts consisted of a range of eighteenth and very early nineteenth century European ceramics, Colono wares, nails, and clothing items.

Although there was much mottling in the units, only a single feature (Feature 1) and two distinct post holes were identified (Figure 29).

Feature 1 was partially exposed in units 840R940-950 at the base of Level 1 and bisected by the N840 wall. This initial exposure revealed a vaguely circular stain measuring about 17 feet east-west and 6.2 feet north-south. It evidenced a border of very dark gray (10YR3/1) loamy sand around an interior consisting of mottled yellowish brown (10YR5/6) loamy sand, very dark gray (10YR3/1) sand, and dark yellowish brown (10YR4/4) sandy clay. The western 5 feet of this feature was excavated, revealing a steeply sloping side wall and a total depth of 3.4 feet. The feature fill consisted of lensed zones of fill, including clays, loams, and loamy sands. Artifacts, while present, were sparse. Occasional bricks – highly fragmented – were found.

The feature was interpreted to represent the collar or excavation pit for a well and further work was delayed until mechanical stripping exposed the remainder of the feature outline to the south.

The mechanical stripping (shown in Figure 29), revealed the remainder of the feature, which took on a roughly parallelogram form measuring about 15 feet north-northwest by south-southeast and 17.5 feet east-west

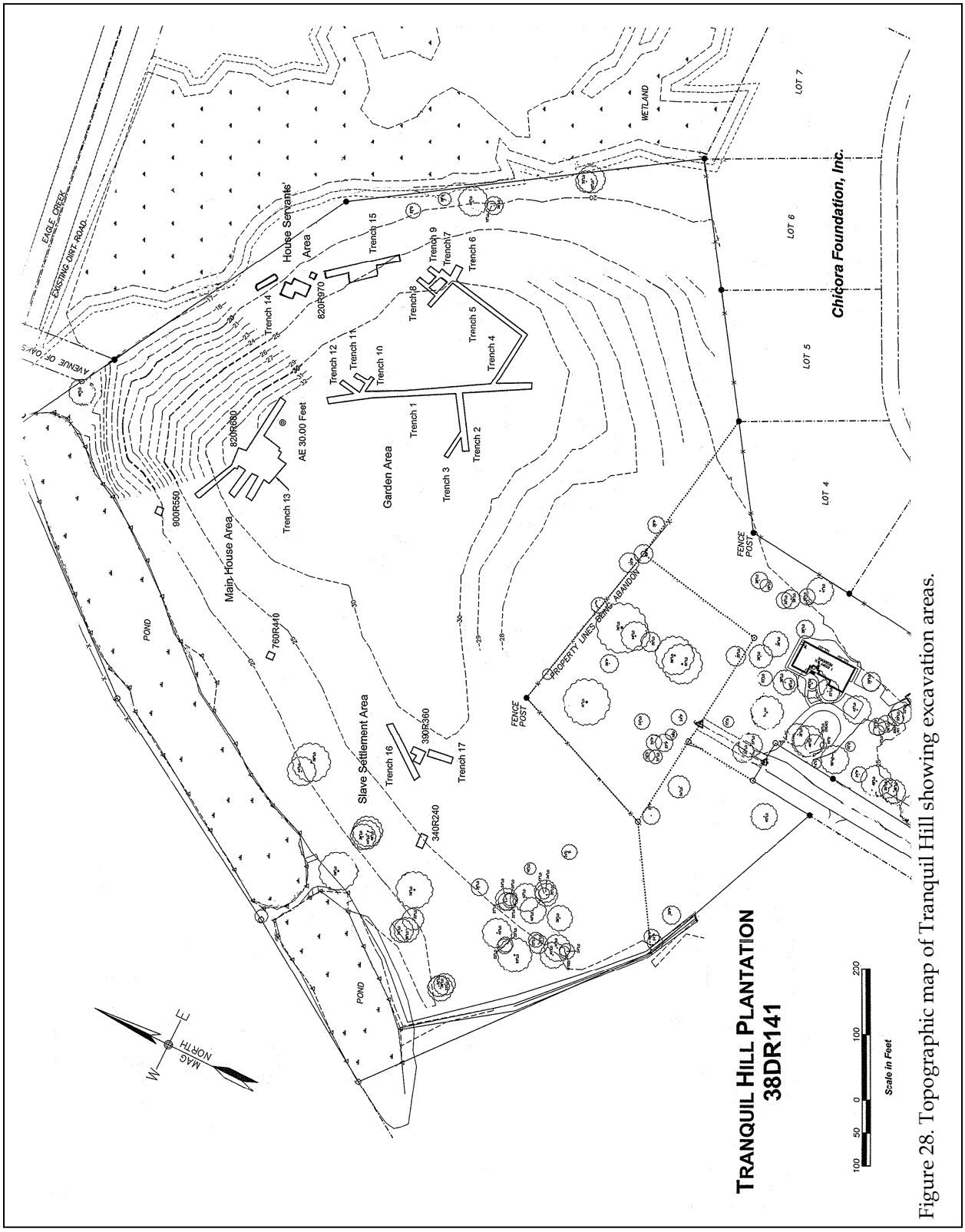
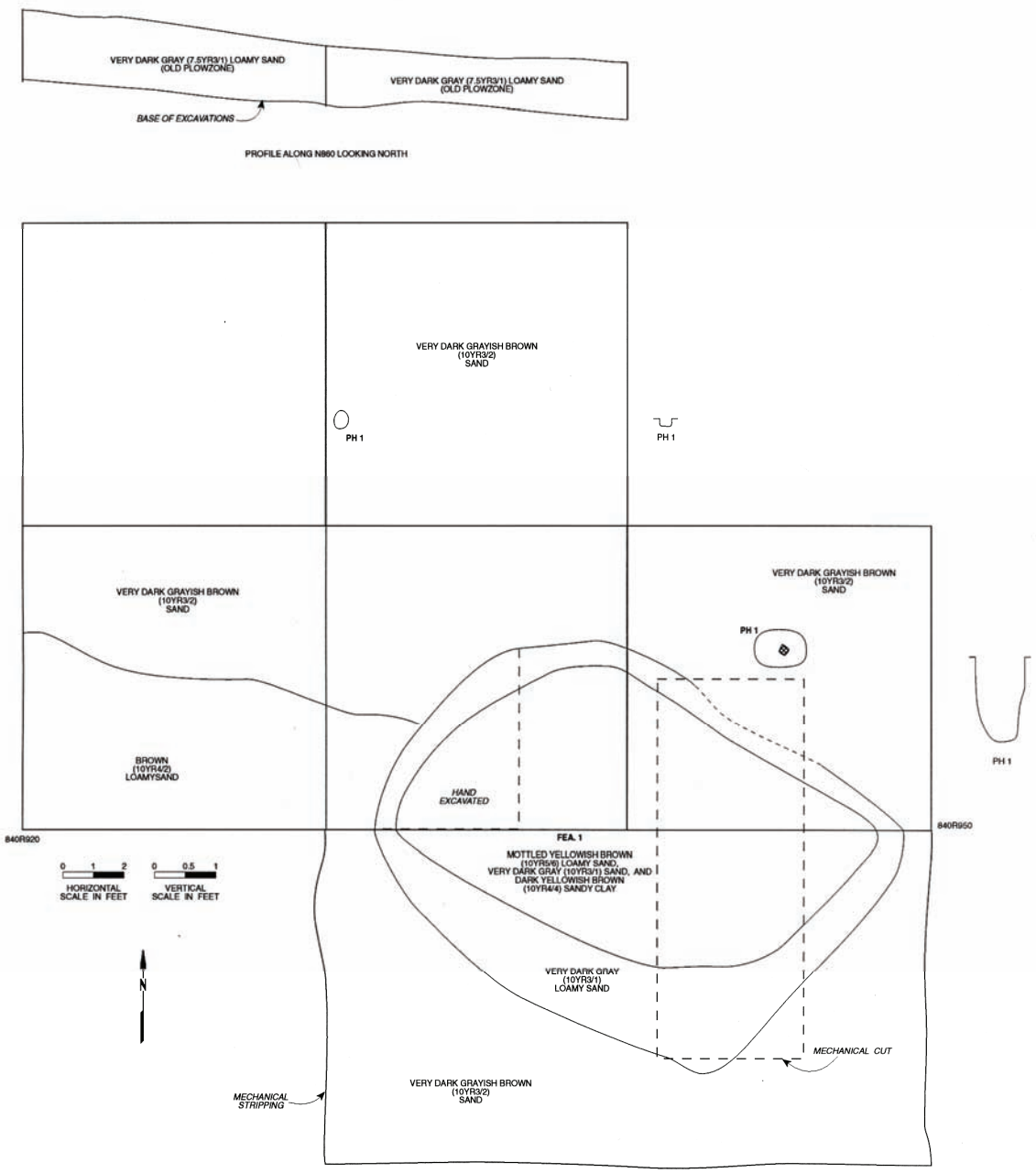


Figure 28. Topographic map of Tranquil Hill showing excavation areas.



Feature 29. Plan and profiles of excavations at 840R930-950, 850R930-940 in the house servants' area.

Figure 30. Feature 1 exposed by mechanical stripping, view to the northwest; hand excavated section shown in the upper left hand corner of the feature.

(Figure 30). Given the size of the feature and the very low artifact density identified during hand excavation, we opted for a mechanical cut to bisect the feature, allowing us to examine the profile and determine if more detailed excavations were necessary (Figure 31).

Figure 31. Feature 1 bisected by mechanical cut, profile, looking to the west.

The resulting profile is similar to the hand excavated section, except of course that it extends to the base of the feature. The excavation revealed lensed fill, occasional brick bats, and at the base a 3-foot square excavation that extended below the water table. The overall depth of the feature was 6.5 feet, with the portion under water consisting of about 0.9 foot.

This feature appears to represent a well, as originally suspected. Typically, however, there is a steeply sloping well construction pit and, in the center, the well shaft, often bricked (see, for example, Zierden et al. 1986:Figure 4-17). In this case, however, there was no well shaft – except for a small remnant at the very base of the excavations – and what we thought was the construction pit actually seems to be demolition of the well, with lensed fill of the demolition hole.

While this might be interpreted as looting, we believe that the damage is far greater than would be present through simple looting. In addition, elsewhere on the site we have found that looting holes were subsequently used for modern trash disposal. No such trash disposal was found in this feature – in fact no modern artifacts were identified in either the hand excavation or the mechanical work. Instead, we believe that the well was intentionally removed from the landscape – perhaps for safety or some other reason. Regardless, it was excavated through and the fill was then placed back in the excavation hole. The only portion of the feature that remains intact is the very base, which indicated a shaft about 3-feet square.

Table 2.
Brick and Shell Recovered in the House Servants' Area (weight in pounds)

Unit	Brick Wt.	Shell Wt.
840R930	150	1
840R940	154	1
840R950	181	<1
850R930	140	1
850R940	100	1

The intact portion of this feature indicates a well very similar to one identified by Chicora archaeologists on Seabrook Plantation (38BU323; Campo et al. 1998:51-53). There we found a well 6.5 feet in depth with intact posts below the water level, creating a 2.5 foot square column. The post apparently served to support planks placed between them and the clay wall. With spaces between the boards, water would be allowed to seep into the well, while the clay would be held back and not allowed to erode into the well pit. We envision something similar at 38DR141 – and this suggests a well construction type that has not been previously recognized and discussed.

820R930

This unit was excavated to the south and east of the initial house servants' block (somewhat up slope), to provide a sample of artifacts from a slightly different area. We found that the soils in this area were not as deep (Level 1 was about 0.85 foot), although otherwise the profile was very similar to a very dark gray (7.5YR3/1) loamy sand overlying a dark yellowish brown (10YR4/4) sand and clay subsoil.

Artifact density is very similar to the original block and the collection is dominated by European ceramics and Colono wares. Brick density, however, increases to 152 pounds – consistent with the increase in density to the southeast. Shell density remained constant at about 1 pound, with oyster being the only species identified. Small quantities of phosphate rock and an occasional shark's tooth – likely originating in the subsoil – were found in the excavations.

While the brick density increased (suggesting that we were getting closer to a structure), no features were identified in this unit.

Stripped Areas

As revealed by Figure 28, there were two stripped areas in the vicinity of the house servants' locale (as well as the previously discussed stripped area that extended the excavation block south to expose Feature 1).

One stripped area, identified as Trench 14, measured 9 feet in width and 32 feet in length and was situated north of the 840R930-950, 850R930-940 excavation block at the toe of the slope. In this area we found that the subsoil was covered by about 3 feet of deposited soil, apparently erosional materials from the higher elevations of the hill. Much of this erosion, however, appears to have taken place prior to the occupation of the plantation since artifacts were sparse and, at the base of the trench, we identified only two post holes (Figure 32).

The other stripped area was designated Trench 15 and consists of a 33 by 9 foot trench at the west end, a 44 by 26 foot block in the middle, and a 34 by 9 foot trench at the east end (Figure 32).

Occupation in this area was far denser, with the artifacts being consistent with the materials recovered from the six hand-excavated units. In the western arm, we identified four post holes and one basin-like pit. In the eastern arm there were an additional five post holes and a large pit, probably for clay extraction. The central stripped block, however, was the most interesting. There we were able to reveal and document all of a structure associated with the house servants' area.

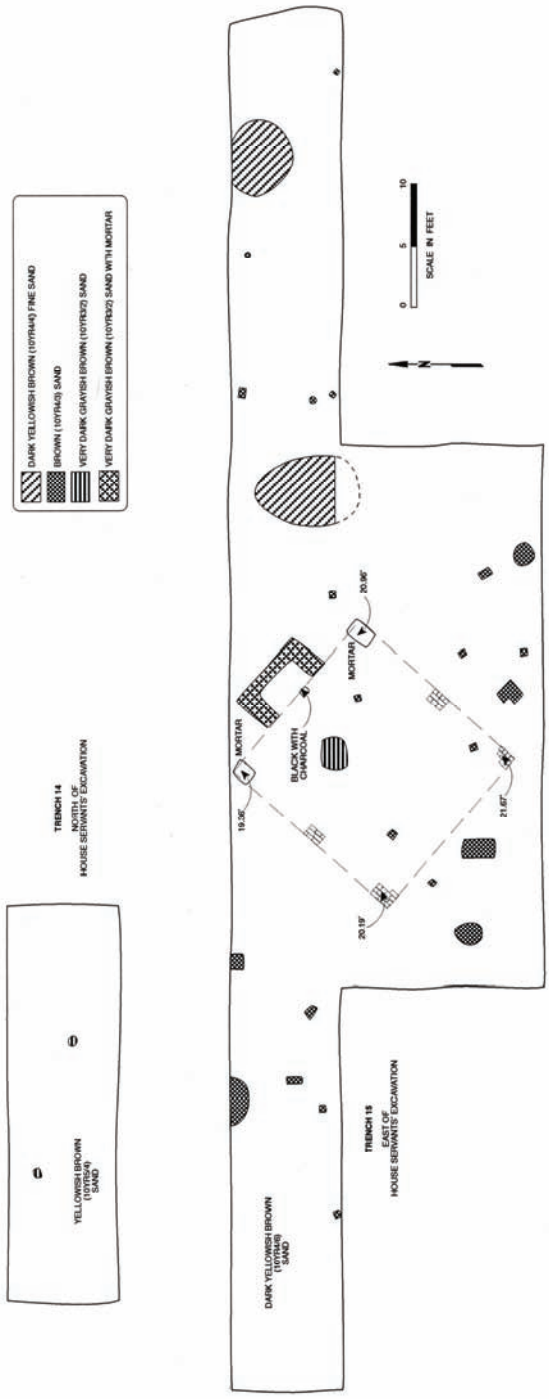


Figure 32. Stripped areas in the House Servants' Area.

The structure (Figure 33) measures 17 feet by 16 feet, with an exterior end chimney measuring 7 by 3.5 feet (the fire box was 4 by 2.5 feet). The structure was supported on brick piers – three to a side. These piers were constructed using fragmentary brick and a coarse oyster shell lime mortar. The individual piers were not deeply set and the structure itself was built on a 1:11 slope. The sill beam at the fireplace appears to also have been supported by a wood post, probably to help carry the weight of the hearth and chimney. Although little evidence of the chimney was discovered, this support post suggests that it may have been brick.

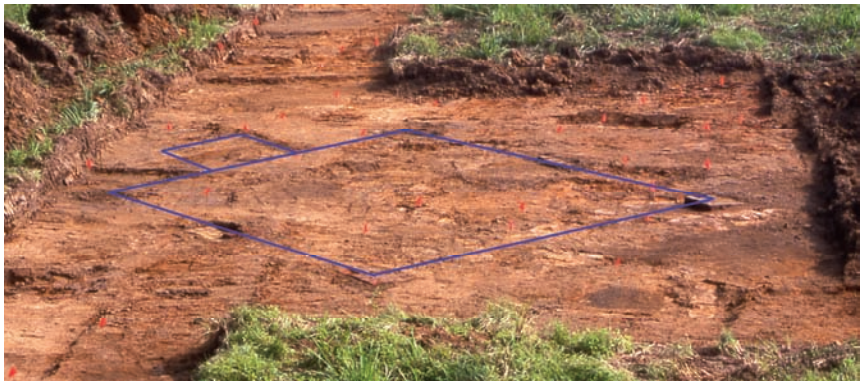


Figure 33. Structure identified in Trench 15, view to the northeast. Structure is outlined in blue.

Providing about 272 ft² of space, set on brick piers, and having a defined fireplace, this is a very "classic" plantation structure. It is a far better constructed house than the wall trench structures found elsewhere on the plantation, yet it appears to date to about the same period. We believe that this architecture helps to distinguish the house servants from the field slaves.

Slave Settlement Area

Two areas were examined in the slave settlement – one with three 10-foot units (390R350-360, 400R360), the other with two (340R230-240) – both based on the findings of the auger density study.

390R350-360, 400R360

The first area revealed level 1 soils of very dark grayish brown (10YR3/2) clayey sand from 0.6 to 1.3 feet in depth overlying a subsoil of yellowish brown (10YR5/6) clayey sand with heavy mottling. Artifacts were abundant, but consisted almost entirely of Colono ware. European ceramics were uncommon, as were clothing items – creating a striking contrast to the excavations in the house servants' area. Other contrasts noted were the absence of shell and the low density of brick (see Table 3). Features, on the other hand, were very common, suggesting that the excavations had been placed in the vicinity of intensive occupation (Figure 34). These features included two partial wall trench structures, situated in such a manner that it appears there were multiple building or rebuilding episodes in this vicinity. Four isolated, but very substantial, post holes were also identified in 390R360, also suggestive of significant building episodes.

Feature 3 was found in the northeast quadrant of 390R360, bisected by the R360 wall. Upon exposure there were multiple, seemingly articulated, bricks that suggested a possible pier. Upon excavation, however, no mortar was found and there were no underlying brick. We believe these were fortuitously clustered and represent only discard (although they may represent the bottom course of a poorly constructed pier). The feature was found to be basin shaped with homogeneous very dark grayish-brown (10YR3/2) sand fill. The exposed portion measured about 3.2 by 3.5 feet in diameter and was 0.52 foot in depth. There was no lensing to suggest gradual filling. Nor was there dense

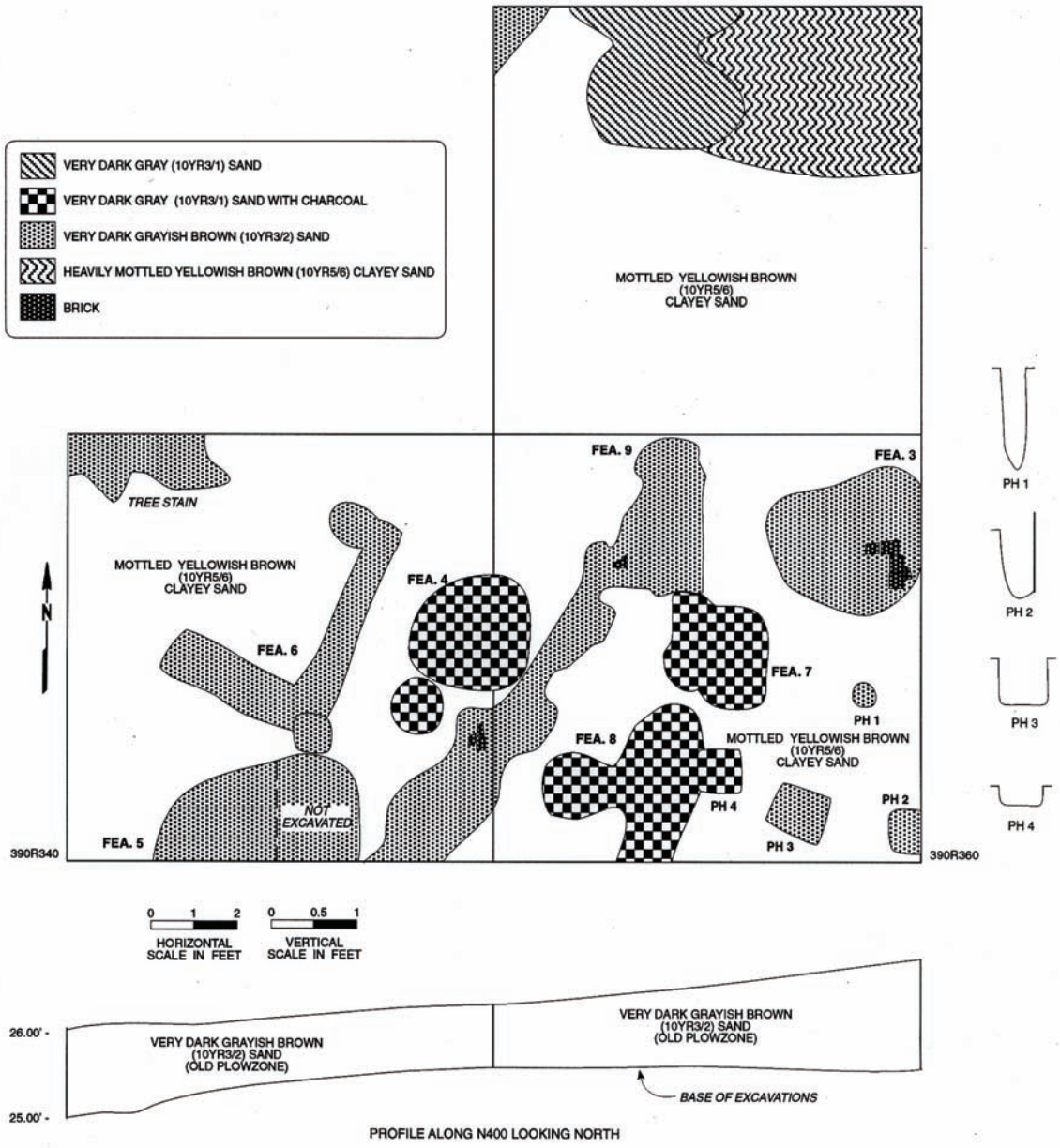


Figure 34. Plan and profiles at 390R350-360, 400R360 in the slave area.

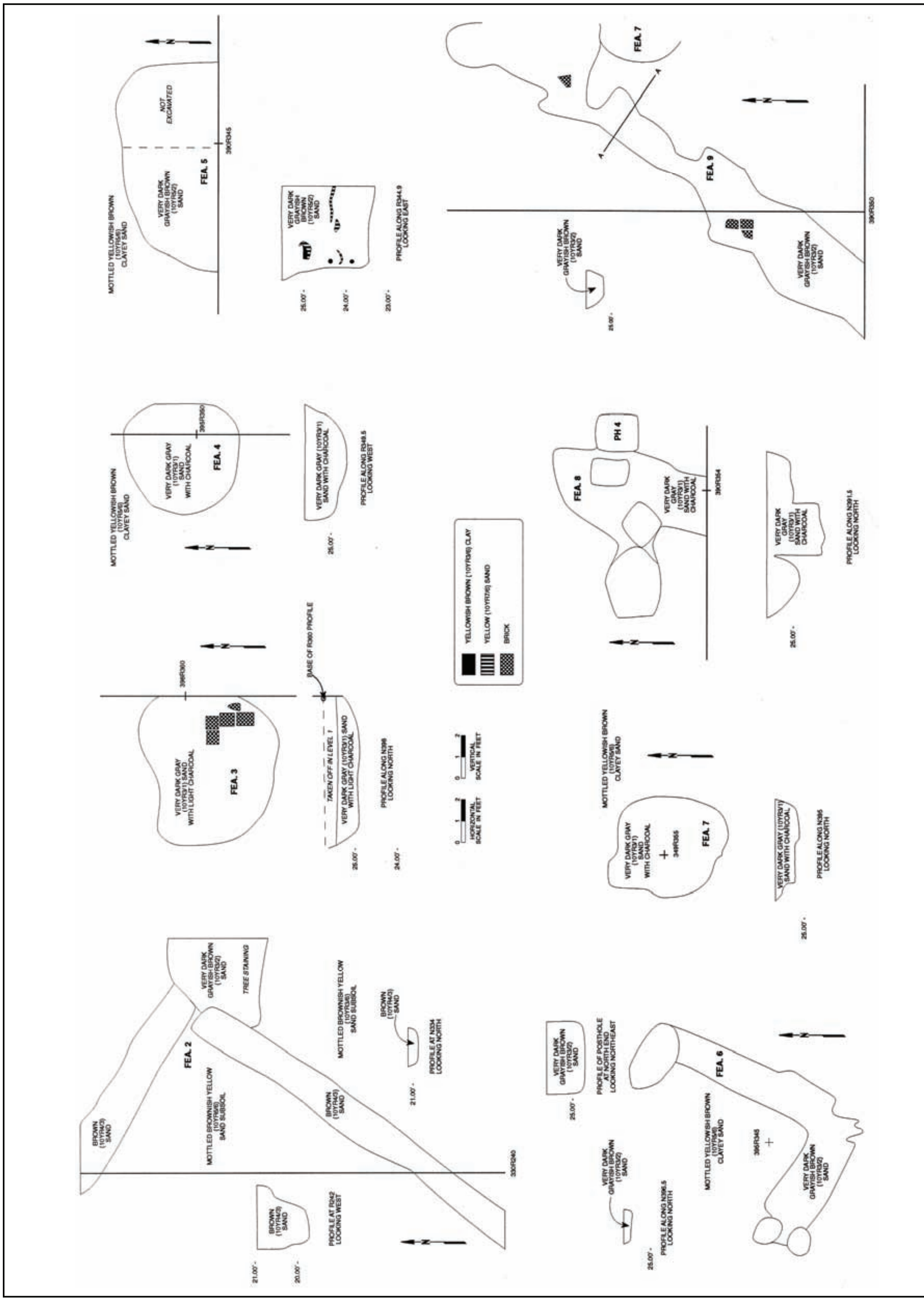


Figure 35. Plans and profiles of features in the slave area.

Table 3.
Brick and Shell Recovered in the Slave Area (weight in pounds)

Unit	Brick Wt.
390R350	50
390R360	76
400R360	49
340R230	55
340R240	54
Feature 3	16
Feature 7	2
Feature 9	4

charcoal or reddening of the sand to suggest use as a hearth. Artifacts were sparse and small.

Feature 4 was found in units 390R350-360, bisected by the R350 line. Identified at the base of Level 1, the feature had very dark gray (10YR3/1) sand fill, similar to Feature 3. The pit was again basin shaped, measuring about 2.7 by 2.6 feet and 0.97 feet in depth.

Figure 36. Feature 4, west half excavated, looking east. This feature is typical of the shallow basins.

Feature 5 was found at the base of Level 1 in 390R350 and was bisected by the N390 line. Only the western half of the pit was excavated, exposing a depth of 2.19 feet. The exposed portion of the feature measures about 4.8 by 2.4 feet and consisted of very dark grayish brown (10YR3/2) sand with occasional lenses of yellowish brown (10YR5/6) clay and yellow (10YR7/6) sand. The pit penetrated a dense pocket of clay and appears to have been for clay extraction, possibly for the production of Colono ware pottery. Artifacts were sparse and appeared to be yard debris.

Feature 6 was found in the center of 390R350 and consists of the lower right hand corner of a wall trench structure. The northeast arm measured 5.5 feet in length before disappearing and the northwest arm measured 3.5 feet. The trench varied from 0.7 to 1.2 feet in width and from 0.11 to 0.22 feet in depth, exclusive of three identified post holes within the trench that had greater depths (up to 1 foot). The trench profiles were consistently straight sided with flat bottoms. Artifacts were more abundant in this feature, given the small volume of soil compared to the other pits found in these excavations.

Feature 7 is another shallow basin pit, similar to Features 3 and 4. It was found in the center of 390R360 and consisted of very dark gray (10YR3/1) sand with some light charcoal. The pit measured 2.4 feet in diameter and had a depth of 0.47 foot. The profile is somewhat irregular, but is in general basin-shaped with sloping sides and a flat bottom. Like Features 3 and 4 there is no evidence of in situ burning and artifacts are sparse.

Feature 8 was found at the base of Level 1 in the southwest quadrant of 390R360. It has an amorphous shape and measures about 3.8 feet east-west by 3.5 feet north-south. The interior depth is variable from 0.5 to 1.4 feet. Upon excavation we interpreted the feature to actually represent multiple post holes that had partially blurred together. Three of these post holes were still very distinct at the base of the pit and a fourth

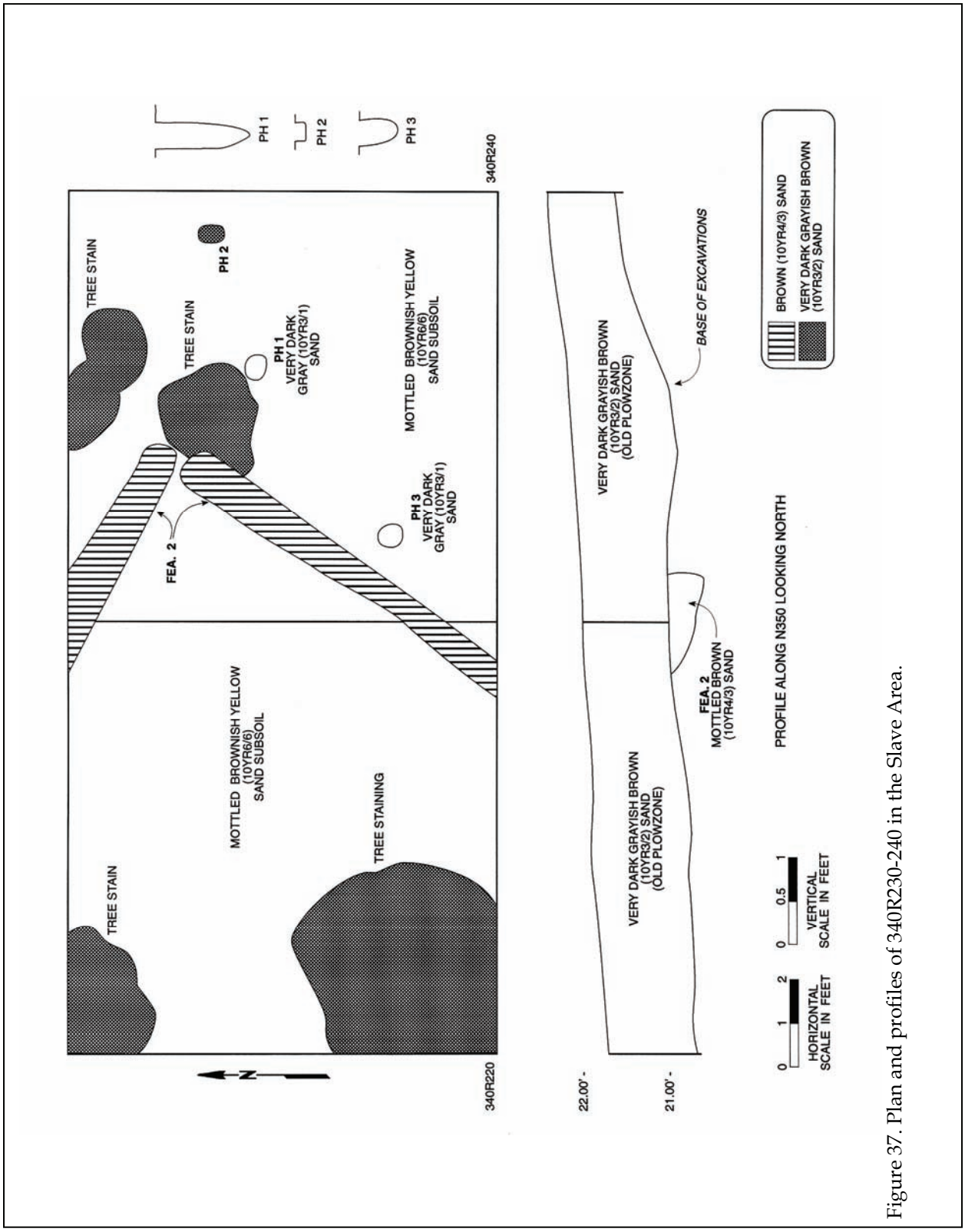


Figure 37. Plan and profiles of 340R230-240 in the Slave Area.

Figure 38. Feature 5, clay extraction pit, west half excavated, view to the east.

(identified as Post Hole 4) was clearly defined at the edge of the pit.

Feature 9 is also somewhat usual. It was identified in the southeast quadrant of 390R350 exiting northeast into 390R360. It has been interpreted as a wall trench segment, measuring about 11.2 feet in length and 0.5 to 1.8 feet in width. The somewhat amorphous shape is attributed to extensive rodent damage, evidenced during excavation as tunnels of darker and lighter soil, and these disturbances run through the feature. We believe that the loose soil in the vicinity of the wall trench permitted easier movement by rodents – perhaps the structure was even infested with rodents prior to its abandonment.

Figure 39. Feature 2, wall trench structure looking north.

The features identified in the slave settlement can be compared to those reported from a number of slave settlements, such as Yaughan and Curriboo, two Colonial slave settlements in nearby Berkeley County (Wheaton et al. 1983).

There the authors report identifying a number of features in the slave quarters, identified mainly as clay extraction pits (14), hearths (3), garden areas (3), and trash pits (9). When the clay extraction pits are examined, they seem to have little to distinguish themselves from the trash pits (in fact some of the features are identified as "clay extraction/trash" pits) except that the clay extraction pits tend to penetrate into the clay subsoil, while the trash pits tend not to.

The extraction pits range in size from about 5.5 by 6 feet to upwards of 14 by 19 feet. In general, however, they are very shallow, with depths typically no greater than about a foot (one is as shallow as 0.5 foot and another is as deep as 3.5 feet, but these represent the extremes).

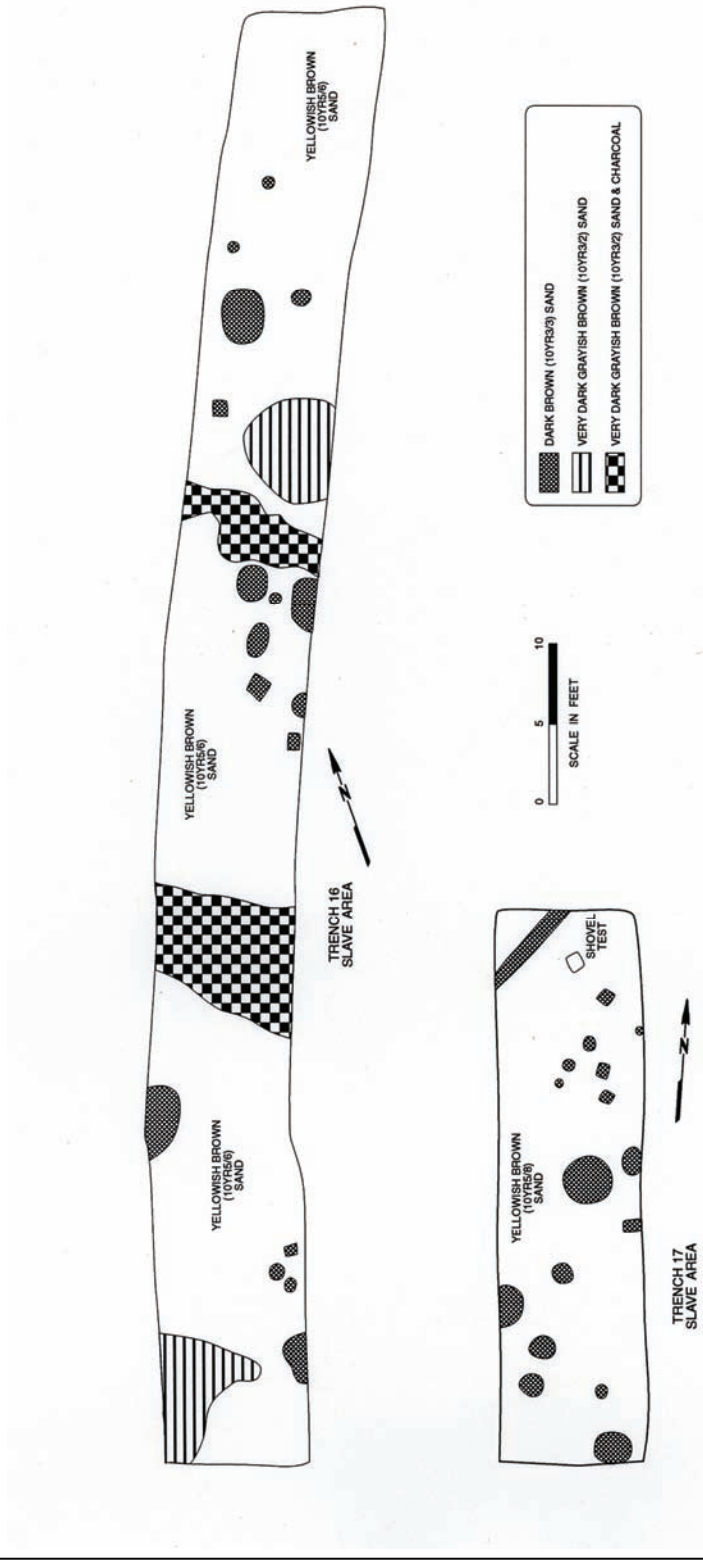


Figure 40. Stripped areas in the Slave Settlement Area.

The clay extraction pit from Tranquil Hill is much more like Feature 8 at the Crowfield slave settlement (Trinkley et al. 2003:61) – a pit perhaps 6 or 7 feet in diameter and about 3 feet in depth. The shallow pits from Yaughan and Curriboo, if intended for clay extraction, are very different from those identified at Tranquil Hill and Crowfield plantations.

We found no hearths, which seemed at Yaughan and Curriboo to be defined by ashy soils – although none evidenced burning or especially high densities of charcoal. On the other hand, this is a feature type that was actually rather uncommon, even at Yaughan and Curriboo. It may be that these were not hearths, but either shallow depressions in which ashy trash accumulated, or that they were smudge pits, where smoking fires were burned to keep away insects. Burning was also a common voodoo/hoodoo activity.

This leaves us with a number of features for which the best "conventional" archaeological explanation is to call them "trash pits," in spite of the fact that they contain relatively small quantities of trash and in spite of the fact that it makes no sense to dig a hole in which to deposit what amounts to yard sweepings, when there were fields and swamps in which to dump trash close-by. Perhaps we should be looking at these features as Wilkie (1994) has examined artifacts, looking for alternative meanings? Perhaps these pits represent trash that was of some importance and therefore needed to be hidden or protected from others? It may be that house sweepings, representing very personal items, were carefully disposed of to prevent falling into other hands for voodoo/hoodoo activities.

340R230-240

These units revealed Level 1 soils of very dark grayish brown (10YR3/2) sand about a foot in depth over a brownish yellow (10YR6/6) sand subsoil. The most noticeable difference between this area and the 390R350-360, 400R360 block is that the soils here contained far less clay. There was otherwise little difference in artifact or brick density and the artifacts recovered were similar – dominated by Colono ware pottery.

The units contained multiple tree stains, identified on the basis of vague definition and occasional root lines; three post holes; and a single feature. Feature 2 is the upper right hand corner of a well defined wall trench structure.

Feature 2 was found in 340R230-240 at the base of level 1, extending southwest and northwest. The trench was filled with a brown (10YR4/3) sand and a large tree was partially intrusive at the corner of the structure. Profiles in areas lacking defined post holes revealed a shallow trench about 0.25 foot in depth and typically about 0.7 foot in width. Three post holes were distinct along the northern wall segment, with depths of about 1.3 feet. Artifacts were very sparse.

Stripped Areas

As previously explained, we conducted relatively little stripping in the slave settlement area since the hand excavations had documented the presence of multiple structures and we chose to focus efforts elsewhere (primarily on the main settlement and the garden area). Nevertheless, two trenches (Trenches 16 and 17) were placed in the vicinity of the initial block excavation.

Trench 16 was 90 feet in length and 9 feet in width. The subsoils in this area were mottled, with several broad areas of very dark grayish brown (10YR3/2) sand and charcoal. There were distinct clusters or concentrations of features and post holes in the trench – one at the south end and the other at the north end. None of these features were excavated.

Trench 17 measured only 35 feet in length and 9 feet in width. The density of remains was greater in this area and, at the

Figure 41. Units 820R660-670 showing the trench cutting northwest-southeast, as well as the dense rubble deposits in 820R670 (background).

north end, we identified another wall trench segment.

Main House Area

820R660-680

These units were laid in based on the dense remains identified by the auger survey. In addition, the units were placed to bisect a partially visible trench that we thought might represent a brick robber's trench and might therefore place us on one of the structure walls.

As it turned out, the main house area was more complex than initially though. In 820R660 we identified Level 1 soils about a foot in depth consisting of a dark grayish brown (10YR4/2) sand. At the very base of Level 1 (and incorporated with it during excavations) was about 0.1 to 0.3 foot of brown (10YR4/3) sand. The subsoil was a dark yellowish brown (10YR4/6) sand, although we did find rubble pressed down into this layer. In the east central portion of the unit we identified additional rubble, but this was discounted as an isolated – and modern – disturbance. We also identified a very clearly defined trench crossing the unit from the northwest to the southeast. Upon further examination this trench was found to be about 2.5 feet in depth and based on stripping (see below) extended an unknown distance to the northwest. The trench appears to have been excavated and then immediately backfilled – all by hand. We surmised, based on the archaeological, aerial imagery (this trench is visible in the 1966 aerial photograph), and oral history evidence that this trench was intended to find any additional brick structures that could be robbed of brick.

Figure 42. Units 820R660-670, south profile showing old trench and extensive disturbances.

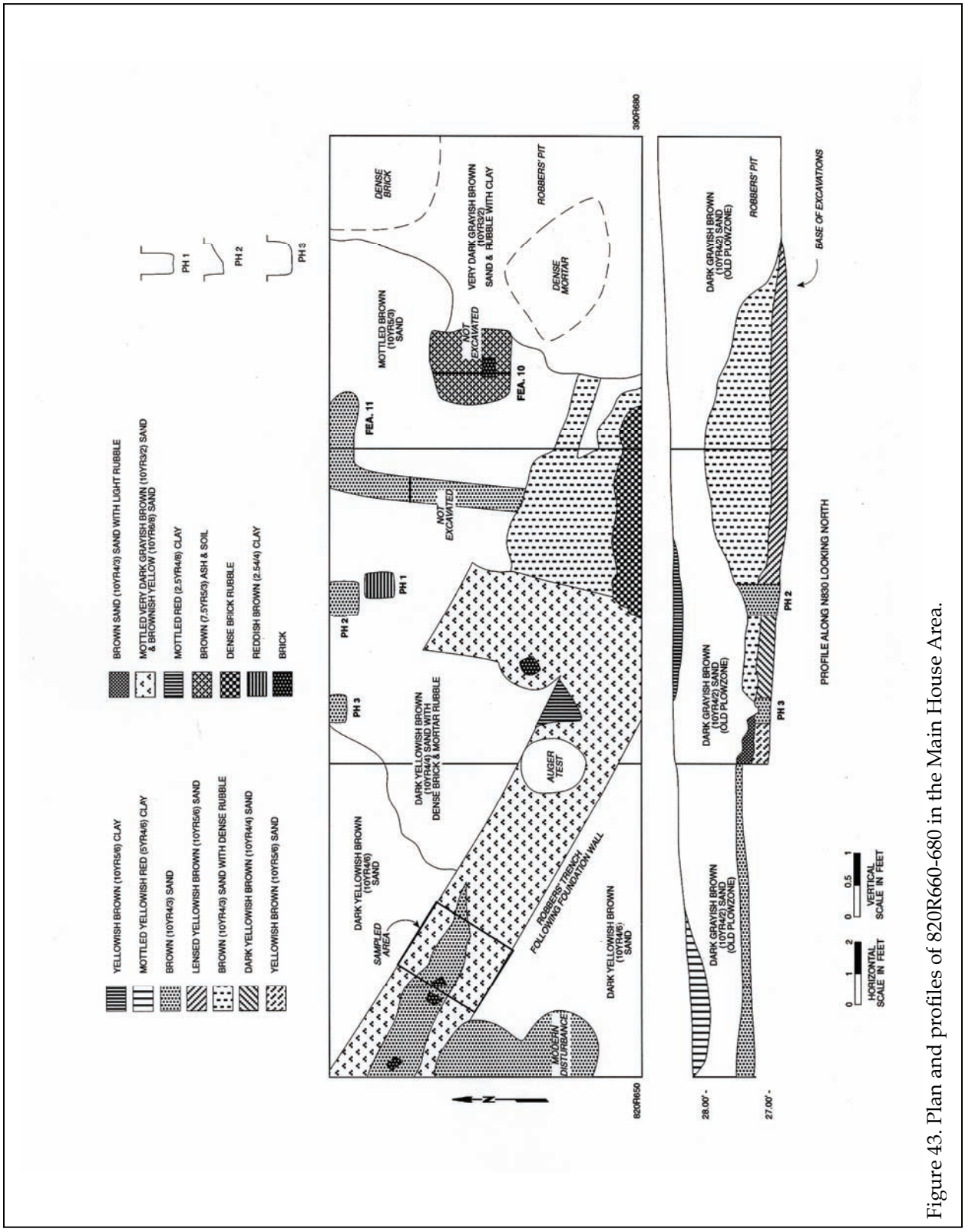


Figure 43. Plan and profiles of 820R660-680 in the Main House Area.

Figure 44. Feature 11, north half excavated, view to the north.

In unit 820R670 and extending eastward into 820R680 the complexity of the units increased. Level 1, while still present, was underlain by additional rubble (instead of subsoil) and Level 2 – a dark yellowish brown (10YR4/4) sand to a dark yellowish brown (10YR4/6) clay – was identified and removed. We were not, however, to identify subsoil except in a few areas of the two units. Elsewhere we found pockets of dense brick, mortar, and variously lensed sands and clays. These two units appeared to be heavily disturbed.

In spite of the disturbances, artifact density in the units was very high, with a large quantity of high status items being recovered, along with a relatively large quantity of faunal remains. Many, unfortunately, were associated with the dense deposits of robbed materials or previous trench cuts. No walls or evidence of walls (other than the various trench cuts) could be identified and we were uncertain – based on these three units – exactly where the main house

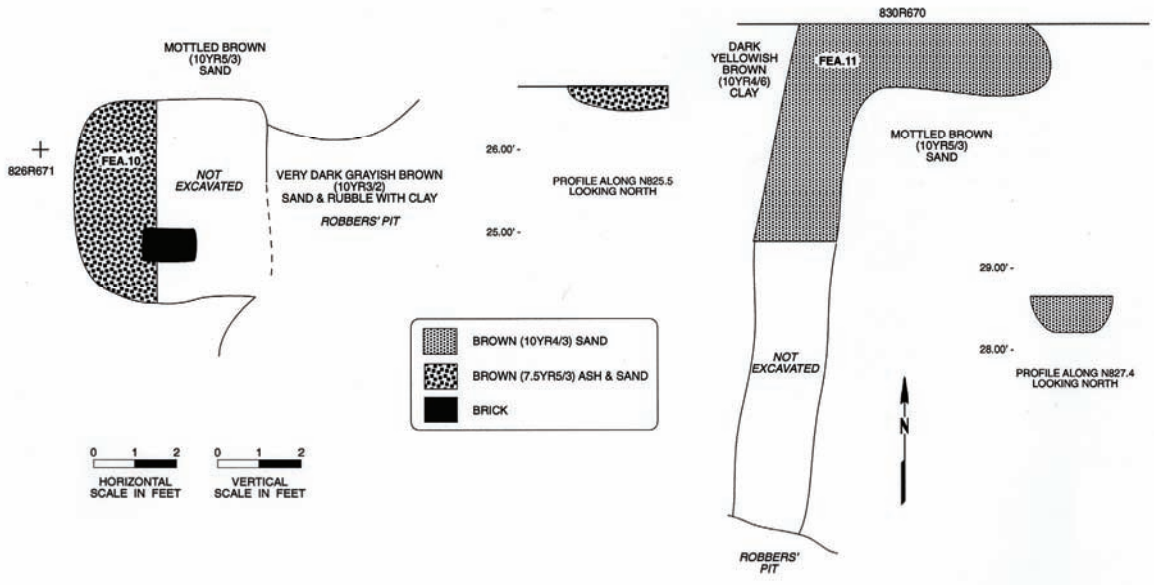


Figure 45. Plan and profile views of Features 10 and 11, Main House Area.

Table 4.
Brick Recovered in the Slave Area
(weight in pounds)

Unit	Brick Wt.
820R660	705
820R670, Lv. 1	1967
820R670, Lv. 2	695
820R680, Lv. 1	2043
820R680, Lv. 2	474
660R410	34
900R550, Lv. 1	163

was situated. Based on the available auger testing information, however, we began stripping southward in the hopes of finding intact architectural remains.

Although three post holes were found in 820R670, only two features could be discerned in the three excavation units.

Feature 10 is a vaguely circular stain consisting of brown (7.5YR5/3) ash and sand situated in the west central area of 820R680 at the base of Level 2. Upon excavation of the west half, the feature was found to be a shallow, basin-shaped pit with no obvious function. The pit is about 2.5 feet in diameter, but the depth was only 0.25 foot. We believe that this represents a low spot where ash (from the destruction of the main house) collected.

Feature 11 is situated in the northeast quadrant of 820R670 and northwest corner of 820R680 at the base of Level 2. Initially it was thought to represent a wall trench structure and when a sample was removed it was found to have a maximum with of 0.9 foot and to be about 0.46 foot in depth. It is truncated to the south by a robber's pit and to the east by elevational changes.

The feature is distinct from other wall trenches on the site primarily because of its consistency and the absence of any post holes. As the main house was initially identified, it appears that this feature may actually represent a robbed trench for a single brick porch wall.

660R410

This unit, situated southwest of the other main house block, on the toe of the slope before Eagle Creek (now dammed to create two ponds), was placed to investigate a slightly higher artifact density revealed by the auger testing. The investigations revealed a 1.5 foot deep Level 1 of dark brown (10YR3/3) sand over a mottled dark yellowish brown (10YR4/4) sand subsoil. No features were identified at the base of the excavations and artifact density was considerably lower than the main house area. We believe the higher density found in the auger test is the result of down slope erosion and soils building up to greater depths.

900R550

This unit, situated northwest of the main house block, was placed to explore a second, higher density area identified by the auger testing. This area, unlike 660R410, covered a much larger area and gave us greater hope that a structure would be encountered.

Excavations revealed a Level 1 of very dark grayish brown (10YR3/2) sand with light brick rubble 1.1 foot in depth over a Level 2 of dark brown (10YR3/3) fine sand about 0.5 foot in depth. Below this was a mottled black (10YR2/1) sand varying from 0.3 to 0.8 foot in depth. The excavations terminated on a dark yellowish brown (10YR4/6) sand subsoil. Artifacts were very dense in Level 1. Levels 2 and 3, however, produced only very low densities and after screening 25% of the unit's Levels 2 and 3, the remainder of these two zones was removed without screening. At the base of the excavations we found only one stain, at the north edge of the unit going into the N910 wall. This was determined to be a tree stain and no artifacts were recovered.

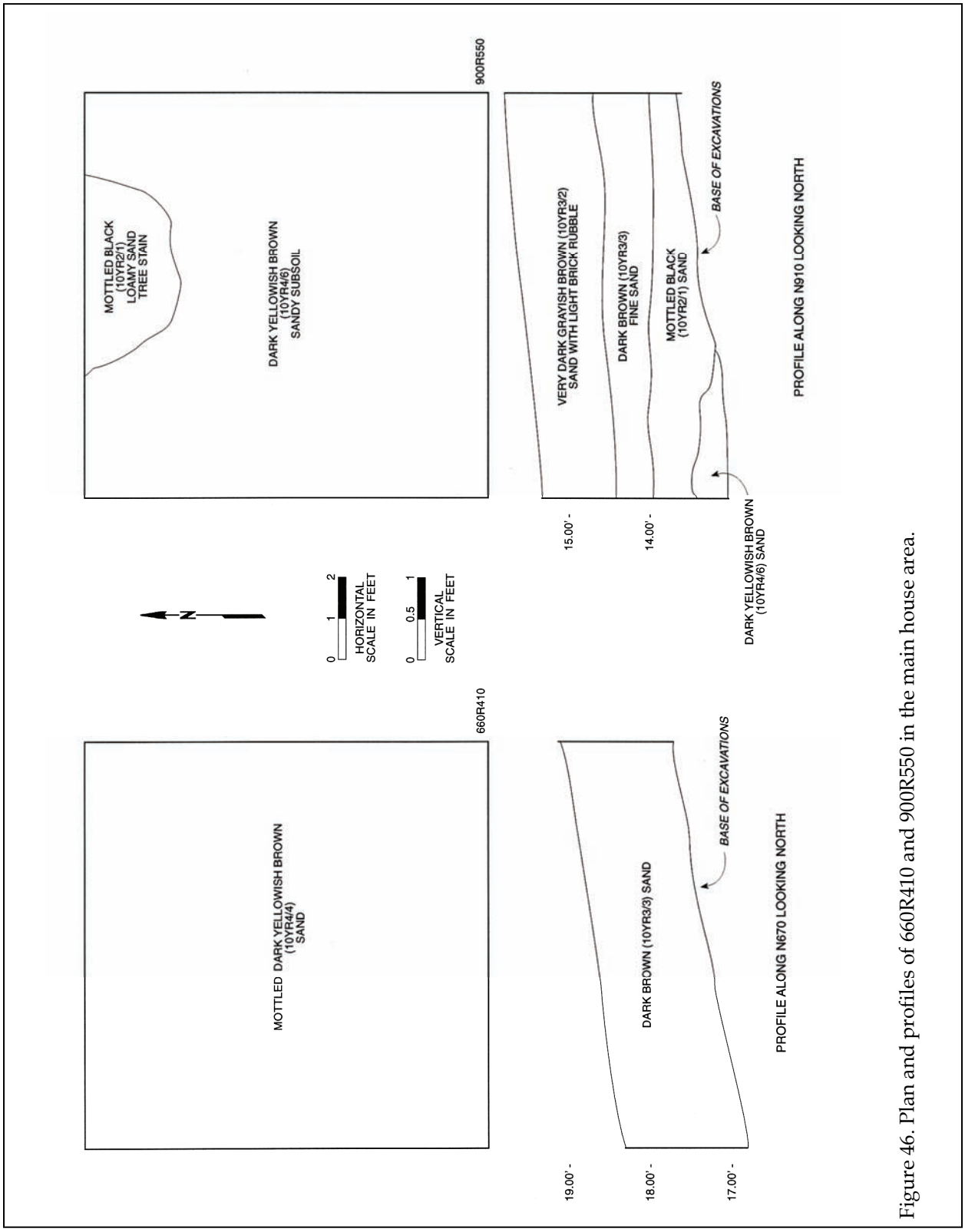


Figure 46. Plan and profiles of 660R410 and 900R550 in the main house area.

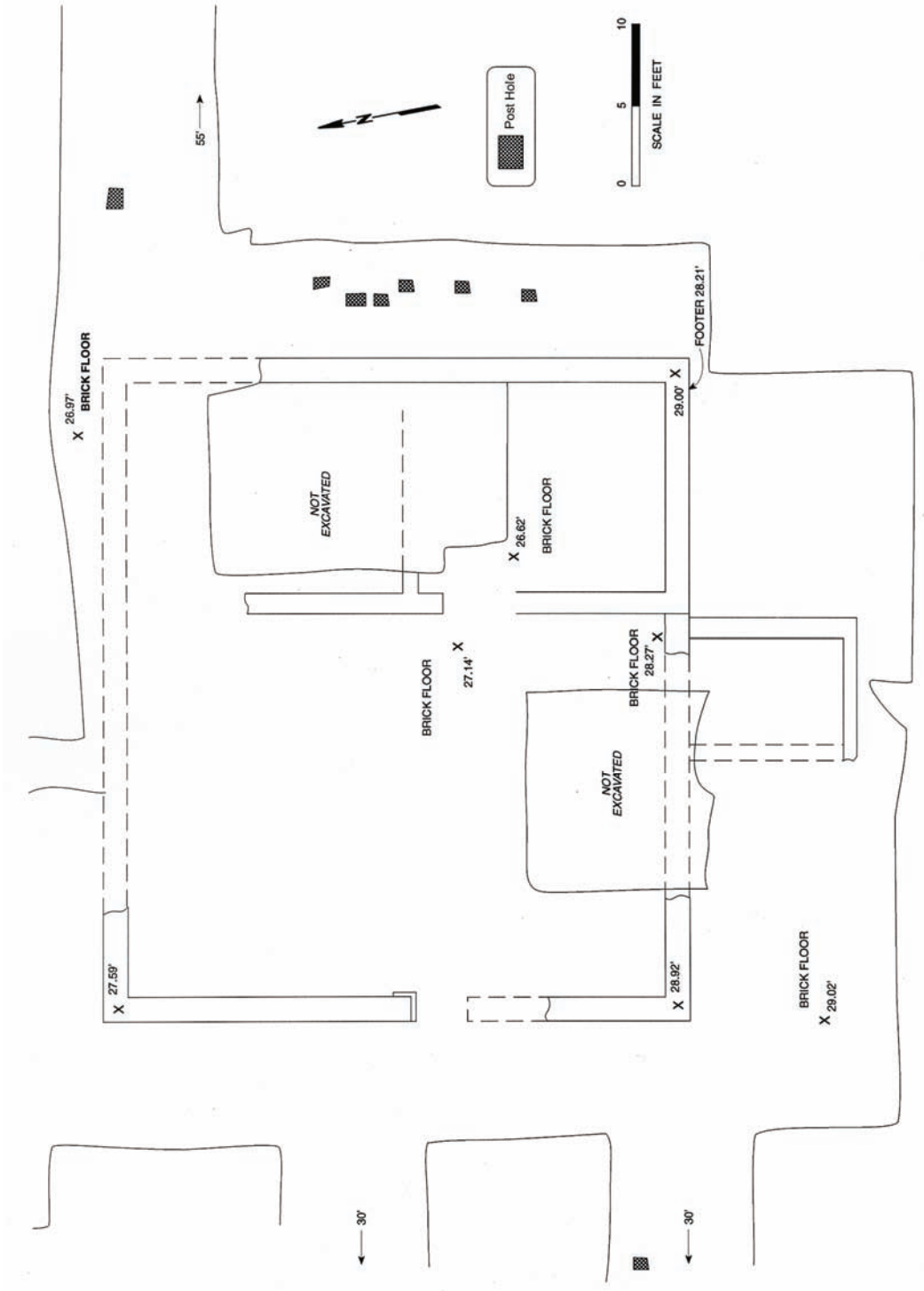


Figure 47. Plan of main house area.

Figure 48. Main house area as exposed by stripping, view to the north.

We believe that the lowest zone represents reduced soils associated with the wetlands of Eagle Creek, prior to the channalization and impoundment projects. The Level 2 soils above appear to be erosional, but since they contain few artifacts, they presumably collected very early in the site's history. Level 1, while cultivated, appears to represent not only the recent plowzone, but also the historic A horizon.

The presence of brick rubble and abundant nails suggests that one or more structures may have been in this area, but no clear evidence was identified and no additional stripping took place in this area.

Figure 49. Cleaning one of the basement rooms with a brick floor. View to the northeast.

Stripped Areas

Our initial stripping at the main house involved expanding southward from the hand excavated units. These cuts almost immediately identified a wall corner and stripping continued to the south and east, as shown in Figure 47, to reveal much of the original floor plan of the Tranquil Hill main house. An additional cut was made to the east in order to identify what features might be associated with the second trench seen in the field. We found that there were no walls or other structures to the east, suggesting that the robbers – unfamiliar with Colonial architecture or the site plan – were simply making cuts in the

hope of finding other structures. We also placed two cuts to the west, in the hope of identifying the two structures flanking the main house, shown in 1800 plat. While both cuts produced a few post holes, none seem to form a distinctive pattern. While it might have been possible to identify one or both of these structures had a very large area been stripped, time did not allow this luxury and we felt that other research goals were more significant.

The main house was found to measure 40.5 feet east-west (across its front) and 36 feet north-south (representing its depth). The exterior walls were 1.5 feet in width, laid up in common bond with five rows of stretchers and one row of headers. There was a footer course, spreading the wall out an additional 0.3 foot on the exterior. Mortar was oyster shell lime with abundant sand. Abundant salmon bricks were incorporated into the interior wall construction; very few glazed bricks were noted. All bricks were hand made and varied considerably in size (see Table 5). Interior walls were 1.1 foot in width laid up in English common bond with alternating rows of headers and stretchers.

Table 5.
Brick dimensions (in inches) from the main house.

Length	Width	Height	Notes
7-5/8	4-5/8	2-1/2 – 2-5/8	Salmon – red 2.5YR5/8
8-1/4	3-7/8	2-1/2	Salmon – red 2.5YR5/8
8-1/8	4	2-3/8	Hard – dark reddish brown 2.5YR3/4
8	3-3/4	2-3/8	Hard – dark reddish brown 2.5YR3/4
8-5/8	4-3/8	2 – 2-1/8	Hard – dark reddish brown 2.5YR3/4

The internal plan of the structure revealed a central hall, probably 8.5 feet in width, with two rooms on either side. The rooms on the east side of the structure were 13 feet in width and approximately 15 and 17 feet in length.

The central hall was laid in brick and we identified two elevations – at the south end of the hall the brick floor was at 28.27 feet, while in the mid-section we identified intact flooring at 27.14 feet – 1.13 feet lower. This difference in elevation may have been associated with the need to provide greater headroom clearance in the main work/storage areas of the basement, or it may have been necessary in order to provide stair access to the upper floors.

The floor of at least one of the rooms, in the southeast corner of the structure, was recessed even lower – with a floor elevation of 26.62 feet, or a step down from the hall of 0.52 foot. In this case it seems likely that the lower elevation was the result of providing additional headroom.

The interior walls were all finished in sand and oyster shell lime stucco applied directly to the bricks. It was not sufficiently intact to allow any floor joining details to be discerned.

The basement suggests a through-hall plan with two rooms each side off a central hall. The basement walls are sufficiently wide to support a two story – possibly even a three story – structure above. The archaeological evidence suggests that this was a frame house, with only the basement level in brick. We recovered examples of both red and gray clay flooring tiles, measuring about 8 to 9 inches square. Based on their recovery, we believe that they were originally used on the north porch.

Shelley Smith (1999:199) notes that stone pavers of contrasting colors were commonly used in Carolina plantation houses, with advertisements generally identifying pairs of contrasting colors, such as "red and black." She also mentions that terra cotta tiles, probably of local manufacture, were also used (Smith 1999:200).

We did not, however, find evidence of fireplaces – no arched supports were found along the west wall on the interior and no footing was found on the exterior. Although the interior was not exposed on the east side, no

Figure 50. Watercolor of the Tranquil Hill House (courtesy of the Gibbes Museum of Art/Carolina Art Association).

evidence of a footing was found on the exterior. However, we must note that many of the places that evidence for a fireplace would have been found had been heavily damaged by robbing efforts.

We did identify what appears to be an opening in the west wall. The south edge of this opening is missing, having been robbed out. The north edge, however, appears intact and terminates in a slightly expanded column.

At the south façade we identified a wall forming a portico 12 feet in length (north-south) and 10.5 feet in width (east-west). The side walls are 1.1 feet in width, set in English common bond, while the front wall is only 0.9 foot in width, also set in English common bond. It is probable that the side walls were heavier to support the loading of joists running east-west. At the north façade there was very heavy robbing damage. We have previously, however, mentioned that we believe Feature 11 may represent the remnants of a porch. If so, it would have measured about 13.5 feet north-south and 12.5 feet east-west. Neither of these projected porches would have covered the entire façade.

In most regards this house matches well with the 1732/3 ad:

> A beautiful dwelling house 45 Foot long and 35 Foot wide 2 floors 4 rooms on a Floor with Buffets Closets &c a dry cellar underneath with several and Convenient Rooms pleasantly

> Scituated (*South Carolina Gazette*, February 17, 1732/3).

The house measurements are about 5 feet shy in length and are about 0.5 foot over in width. There is ample evidence to support the dry cellar, with "several and Convenient" rooms, and the floor plan is certainly consistent with four rooms on a floor.

We are also fortunate to have a watercolor of the settlement, painted by Ann Waring – the wife of the plantation's last owner (Figure 50). The view is most likely from the spring shown in the 1800 plat (see Figure 3) based on the water feature in the foreground and the pathway leading up the hill to the main house. Consequently, we would be looking at the south and west facades of the main house.

While clearly in a rustic style, the watercolor does show a hipped roof, suggestive of a squarish structure; two floors above a basement floor, and a five bay façade on the south elevation. The shape of the house and its elevation are consistent with both the advertisement and the archaeological findings. In addition, the five bay façade suggests a through-hall plan.

We have not been able to document the two exterior end chimneys, placed somewhat to the front of the house, shown in the water color. This design, if assumed accurate, is vaguely reminiscent of early structures such as Hanover (ca. 1720), where only the front two of the four rooms per floor were heated. Nevertheless, we have been unable to locate any evidence of these chimneys – likely because the areas where evidence would be identified have been damaged by robbing efforts.

The early antebellum watercolor also reveals that the south porch covered a single story of the entire façade, having a shed roof. Yet our archaeological floor plan reveals a small portico at this point. We may be misinterpreting the brick walls in this area – or more likely there may have been modifications to the structure late in its history and these changes, like the end chimneys, have been destroyed by robbers' trenches.

The north porch is indistinct in the painting – it may, in fact, represent what we see archaeologically, with the trench excavated for the placement of individual piers (depicted in the watercolor) or there may have been changes on this elevation as well. The 1800 plat does seem to show a relatively large, almost full façade, porch on the north elevation, probably set on piers. It does not, however, show any details of the south façade.

Although we do have some unanswered questions, there is significant congruence of the different lines of evidence, with the archaeological footprint largely matching both the early newspaper account and the much later watercolor illustration.

It is more difficult to place this structure in a developmental context. We know that it had been constructed (and was probably relatively new) in 1732/3. Assuming a construction date of ca. 1720, this would place the structure in a very early period of plantation architecture. Shelley Smith (1999) believes this was a period dominated by tremendous variety, although most structures had high basements (perhaps the "dry basement" of the advertisement) intended to keep "living quarters safe from the dampness of frequent semi-tropical thunder storms and from the general humidity, experiences perhaps brought by settlers from the Caribbean" (Smith 1999:84). There was a tremendous emphasis on Georgian symmetry and an increasing tendency to see compact massing and double pile plans. In all regards the Tranquil Hill house seems consistent with the early architecture of the Carolina colony.

Smith believes that between 1725 and 1750 there were changes brought about by increasing wealth, such as increased massing and compactness of the plan, expansion in size

(with the success of rice and indigo plantations, the cost of labor no longer exerted a significant downward pressure on the size), a greater acceptance of wood as the primary building material for smaller houses, and increasing formality with symmetrical flankers and formal gardens.

She notes that while pre-1725 houses ranged from less than 1,000 ft² to nearly 2,000 ft², size increased up to nearly 3,000 ft² and no structures under 1,000 ft² after 1725. By the 1750s, few or no structures under 1,500 ft² were being constructed. While only 19% of the identified structures pre-dating 1725 were constructed of wood, fully 54% after that date used wood in the upper stories and this increases to 75% after 1750. In addition, the hipped roof became the preferred style (Smith 1999:128).

Smith may also help interpret the porches. She notes that the acceptance of piazzas or full façade porches was a very gradual process, testifying to the deep conservatism of a society retaining its English heritage (and small porches) (Smith 1999:256). She observes that there are contemporary accounts of otherwise "genteel" houses "encumbered with piazzas." Tranquil Hill, dating from the first several decades of the eighteenth century, most likely did not possess piazzas, although they might well have been added after ca. 1740 (Smith 1999:258-262).

While we believe the basement offers support for a through-hall plan, according to Smith (1999:273) this form was actually rather uncommon. More prevalent was a double pile plan with entry into the larger of two rooms on one side and into a separate stair hall between two smaller rooms on the other side. There is some suggestion that the narrow through-halls (8.5 feet at Tranquil Hill) were found to be dark and too narrow for comfort.

In most respects the Tranquil Hill property spans these two periods, easily fitting into either. While we can't – based on the architecture – tighten the construction date, we can say that the house was consistent with the general period and represented a coalescing colonial style.

Fick (2005) offers some equally interesting observations. Although much of her attention is directed to antebellum sea island and cotton planter architecture, she does observe that much early construction was brick, roofs were hipped, and structures were asymmetrical four-room hall-and-parlor plans, often with flanking buildings. By the late eighteenth century she observes that the era of the large, ostentatious manor houses had passed. Tranquil Hill appears to easily fall into the earlier category.

A few final comments are appropriate concerning the extensive disturbance found throughout the main house area. There was extensive robbing of brick. This conforms to the oral history that indicates in the early 1950s much brick was removed for the construction of a new house. But we also found extensive excavations even where brick was not removed. These excavations tended to carefully follow the structure walls, with the pit extending out about 3 to 4 feet. In addition, as previously noted, we documented trenches in areas lacking brick. We believe these excavations were for the expressed purpose of looting the site – the practice of following walls is common in looting since a large number of artifacts tend to accumulate along the interior and exterior edges of demolished structures. Many of these loot holes were filled with modern domestic trash – plastic bags, glass jars, automobile headlights, and similar items, some dating as late as ca. 1980.

These loot holes not only removed wall segments, but also the builder's trenches that might have allowed more precise dating of Tranquil Hill. The loss of this critical information provides a very clear indication of why archaeologists have such distain for looters. There were very few areas where the looting did

Figure 51. Posited garden area from the main house. Note the level surface – essentially an extension of the main house elevation to the east.

not extend out so far as to obliterate a series of post holes about four feet from the exterior wall. These almost certainly represent a scaffold erected to construct the walls of the structure.

The Gardens

The gardens were explored entirely through mechanical stripping – a procedure that while time and cost effective, tends not to allow especially precise control. Nevertheless, this work allowed the opening of 5,970 ft² – an area which would otherwise have proven impossible to explore.

The initial trench, designated Trench 1, was excavated northwest-southeast in an effort to bisect the garden, any walkways, and planting beds. Toward the southeast end of the trench we identified a narrow (0.8 to 1.5 feet) stain that crossed the trench running approximately east-west. Trench 2 was therefore placed to extend southwest from the center of Trench 1. This would determine if the stain continued to the southwest. When it did, Trench 3 was excavated to the west in order to follow the stain to its terminus. Trench 4 was placed to follow the stain eastward, and it was found to turn 90° to the north. It was followed in this direction by Trench 5. We determined its terminus in Trench 5, but also encountered remnants of the eastern section of a brick wall, having the same approximate orientation as the stain. Trench 6 was placed to follow the south wall of this structure and Trench 7 was laid in to identify the north structure wall. Trench 8 followed the west wall.

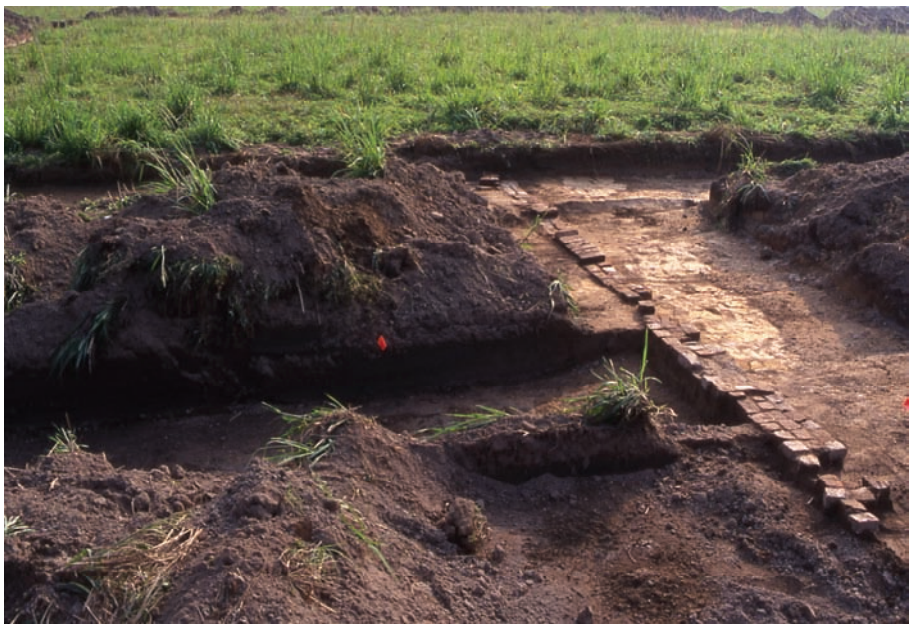


Figure 52. Brick structure at the northeast corner of the garden.

Figure 53. Wall trench structure at the northwest corner of the garden.

We also determined that Trench 1 exposed the southwestern corner of a wall trench structure, so Trenches 10, 11, and 12 were laid in to follow this structure.

As these trenches were plotted (see Figure 28), we found that the stain identified in Trenches 1, 2, 3, 4, and 5 measured about 220 feet on the south and 120 feet on the east, creating a garden space of about 0.6 acre. But does this represent the total garden or only a portion, perhaps one parterre?

The 1800 plat of the plantation does reveal a garden area located east and south of the main house. In other words, the garden does not appear to extend north past the main house. This is consistent with the identified stain, suggesting that it represents at least the north edge of the garden. The plat also reveals a garden (divided into four parterres) measuring about 260 feet on a side, or 1.6 acres.

The identified 220 foot east-west length is roughly consistent with the plat, but we are short between 100 and 120 feet on the north-south distance. Extending the garden 100 feet further to the north would not only place it on a significant slope (that shows no evidence of terracing), but it would also place the gardens in close proximity to the house servants' quarters. Both seem unlikely. Instead, we believe that the garden extended an additional 100 to 120 feet to the south – beyond any of our trenches.

We also believe that the brick wall and the posited wall trench structure are matching devices located at the northwest and northeast corners of the garden (inspection of Figure 28 reveals that both have the same orientation and both are located across from one another.

The wall trench structure is only three sided (the north face lacks any evidence of a similar wall trench) and measures 15 feet north-south by 24 feet east-west. This wall trench was identified as Feature 15 and a portion was excavated. No artifacts were found in the trench or immediately associated with the feature.

The brick wall is also three-sided, lacking its north face, and measures 24 feet square, although the brick work suggests two different building episodes with the initial structure measuring only 15 by 24 feet – the same size as the wall trench structure. The initial brick work reveals a wall only two bricks in width; the addition is three bricks in width.

The stain itself was found to vary in width from 0.8 to 1.5 feet and in depth from about 0.4 to 1.0 foot (some depth variations are no doubt the result of stripping). These figures suggest a rather significant trench, measuring about 2.0 to 2.5 feet in width at the surface and about 2 feet in depth – suitable for the planting

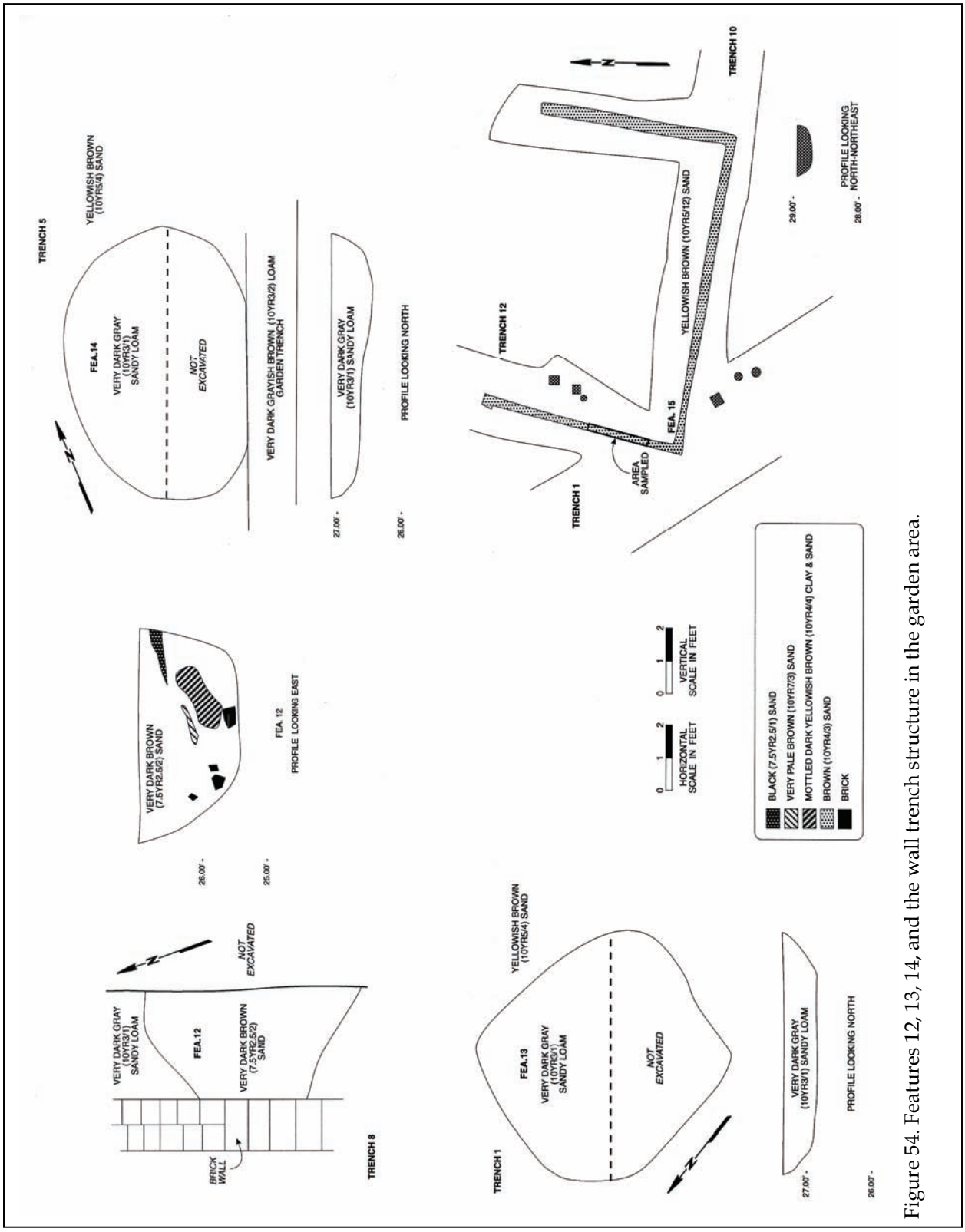


Figure 54. Features 12, 13, 14, and the wall trench structure in the garden area.

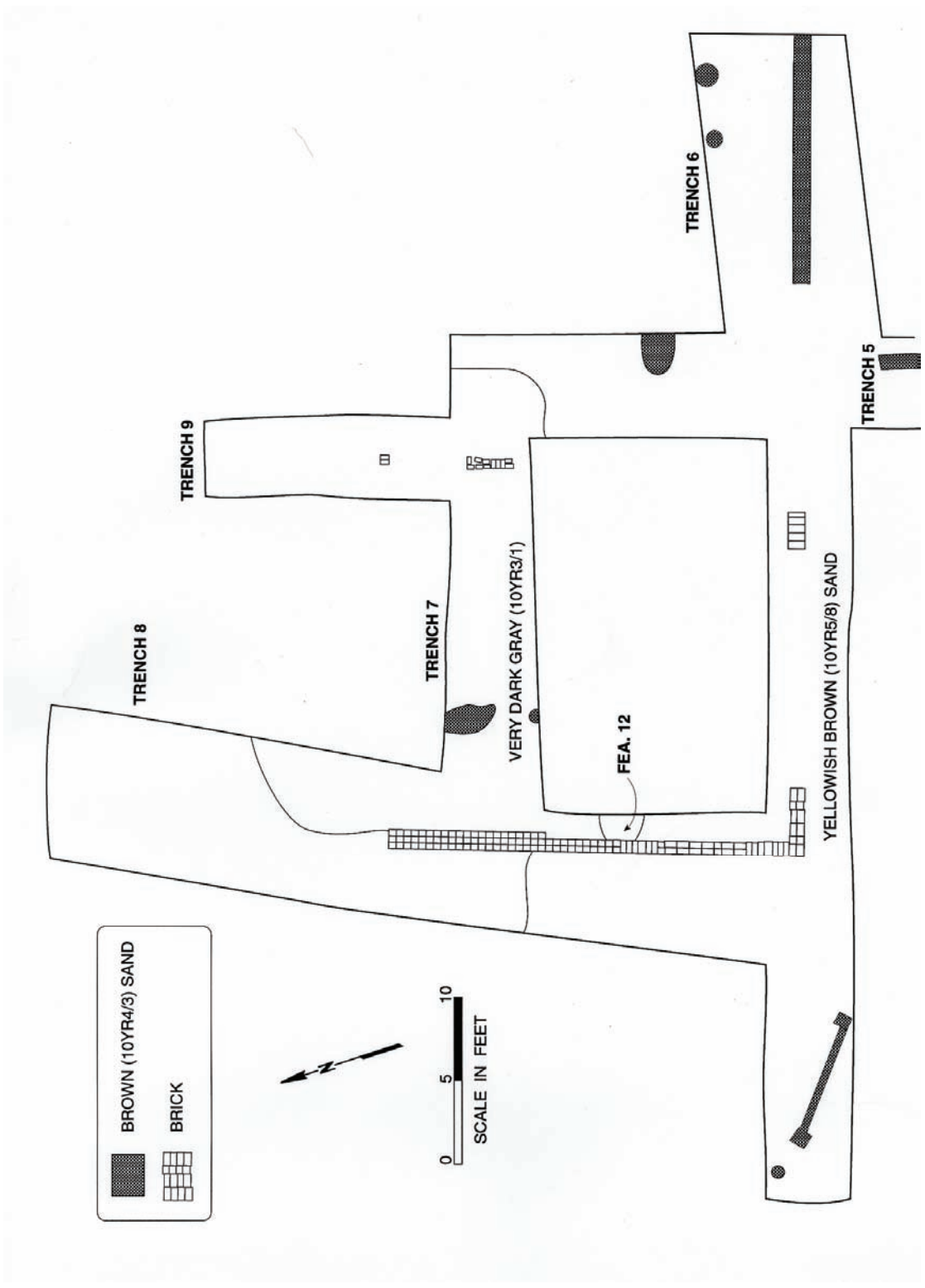


Figure 55. Feature 12 and the brick structure in the garden area.

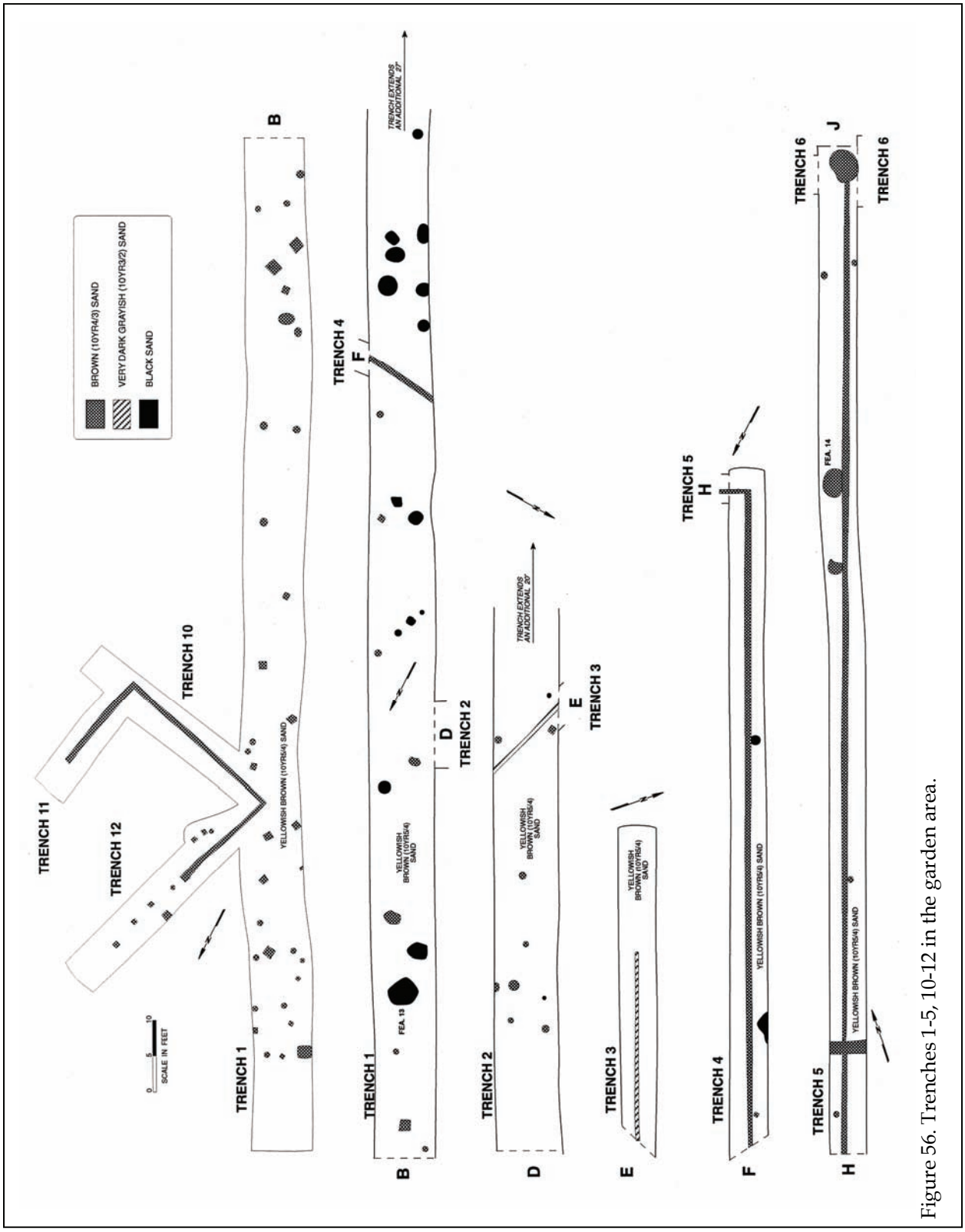


Figure 56. Trenches 1-5, 10-12 in the garden area.

of box or similar hedging material found in a formal garden setting.

Nevertheless, we must concede that the stain seems only to enclose the northern portion of the garden and no evidence of a similar southern enclosure is found at either the southeast end of Trench 1 or in Trench 2. It is, however, possible that the north and south portions of the garden were laid out differently – formality does not imply identically matched elements.

It is also difficult to interpret these two devices – the wall trench may represent an arbor alcove for seating prior to entry into the garden. The brick walled device was likely a low garden wall, probably also an alcove (although with a different construction). The soils in it suggest artificial fertilization, perhaps to support a particular type of planting.

Plotting of the mechanically stripped trenches revealed a number of distinct post holes (square, some with clay fill, indicating rather deep excavation, and a few with evidence of a post mold in the hole), as well as circular stains that we are interpreting to represent individual plantings. Two of the larger plantings, designated Features 13 and 14 were partially excavated. Artifacts were either absent (in the case of Feature 13) or very uncommon (in the case of Feature 14). Both measured about 4.0 feet in diameter (4 by 3.7 feet and 3.8 by 4.1 feet) and about 0.5 foot in depth (0.47 foot and 0.57 foot). They were distinctly basin shaped, with sloping sides and very flat bottoms. Fill in both cases was a very dark gray (10YR3/1) sandy loam.

Also found and investigated in this area was Feature 12, exposed in Trench 8, within the posited structure. The fill was a very dark brown (7.5YR2.5/2) sand. Upon excavation the feature was found to measure about 3.3 feet in exposed diameter and to have a depth of about 1.5 feet. Unlike the plantings, however, the fill was lensed, suggesting that the feature was filled in several episodes. A large number of artifacts were encountered, including the only hoe found on the site, and a fair amount of brick rubble. This is the only feature found at Tranquil Hill that actually appears to have functioned as a "trash" pit. Its purpose in the garden area is unclear, but it may have served as a convenient means to dispose of trash that accumulated during the installation of the garden.

Samples from posited garden plantings, a wall trench structure from the slave settlement, and a control from a non-occupied area of the field outside the garden were sent to Paleo Research Laboratory for pollen and phytolith studies. Samples were submitted to Hahn Laboratories for macronutrient analysis. The results of these studies are presented in a following section.

ANALYSIS

Methods

Processing and Conservation

Processing began in the field, but was completed at Chicora's labs in Columbia. During the washing, artifacts were sorted by broad categories – pottery, lithics, bone, ceramics, glass, iron, and other materials. Upon drying, the artifacts were temporarily bagged by these categories, pending cataloging. Conservation treatments were conducted by Chicora personnel in Columbia from July 2005 through February 2006.

Brass items, if they exhibited active bronze disease, were subjected to electrolytic reduction in a sodium carbonate solution with up to 4.5 volts for periods of up to 72 hours. Hand cleaning with soft brass brushes or fine-grade bronze wool followed the electrolysis. Afterwards, the surface chlorides were removed with deionized water baths (until a chloride level of no greater than 1 ppm or 18 µmhos/cm was achieved using a conductivity meter) and the items were dried in an acetone bath. The conserved cuprous items were coated with a 20% solution (w/v) of acryloid B-72 in toluene.

Ferrous objects were subjected to electrolytic reduction in a bath of sodium carbonate solution in currents no greater than 5 volts for a period of 5 to 30 days (or in a few cases far longer). When all visible corrosion was removed, the artifacts were wire brushed and placed in a series of deionized water soaks for the removal of soluble chlorides. When the artifacts tested free of chlorides (at a level less than 0.1 ppm, or 2 µmhos/cm), they were dewatered in acetone baths and were air dried for 24 hours. Afterwards, a series of phosphoric (10% v/v) and tannic (20% w/v) acid solutions were applied and the specimens were again allowed to air dry for 24 hours. They were finally coated with a 10% solution (w/v) of acryloid B-72 in toluene.

The materials have been accepted for curation by the South Carolina Institute of Archaeology and Anthropology. The collection has been cataloged using this institution's current 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. All materials have been delivered to the curatorial facility.

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 in terms of eligibility and the data recovery plan did not incorporate research questions focused on these remains. Consequently, the few prehistoric remains found in scattered proveniences are not included in this study.

The temporal, cultural, and typological classifications of the historic remains follow such authors as Cushion (1976), Godden (1964, 1985), Miller (1980, 1991), 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.

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[1] 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 no closed features, such as wells or privies, suitable for this level of analysis, the analytic unit used was all of the units from the excavations. These were combined for this analysis, using a minimum distinction method for the MNV, which tends to provide a relatively conservative count.

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 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,

[1] 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.

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.

We have also chosen not to provide tobacco stem dates for several reasons. One is that pipe stem bore diameters are frequently not consistent throughout their length. There are also lingering concerns over the adequacy of various sample sizes – 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. We are inclined to believe that a larger figure is likely more viable – and none of the Tranquil Hill samples come even close. There are other questions concerning when the dating technique begins to break down, with dates ranging from 1744 through 1800 having been offered. Since Tranquil Hill clearly dates from at least the mid-eighteenth century through early to mid-nineteenth century, the use of pipe stem dating becomes problematic. Finally, there are actually a variety of dating techniques – at least six variations having been proposed in the past. Pfeiffer (1978) offers a review of the problems inherent in using pipe stems for dating. What we have done is to provide the raw data throughout our discussions, so that readers who may wish to compare more conventional dating techniques to pipe stem dating have the opportunity to do so.

Of greater importance to us at a site such as Tranquil Hill Plantation, 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 time line 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:

$$Pj/yr. = \frac{fj}{F \times Dj} \quad \text{where}$$

Pj = partial probability contribution
fj = number of sherds in type j
F = number of sherds in sample
Dj = duration in range of years.

Main House

The reader will recall that the excavations in this area included four units – three within or at the structure and one in a yard area to the northwest. While much of architectural data came from stripping, these few units provide an excellent sample of the specimens (Table 6 shows 10,951 specimens) associated with the occupants of the main house. The collection consists of about equal amounts of kitchen artifacts (primarily ceramics and glass) and architectural remains (primarily window glass with fewer quantities of nails).

Table 6.
Artifacts from the main house area.

	820R660	820R660 Robbers Trench	820R670, Lv. 1	820R670, Lv. 2	820R670, ph 1	820R670, ph 3	820R680, Lv. 1	820R680, Lv. 2	900R550, Lv. 1	900R550, Lv. 1a	900R550, Lv. 1b	Feature 10	Feature 11	Trench 13	Totals
Kitchen Group															5395
Creamware, undecorated	53	2	113	17			107	4	153	22	3			8	
Creamware, molded			8				2		4	1					
Creamware, annular							2		4						
Creamware, blue edged			1												
Creamware, poly hand painted			1												
Creamware, HPOG								1	1						
Creamware, cauliflower	4		1				6		1						
Pearlware, undecorated	22	1	27	2			50	4	74	9	1			7	
Pearlware, molded		1													
Pearlware, blue hand painted	1		2	2			3		1		1			2	
Pearlware, poly hand pained	1						1		1						
Pearlware, mocha									1						
Pearlware, cable	1						4		1						
Pearlware, annular	8		7				10	3	21	8	3			4	
Pearlware, green edged									2					2	
Pearlware, blue edged	7		8	2			15		18	5	1			7	
Pearlware, blue transfer printed	15	1	33	5			31	7	57	13	6			4	
Whiteware, undecorated	8		5				8	1	12						
Whiteware, poly hand painted	1		1	1											
Whiteware, poly stamped				1											
Whiteware, annular			1				2		4						
Whiteware, cable									1						
Whiteware, blue edged	1														
Whiteware, blue transfer printed	5		3				8	1	21						
Whiteware, green transfer printed							2								
Whiteware, purple transfer printed							1	1							
Whiteware, black transfer printed							1								
Whiteware, tinted									4						
Yellow ware, undecorated							1								
Yellow ware, mocha									2						
White SG SW	50	1	62	5			62	9	16	4	1			2	
White SG SW, scratch blue	3		6	2			3	1	3					1	
White SG SW, slip dipped									9					1	
Delft, undecorated	27	1	11	1			18	3	12	3					
Delft, blue hand painted	11		4	4			7	6	10	1			1		
Delft, poly			2				1		1						
Chinese porcelain, undecorated	10		16	3			16	1	18	2					
Chinese porcelain, blue hand painted	40	2	41	15			69	15	68	11	2	2		3	
Chinese porcelain, poly HPOG	2		1	2			2	4	6	3					
White porcelain, undecorated	4													1	
White porcelain, blue hand painted	2														
Lead glazed slipware	30		39	10	1		56	13	72	6	1	3	5	1	
Black basalt							3								
Astbury ware			2				1		3						
Jackfield	1		16				2		3	1					
Elers ware	1						1			1					
Refined earthenware, UID															
Tortoiseshell	2		1	1			1	1							
Agate ware	1		2												
Nottingham	6		12	2			12	4	7						
Westerwald	6		5	1			3		26	3	1			3	
Gray SG SW	9	1	7				4	1	12	5	1				
Brown SG SW	7		7				8	2	28	3	1		1	2	
Albany slip SW									9						
Alkaline glazed stoneware	2		2				2								
Coarse Red earthenware	42	2	27				30	5	56	7				1	
El Morro			1												
North Devon gravel tempered	1		3				9		10	2			2		
South European Ware			10												
Red earthenware	5		1				1			2					
Spanish olive jar							5	2							
Burnt refined earthenware	3		3	1			5	1	4	3					
Glass, black	150	3	258	21			263	19	302	40	9		4	10	
Glass, aqua	6		5	1			7		9	1				1	
Glass, green		2	6	1			13		12					1	
Glass, light green	2		26	2			28	3	6				1		
Glass, other			1	1			58	69	3						
Glass, clear	21	1	63	4			56	2	17	9	1		4		
Glass, milk															
Glass, tableware	3	1	15	3			20	4	6	1					
Utensil			12				3								
Container handle															
Kitchenware	1		1	1			10			1					
Colono ware	145		173	39			222	26	488	72	27			4	
Architecture Group															5041
Window glass	594	19	585	68	1		1354	108	184	30	2	5	4		
Thumb latch							1								
Hinge fragments			1				2		2						
Shutter dog	1														
Delft tile	1			1			6	1							
Sandstone paver	1						1								
Nails, wrought	46	6	170	92				58	18						
Nails, machine cut	38	6	49	19				5	13	3				2	
Nails, UID	232	11	319	389		2		104	381	78	6	3	12	7	
Furniture Group															12
Brass tacks	1		4				2								
Escutcheon	1		1				1								
Handle	1														
Finial									1						
Arms Group															1
Gun fitting	1														
Tobacco Group															386
Pipe stems, 4/64-inch	7		7	5			9	6	15	3					
Pipe stems, 5/64-inch	38		54	22			49	22	37	5	3		1		
Pipe stems, 6/64-inch	2		1				4		2						
Pipe stems, fragments			1				3		2						
Pipe bowl fragments	11		16	1			16	5	31	4	2	1		1	
Clothing Group															20
Buttons	1		3				4		2	1				1	
Buckles			3				1			1					
Aglet							1		1						
Thimble									1						
Personal Group															5
Scored slate fragment							1								
Wax seal holder			1												
Beads			2	1											
Activities Group															91
Triangular file fragments			1				1								
Strap fragments							1								
Driving bit							1								
Misc. hardware	2		1						2	1					
Smoothing Stones	8		18				6		9	2	1	2			
Other	2		8	3			15	1	5	1					
TOTAL	1708	61	2297	751	2	2	2734	523	2305	368	73	16	35	76	10,951

Kitchen Group

Accounting for 5,395 artifacts, or just over 49% of the total collection, the assemblage is dominated by European ceramics (2,595, or about 48% of the total); Colono ware – a slave made pottery – adds an additional 1,196 specimens, for a total of 3,791, over 70% of the kitchen items.

The earliest ceramics (those dating to the first half of the eighteenth century), include primarily porcelains, lead glazed slipwares, and white salt-glazed stonewares. Together these three groups account for over 70% of the early wares at the main house.

Eighteenth century Chinese porcelains have been carefully discussed from the Broom Hall plantation site (Trinkley et al. 1995:185-197) and there is little new information. Virtually all decorated pieces are blue on white, although very small quantities (20 specimens) illustrate overglaze enamel decoration – probably done either at Canton or the point of initial manufacture, perhaps Jingdezhen.

Sweeney (1994:8-9) observes that by the 1720s tea drinking had become well established as a genteel ritual requiring not only new skills, but also a host of new containers and utensils, such as the tea-table, pots, bowls, strainers, sugar tongs, cups, creamers, and slop dishes. Sweeney observes that this range of requirements "offered new opportunities for consumption and display," creating a ritual that dominated high society for several decades. By mid-century, however, the genteel ritual was becoming established in middle and even lower class homes and losing its status (Carr and Walsh 1994:66; Bushman 1993:184).

While none of specimens at Tranquil Hill possess armorials, initials, or mottos and the range of decoration is actually quite limited, Chinese porcelains were expensive and the examples from the main settlement represent both tea services and table wares. The specimens were intended for formal dining and entertaining.

The white salt-glazed stonewares adapted techniques used by German potters since the early fourteenth century. 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.

The lead glazed slipwares present in the main house (representing 237 specimens, or about a fifth of the early eighteenth century wares) are examples of the "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.

We see, then, that the major early eighteenth century ceramics from Tranquil Hill include high, middle, and low (or common) status wares. There are also at least eight other early wares. The most common are delft – tin glazed ceramics – that Cushion (1976:78) notes were generally for table use. By the early eighteenth century English potters were well acquainted with both colored and blue-on-white export Chinese wares, and so began reflecting these motifs in their decorations. Forms ranged from mugs to dinner services to tea-wares.

Other early ceramics include Westerwald and gray salt-glazed stonewares, Nottingham stoneware, Jackfield and clouded wares, and North Devon gravel tempered and El Morro.

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 to Tranquil Hill as storage vessels. Similar, but coming from England, is the North Devon gravel tempered ceramic – a coarse, heavily gravel-tempered earthenware with a light-brown to apple-green glaze (Noël Hume 1978:133) and found generally as utilitarian forms.

The occurrence of both high and low status wares shouldn't be interpreted to mean that the owners saw either a meteoritic rise or fall; rather we are likely seeing the intermingling of wares used by the planter and his family on a daily basis (perhaps the white salt glazed stoneware and perhaps even some delft) with their wares intended for conspicuous display of wealth (the porcelains), as well as the presence of wares used by the slaves in the "dry" basement, such as slipware and colono ware. Also mixed in the assemblage are vessels intended for storage and food preparation – not for serving.

In addition, the collection includes a very large number of colono wares – low fire earthenwares produced by African American slaves (1,196 specimens). Some of these were likely utilitarian also – storage containers, milk pans, cooking vessels, and so forth. Nevertheless, some colono vessels sought to imitate otherwise well defined English tableware forms, suggesting that at least some vessels were used on the table.

The colono from the main house is not particularly revealing, lacking evidence of foot rings or forms that are distinctly European. Only one decorated specimen was recovered – a fragment showing incising.

Turning to the latter half of the eighteenth century and early nineteenth century, the most common ceramic – by only a small margin – is pearlware (523 specimens). This is very closely followed by creamware (519 specimens). Together, these comprise two fifths of the European ceramics. Although spanning the eighteenth and early nineteenth century, they represent a continuum and are therefore discussed together. 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).

The conventional wisdom is that pearlware "replaced" creamware. Coehn 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 – 95.8% of the Tranquil Hill collection is, in fact, undecorated, or only molded. In contrast,

pearlware is almost never undecorated – only 37.7% of the Tranquil Hill pearlware is undecorated and this number is undoubtedly inflated by vessel portions, such as bases, that were small undecorated sections of forms that were otherwise richly decorated.

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 the assemblage at Tranquil Hill.

The Tranquil Hill main house collection contains only a small quantity of painted pearlwares (only 15 specimens), compared to a much larger sample of printed specimens (n=172). Clearly the chinoiserie decoration was not popular with the Tranquil Hill owners. One explanation is that the collection included a large number of Chinese and English porcelains (n=361) and thus the residents were not interested in imitations of what they already possessed.

Other wares are present, such as the three specimens of agate ware. The English production of this 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.

Alkaline glazed stone, accounting for only six examples, is another seemingly insignificant ware. The stoneware tradition began in the early nineteenth century, peaking about 1850, and steadily declining from 1850 (Horne 1990). Centered in Edgefield District, Horne and her colleagues suggest the advent of the South Carolina Railroad, running from Charleston to Hamburg, about 20 miles from Edgefield, opened the trade to Charleston merchants by 1834 (Baldwin 1990:71). If so, this provides a clue how these wares reached Tranquil Hill. Yet, Baldwin also notes the local pottery faced stiff competition from European and northern utilitarian wares. This is likewise reflected in the Tranquil Hill record – with relatively large quantities of brown and gray salt-glazed stonewares and small quantities of Albany slip stoneware.

Container glass accounts for 1,522 specimens, most of these (70.9% or 1,079 specimens) classified as "black" glass. This collection includes one case bottle and 16 blown bottles with base diameters ranging from 90 to 127 mm. Jones (1986) suggests these may include both beer and wines sizes, dating from the eighteenth to early nineteenth centuries.

One of the shoulder fragments has a partial seal, "Gruaud Lanost__." This is almost certainly a seal for the Gruaud wines from St. Julien, France. The name "Gruaud" derives from the Gruaud brothers, who sold under the names of "*Abbé Gruaud*" and "*Chevalier de Gruaud*" in the early 18th century. When Chevalier de Gruaud died in 1778, the remaining heirs sold their shares to Gruaud's son-in-law, Joseph-Sébastian de La Rose and the name of the wine changed to "La Rose" (Wine Journal 2006). Thus, it seems likely that this wine was imported by the owners of Tranquil Hill prior to the last third of the eighteenth century.

Other glass containers include two blown green bases with diameters of 1½ and 3-inches; one blown aqua bottle with a diameter of 1-inch; and three blown clear glass bottles with diameters of 1 and 2-inches. None, however, are particularly diagnostic.

The 53 glass tableware fragments represent four tumblers and eight stemmed vessels. Tumblers are a commonly recognized vessel, having a simple form, although varying in both size and shape. Generally used for water, they were common at eighteenth century tables, often ribbed or cut. The specimens from Tranquil Hill are represented by bases and thus nothing is otherwise known of their decoration. The two most common stemware forms were wines and goblets, with the former being more common. Nevertheless, distinquishing different forms is generally based on the bowl (although definitions are not consistent) – not present in this collection (see Jones and Sullivan 1985:142; Lloyd 1969).

Also common are fragments of utensils, with three two-tine forks, five knife fragments, and at least two additional bone handle utensils recovered from the main house. Although fragmentary and unsuitable for dating, the presence of the forks continues to atest to the status of the plantation owners. Although spoons and knives were common early in the eighteenth century, forks were much less so, with the earliest possessing two tines, later adding a third, and generally having four by the end of the century (suggesting that the Tranquil Hill examples were acquired early). As late as 1770 Virginia's Governor Botentourt carried his own fork in a sharkskin case so that he would have one should his host not be so equipped (and it seems unlikely that he was visiting many common households) (Taylor 1997:84).

Kitchenware items, however, are relatively uncommon in this collection, consisting almost entirely of kettle fragments. This suggests that the kitchen was not in the Tranquil Hill house (supported by the absence of any fireplace remains in the basement), but was located in a nearby flanker.

Architectural Group

This collection consists of 5,041 specimens (about 46% of the total assemblage). The bulk of this collection (2,959 specimens or 58.7%) consists of window glass – flat glass with a sight greenish tint. Other than documenting the presence of windows – hardly a surprising fact – the collection provides little additional information. Efforts at using glass dating have been generally unsuccessful. That so little of this glass is melted (coupled with the very low proportion of other burned specimens) reveals that the main house did not burn, but probably simply collapsed through lack of care and abandonment.

The next most common architectural artifacts are nails. Unfortunately, while 2,069 nailes were recovered, 1,544 (nearly three-quarters) are fragmentary or otherwise too corroded to allow more specific identification. Of the small proportion that can be identified to type, three-quarters are hand wrought, meaning they were individually forged by blacksmiths, either in America or England.[2] 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 are present in the collection of wrought nails. Rose heads (accounting 402 or 65% of the collection) have a distinctive head created by four strikes of a hammer, giving it the form of a four-leaf clover.

[2] 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."

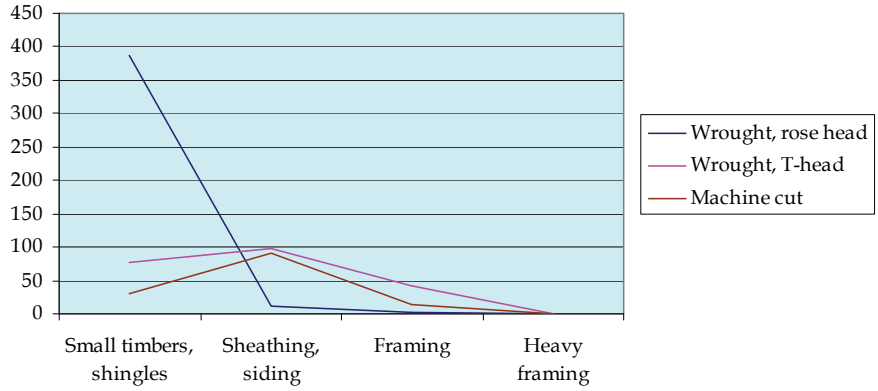


Figure 57. Function of nails from the main house.

Lounsbury (1994:412) notes that this style was most commonly used in rough framing and attaching exterior cladding. The other style present at the main house is a clasp head (sometimes called a "T-head"), accounting for 216 specimens (35% of the wrought nails). 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).

Cut nails may be further distinguished by determining if the head was hand or machine applied. Hand-heading indicates a date prior to ca. 1836, while machine applied heads are suggestive of a later date (Wells 1998:93-94). Hand applied heads are found on only 18 (13%) of the collection – the rest are machine applied.

This preponderance of wrought nails, with a smaller proportion of cut nails (most which have machine applied heads) suggests the possibility of two construction episodes or at least a later repair/refurbishment episode.

Because different size nails served different self-limited functions, it is possible to use the relative frequencies of nail sizes[3] to indicate building construction details.

Figure 57 shows the nails, combining the two head types for machine cut nails. This reveals that a very large quantity of nails – most hand wrought and mostly rose-headed, were present, with greatly diminished quantities of other nail types. We believe this indicates that a large number of nails were associated with shingles and plaster lathe. With the absence of any appreciable quantity of slate, this provides strong evidence of a shake roof on the main house. The small incidence of machine cut nails may suggest on-going maintenance. The T-headed wrought nails may indicate the presence of moldings and trim in the structure.

The incidence of rose-headed wrought nails declines dramatically in the size range anticipated for attachment of sheathing, with only a modest increase among T-headed wrought and machine cut nails. Sheathing requires fewer nails – and may even be pegged, so this decline is not unexpected. In fact, the prevalence of machine cut nails may suggest on-

[3] 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.

going maintenance with nails replacing earlier pegs. [4]

The decline in nails of framing and heavy framing sizes is almost certainly the result of the Tranquil Hill house having been timber framed with extensive use of mortise and tendon joints – requiring little if any use of nails. The very low incidence of later machine cut nails suggests that there was little framing maintenance and probably no significant modifications or additions to the structure.

A variety of other architectural items were recovered, including nine fragments of delft tiles. While too small to provide information on the scene portrayed, they range in thickness from just ¼-inch to almost exactly 5/16-inch. Noël Hume (1978:285) notes that tiles of this thickness were almost exclusively used for fireplace and wall skirtings (as opposed to flooring tiles which were substantially thicker). Lounsbury (1994:374) notes that "Dutch tiles" were most commonly applied to the jambs of fireplace openings, resulting in them also being called "chimney tiles." He places their peak in popularity around mid-eighteenth century. Also present are two sandstone or schist.

Other items include five fragmentary hinge fragments, one thumb latch, and one shutter dog. All are hardware items that we would expect to be identified from the ruins of a main house. Their presence suggests that relatively little of the hardware may have been salvaged and that the house simply sank into ruin through abandonment.

Furniture Group

The most common items (n=7) are brass tacks – used to retain upholstery and as decoration. The other items are three escutcheons, and a single handle and finial.

All are suggestive of relatively high-status furnishings with elaborate metal fittings – and generally such items are interpreted as evidence of the owner's wealth and possessions. Such an interpretation, however, requires us to wonder how the items came to be in the ruins of the main house. Noël Hume might have us imagine individual items being broken and lost, perhaps in the corners of the bricked floor; or we might imagine a few furnishings being left in the structure and gradually being incorporated with the ruins of the house. Another explanation – at least for some of the items – may involve alternative uses for the brass objects.

There are numerous accounts of pins, needles, and other sharp items being used in various charm bags and voodoo rituals. Long (2001:55) observes that "sharp pins, needles, and tacks were used to 'pin down' the target" and the Savannah Unit, Georgia Writers' Project (1940:102) recounts a story of "needles an pins" being used with graveyard soil and other ingredients to make a root bag.

Arms Group

The single artifact in this category appears to be a brass inlay from a gun. While testifying that weapons were present, the specimen's condition is not readily explainable – it would need to have been salvaged from the stock of a discarded (and presumably no longer functional weapon). The occurrence of the item may – like the brass furniture fittings previously discussed – be another indicator of African American spiritualism.

Tobacco Group

This artifact group consists of 386 specimens, including 298 tobacco pipe stems (77.2% of the total group) and 88 pipe bowls.

[4] In December 1756 Henry Laurens wrote that "there are more sheathing nails in the Country [South Carolina] than can be expended in several years," explaining the low price obtained for a recent consignment (Hamer et al. 1970:365).

While there seems to be little doubt that alcohol was the drug of choice among European males, there was a great deal of tobacco consumption, either for smoking or as snuff. Olsen (1999:242) notes that the use of tobacco was found at all levels of society. Many planters seem to have preferred cigars over pipes (see, for example, Rosengarten 1987:340,449-450,597). Morgan reports that one Carolina planter complained that he was unable to obtain a pipe for his own use since, "there are none but negro pipes now imported, which are too short to be serviceable" (quoted in Morgan 1998:374).

The use of tobacco was equally widespread among the African American slaves and owners tended to provide tobacco (and white clay pipes) as a luxury to the enslaved (Morgan 1998:374, 537). In Louisiana, where at least some slaves admittedly had more freedom than they found in Carolina, McDonald (1993:81) reports that they frequently purchased tobacco themselves.

Table 7.
Buttons Recovered from the Main House

South's Type	Description	#	Measurements (in mm)
7	Spun brass/white metal with eye cast in place	4	14, 17, 20, frag.
8	Molded white metal with eye boss	1	21
9	Flat disc, hand-stamped face, no foot	1	16
15	Bone disc, 1-hole	2	13, 20
19	Bone disc, 5-hole	2	2-16
28	Brass, concave back, stamped	1	17
35	Glass inset in brass holder	1	11

The presence of these pipes, then, may be as suggestive of the African American presence in the main house basement, as they are of the owner and his activities.

Clothing Group

The largest contributor to this category are buttons, with the 12 examples representing 60% of the assemblage. All but one of these buttons are sizes (over 13mm) generally associated with coats – there are no buttons typically found on undergarments or delicate outergarmets (6mm or smaller) and only one that would be associated with shirts and pants (between 7 and 13mm). Why this assemblage is skewed toward the larger buttons is not clear.

Most of the buttons (two-thirds) are styles that South (1964) dates prior to 1776. Two date from 1800 to 1830 and the remainder do not have secure dates.

The remaining clothing items include five buckles, two brass aglets, and a white metal thimble fragment.

Personal Group

While South (1977:96-102) provides some expectations for various artifact groups, he is relatively silent concerning the category of personal items, although mentioning that these items would be considered "personables." This allows considerable variation, but at the main house we are including only three items – a single fragment of scored slate, a fragment of a wax seal, and three beads. This assemblage, however, represents items that were almost certainly associated with both the white residents of the Tranquil Hill house and their enslaved African Americans.

The seal fragment consists only of the seal holder section, made of silver plated brass, missing the seal matrix. The size is consistent with those used to seal letters, envelopes, and similar documents. An example of a similar, though far more impressive, example is found in Melchor (2003). These devices were used with sealing wax to show that a document was authentic and to prove that no one had tampered with it once written. While the non-functional component recovered may have been

salvaged by the African Americans on-site, there is no question that the seal began as a possession of the owner or his wife.

In contrast, the slate fragment and beads are almost certainly associated with the African Americans who labored on the plantation. The slate is a fragment of a writing or counting slate – small pieces of slate that were often scored to keep count of various articles.

The beads are commonly associated with African Americans (see, for example, Stine et al. 1995) and thier identification in the house provide evidence of the daily lives of the various house servants on the plantation. The three beads each represent a different style. Using the typology of Kidd and Kidd (1970) there are two tube beads (one type IIIa and one Iva), both of translucent green glass with an opaque red exterior, and one wire wound oval bead (type W1c) that is cobalt blue.

Activities Group

There are 91 specimens included in this final group. The largest number of artifacts are small rounded stones, identified as polishing stones because of their posited function in burnishing colono ware pottery (see Trinkley and Barile 2003). This function still seems as viable and likely today as when originally proposed. However, at Tranquil Hill we did notice a relatively large proportion of the stones were smaller than previously noted.

House Servants' Area

Situated to the east of the main house, excavations in this area consisted of six 10-foot units and several stripped areas. A total of 17,213 artifacts were recovered and are tabulated in Table 8. The collection here is actually larger than recovered from the main house, although again the Kitchen Artifacts comprise the bulk of the collection (11,414 items or 66.3%). Not surprisingly Architecture Artifacts are less common, comprising only about 27% of the collection. This is clearly a reflection of the more simple architectural style.

Kitchen Group

European ceramics contribute 4,454 specimens or 39% of the Kitchen Group. Slave-made Colono ware is actually more common, representing 4,968 specimens or 43.5% of the collection.

These Colono wares include a very large number of highly fragmented specimens (77% of the collection are sherds under 1-inch), likely the result of heavy plowing. Nevertheless, the collection did produce three foot rings, a lid rim, and five handles – indicating the diversity of the collection. In addition, a small number (six sherds) exhibit incising, a design motif ocassionally seen on Colono ware, but not often documented.

The European ceramics are not dissimilar from those found at the main house. The largest group are the pearlwares, which consist of 1,586 examples. Next most common are the creamwares with 1,026 specimens. Whitewares are relatively uncommon, with only 275 specimens. Also present are small quantities of earlier wares, such as lead glazed slipwares (n=188), delft (n=96), and white salt-glazed stoneware (n=90). Even eighteenth century Chinese porcelains are found in the assemblage (n=251).

The ceramic assemblage suggests that the slaves in this area were using cast offs from their master's table to supplement the large assemblage of Colono wares.

Although the collection also includes 1,894 fragments of glassware, the vast majority of these (1,403 or 74%) were "black" glass – fragments of beer and wine bottles similar to those found in the main settlement. We have identified at least 16 wine or beer bottles with bases ranging from 50 to 115 mm. Also recovered was one case bottle. While we can't

Table 8.
Artifacts from the House Servants' Area

	850R930	850R930, ph1	840R930	820R970	840R950	840R950, ph 1	840R940	850R940	Feature 1, Level 1	Feature 1, Level 2	Trench 14	Trench 15	Totals
Kitchen Group													11414
Creamware, undecorated	177		139	83	124	3	178	127	1	7	1	47	
Creamware, molded	8			10	6			6					
Creamware, cable	1		2		9		8	2					
Creamware, annular	10		3	6	7		14	6					
Creamware, mocha					1			1					
Creamware, blue edged												5	
Creamware, poly hand painted				1	9		11						
Creamware, cauliflower	2		4				2	3		1		1	
Pearlware, undecorated	87		101	86	82	4	111	96	1	12		8	
Pearlware, molded	2		1										
Pearlware, blue hand painted	20		23	8	11		27	20	1	2			
Pearlware, poly hand pained	19		25	6	18	2	16	20		7		3	
Pearlware, mocha	1		1	1	2		1	1					
Pearlware, cable	5		7	12	4		8	5					
Pearlware, annular	38		23	42	32		40	33		1		1	
Pearlware, green edged	3		3	6	8		4	8				1	
Pearlware, blue edged	18		9	14	12		13	15	3			4	
Pearlware, blue transfer printed	63		72	67	63	1	64	41	1	2		13	
Pearlware, brown transfer printed	1												
Whiteware, undecorated	18		23	3	23		18	11	1	2		3	
Whiteware, poly hand painted	3							2					
Whiteware, blue hand painted			2										
Whiteware, splatter					1								
Whiteware, annular	1		6		4		8	4	2				
Whiteware, cable			1		5								
Whiteware, blue edged	2		2		3		3	2	1				
Whiteware, blue transfer printed	13		12	17	25		24	18	2	4		1	
Whiteware, green transfer printed			1									1	
Whiteware, black transfer printed			2						1				
Whiteware, green tint				1									
Yellow ware, undecorated	1		2	5	3		4	2					
Yellow ware, annular	2			5						1			
Yellow ware, mocha				3									
White SG SW	21		7	8	9		8	2			2	11	
White SG SW, scratch blue	2		3	5				1				9	
White SG SW, slip dipped	1						1						
Delft, undecorated	19		11	6	7		16	13	1	1		1	
Delft, blue hand painted	4		1	3	3		3	2	1			3	
Delft, poly			1										
Chinese porcelain, undecorated	7		13	9	7		6	20					
Chinese porcelain, blue hand painted	27		32	24	21		19	30	1			14	
Chinese porcelain, poly HPOG	8		1	3	7				1			1	
White porcelain, undecorated	2						6	4					
White porcelain, blue hand painted							2	1					
Lead glazed slipware	36		28	15	28		38	37		2	1	3	
Black basalt	10		9	6	11		11	7	1			1	
Astbury ware			3		2								
Jackfield	5			3	1		2	2					
Elers ware	2			1				1					
Refined earthenware, UID	1		3										
Agate ware					2								
Nottingham	1		2	4	1								
Westerwald	19		9	12	4	1	9	6			1	3	
Gray SG SW	19		23	11	6	2	26	11		8		19	
Rhenish brown												1	
Brown SG SW	36		31	23	27		27	30	2	9		3	
Albany slip SW	1			1			3			1			
Alkaline glazed stoneware								5					
Coarse Red earthenware	13			26	39	1	49	31	1	4		6	
Iberian storage jar	1												
North Devon gravel tempered	2							1					
Red earthenware	14		30	5				14		1			
Burnt refined earthenware	27		31	8	37		47	21	1	7			
Glass, black	248		191	196	194	6	279	203	3	20	4	59	1403
Glass, aqua	7		5	6	18		7	3				1	47
Glass, green	3		28	25	17		15	11				5	104
Glass, light green	16		21	17	15		12	10					91
Glass, other				3			2	2				2	9
Glass, clear	34		32	32	56		45	40					239
Glass, milk			1										1
Glass, tableware	6		11	6	5		9	6				2	
Utensil			1				2						
Container handle							1						
Kitchenware	9		15	6	6		4	9					
Colono ware	848	1	682	845	735	60	869	716		183		29	

Table 8, cont.
Artifacts from the House Servants' Area

	850R930	850R930, ph1	840R930	820R970	840R950	840R950, ph 1	840R940	850R940	Feature 1, Level 1	Feature 1, Level 2	Trench 14	Trench 15	Totals
Architecture Group													4708
Window glass	74		72	54	83	2	101			9			
Door lock fragments					1								
Roofing nail	1												
Hinge fragments	4		1					1		1			
Downspout anchor fragment							1						
Pintle				1			1		1				
Delft tile	4		1	1			4	1				3	
Red clay tile				1									
Pavers												7	
Nails, wrought	125		97	70	106		133	113		4		1	
Nails, machine cut	121		105	78	113		100	130	1	3			
Nails, UID	453		377	476	607	6	708	288		61			
Spikes			1					1					
Furniture Group													17
Brass tacks	3		2	1	3		4			1			
Brass furniture foot			1										
Handle								1					
Pearlware figurine fragments				1									
Arms Group													10
Gunflint, honey					1								
Gunflint, light gray to white	1						2						
Gunflint, black			1										
Lead shot	1						3						
Trigger guard							1						
Tobacco Group													782
Pipe stems, 4/64-inch	27		28	12	19	1	23	28	1				
Pipe stems, 5/64-inch	60		55	39	36	1	50	41	2	6		7	
Pipe stems, 6/64-inch	5		4	2	3		8	5					
Pipe stems, fragments	2		3	1	5		4	1					
Pipe bowl fragments	63		34	41	49	1	56	56		3			
Clothing Group													72
Buttons	9		9	9	6		11	9					
Buckles	1		4	2	3		2						
Scissor fragments							2						
Thimble					2								
Flat iron					1								
Straight pin			1							1			
Personal Group													13
Key fragment	1				1								
Slate pencil fragment			1		1								
Brass brooch			1										
Jew's harp								1					
Coins			2										
Beads				2	1		2						
Activities Group													197
Stone marble				1									
Hammer					1								
Triangular file fragments	2		1		1								
Strap fragments	3			1	3			2					
Millstone fragment												1	
Lead seal			1										
Misc. hardware	1		1	2	3	1	1		2			1	
Smoothing Stones	16		21	39	14		25	4		9			
Other	5		7	10	6		9	3					
TOTAL	2926	1	2520	2529	2779	92	3323	2347	33	373	9	281	17,213

discount that the slaves were allocated some alcohol, these containers were also widely salvaged and reused. Several of the green and light green bottle glass fragments represent small square bottles, often associated with medicine. One clear glass medicine phial was also identified in the assemblage.

Glass tableware, also likely from the master's table, included eight tumblers, four goblets, and four footed vessels. Other tableware items included a white metal spoon handle, three fragments of 2-tine iron forks, a knife blade, and an tinware cup handle.

Kitchenware items included 32 kettle fragments and a kettle foot. The other items were thin metal fragments, possibly from cans, buckets, or other tinware.

Architecture Group

The 4,708 artifacts in this group are dominated by nails – accounting for 4,276 specimens or nearly 91% of the collection. Window glass is the next most common item, contributing 462 specimens. Several other structural items are present, including the remains of several strap hinges, at least three pintle fragments, a downspout anchor, and a rim lock deadbolt. These items are almost certainly associated with the slave structures thought to be present in this immediate area (one was identified in Trench 15 to the east of the excavation units).

There are several items, including 14 fragments of delft tiles, a plaster fragment, and various pavers that cannot be so securely attributed to the servants' cabins. These items were identified from the the main house and would have been rather permanent items, difficult to remove (at least while the house was standing). These items may have found their way to this site area through cultivation or the robbing of the main house.

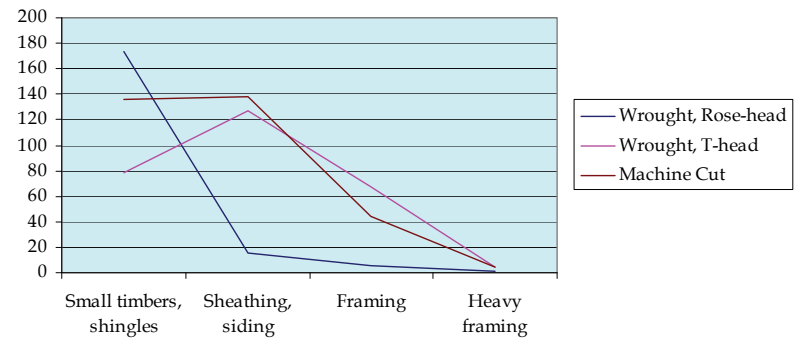


Figure 58. Function of nails at the Servants' settlement.

The nail collection, however, can provide important clues concerning the architecture of the cabins. While the numbers of nails are far lower than found at the main house, the use distribution of the nails is not dramatically different from the main house (Figure 58). For example, there are very few heavy framing nails present, suggesting that craft traditions of mortise and tendon with pegs was probably used for the heavy framing and much of the light framing. Framing repairs may have used nails and spikes. Shingles and sheathing used the bulk of the nails, with wrought rose heads used primarily for the attachment of shingles. T-head wrought nails with machine cut nails were used about equally for the application of the sheathing to the structure.

The relatively large amount of window glass suggests that these structures had glazed windows. The other hardware is equally suggestive of well constructed and finished structures, complete with locking doors and gutters to collect and divert rain water. Set on brick piers, complete with brick chimneys, these quarters were among the nicer slave dwellings on the plantation, suggestive that the house servants did receive some preferential treatment, at least in terms of housing.

Furniture Group

The Furniture Group accounts for only 17 specimens and 14 of these are brass tacks as might be used on trunks or other nicer furnishings. Also present was a very small brass furniture foot – a ball and eagle claw. The other items consisted of a fragmentary pearlware figurine and an iron drawer handle.

The brass foot, known as a claw-and-ball, is characteristic of both the Queen Anne and Chippendale periods from about 1725 to 1780 in America. The pattern was derived from the Chinese dragon's claw holding a crystal ball or jewel. This is almost certainly an item that was salvaged from the main house. Lacking in any clear function, this may be an item that was retained by the enslaved African Americans as a powerful talisman or charm.

Arms Group

This collection consists of 10 items – far more than found in the main house. The most common items, representing 50% of the collection, are five gunflints, ranging in color from white through honey to gray to black. Both French and English flints are represented in the collection.

Also present are three intact round lead shots and one fragment. The measurable balls include a No. 3 buckshot (6.3 mm), a 0.56 inch (probably a .570 caliber), and a 0.63 inch (probably a .680 caliber).

Similar to the brass inlay from the main house, we identified a brass trigger guard tang fragment in the assemblage. Representing a damaged gun part, this may indicate a discarded weapon, or it may have been salvaged as a possible religious item.

Tobacco Group

The Tobacco Group consists of 782 artifacts, most (61%, n=479) of which are pipe stems. The most common are 5/64-inch diameter, accounting for almost two-thirds of the measurable stems. This proportion is very similar to the main house.

Pipe bowls are common, with 303 specimens identified. The bulk of these (n=235 or 77.5%) are plain. Ribbed bowls (n=55) are the next most common, followed by ocassional specimens with leaves along the molded seam and cross hatching. One "TD" pipe was recovered, as was one with "I/D" on the foot. Oswald provides a list of at least 26 individuals using this mark, with dates ranging from 1624 to as late as 1913 (Oswald n.d.:29).

Clothing Group

In the Clothing Group we have identified 72 artifacts, 53 (73.6%) of which are buttons (Table 9).

Table 9.
Buttons Recovered from the House Servants' Area

South's Type	Description	#	Measurements (in mm)
7	Spun brass/white metal with cast eye	29	13, 6-14, 15, 3-16, 2-17, 2-18, 4-19, 20, 4-21, 22, 2-23, 26, 28, frag
8	Molded white metal with eye boss	1	26
9	Flat disc, hand-stamped face, no foot	1	22
15	Bone disc, 1-hole	1	17
16	Flat disc, soldered eye	2	13, 17
17	Cast pierced brass	1	26
18	Stamped brass	17	12, 3-13, 2-14, 2-15, 3-19, 4-21, 21, frag
-	White metal fragment	1	frag

Thirty-four of the buttons are of types that South (1964) dates prior to the American Revolution – representing almost two-thirds of the collection. There are an additional 18 specimens that South placed in an early nineteenth century context. In the Tranquil Hill collection several of the Type 18 buttons have back stamps such as "Treble Gilt." Such terms are typical of 1800-1850 (Luscomb 1967:163).

There are 19 other clothing items, including 10 buckles, one suspender slide, two straight pins, two brass thimbles, two scissor fragments, and a sad iron. The straight pins are between 1 and 1⅜-inches in length. The thimbles are plain, but represent both an adult and child's size.

Personal Group

Although there are only 13 personal artifacts in the house servants' area, the collection does exhibit some diversity. Included are two key fragments, two slate pencils, a jews harp fragment, a brass brooch fragment, five beads, and two coins.

The beads are especially characteristic of African American settlements and this assemblage includes four wire wound beads and one tube bead. Table 10 provides more information.

Table 10.
Beads Recovered from the House Servants' Area

#	Type	Description	Size (LxD in mm)
1	W1c	Oval, transluc. cobalt blue	15.6x7.4
1	W1d	Doughnut, transpar. blue	3.1x7.8
1	W1d	Doughnut, opaque blk.	2.9x6.5
1	WIIf	6 sided, transluc. blue	10.7x>10.9
1	1f	Faceted, tube, opaque blk.	7.2x6.8

The presence of coins is also interesting since they can not only be dated, but it is unusual for coinage to be lost in a plantation context. Present is a George II half penny dating to about 1754 and a George III half penny, dating between 1770 and 1775. The latter is especially interesting since England produced only a modest amount of the George III halfpennies. The coin, however, was heavily counterfited in the colonies (Newman 1976:169).

Activities Group

This "catch-all" category includes 197 specimens. The most common items, as in the case of the main house, are smoothing stones, which account for 128 specimens and are thought to be associated with the Colono ware pottery common to the site.

In the subcategory of toys is a single stone marble. Five tools are present, including four triangular file fragments, one hammer head, and a millstone fragment. Storage items include 10 strap fragments and one lead seal. The stamping can be only partially identified as "___SONS & ____." This suggests that it was a shipping seal and was not associated with the plantation operations.

Hardware items include three bolts, two screws, two staples, and three chain fragments – all items that might be associated with any plantation setting.

In addition to the smoothing stones, the final subcategory includes two flower pot fragments, 13 fragments of lead, two pieces of folded lead (which may be flint wraps), one piece of melted lead, four white metal fragments, nine brass fragments, and two pieces of brass wire. As explained in the past, these miscellaneous items may simply represent salvaged or discarded items. Some, however, may also have spiritual meanings. Brass wire and similar items could have been used as charms.

The assemblage is also interesting since it seems to contain some utilitarian components, such as tools, fire arms, and garden items that one might not normally associated with house slaves. This opens the possibility that the settlement was also used by specialized craftsmen.

Slave Settlement

To the southwest of the main settlement, about 500 feet, is evidence of a slave settlement. Excavations in this area consisted of five 10-foot units and two trenches. Recovered were 9,774 artifacts (Table 11). Of these 82.7% were kitchen items, primarily ceramics.

Kitchen Group

European ceramics account for 1,324 of the 8,080 kitchen artifacts or only about 16.4%. In contrast, Colono ware – the slave-made, low fire earthenware – accounts for 5,709 specimens or 70.6% of the collection. This stands in stark contrast to the relatively low proportion of Colono ware found in the House Servants' area (where it accounted for only 43.5% of the Kitchen Group).

Table 11.
Artifacts from the Slave Settlement Area

	340R230	340R240	390R350	390R360	390R360, ph 1	390R360, ph 2	390R360, ph 3	390R360, ph 4	400R360	660R410	Feature 2	Feature 3	Feature 4	Feature 5	Feature 6	Feature 7	Feature 8	Feature 9	Trench 16	Trench 17	Totals	
Kitchen Group																					8080	
Creamware, undecorated	79	86	82	73	1		1		49	16			3	1	8	19	3	8		2		
Creamware, molded	1	6	2	2					1			1										
Creamware, annular	3			1					4									1				
Creamware, mocha	2			1																		
Creamware, poly hand painted OG									2					1								
Creamware, cauliflower			1							4												
Pearlware, undecorated	21	13	12	20					24	2								1	1	1		
Pearlware, blue hand painted	2		4	15				1	3													
Pearlware, poly hand pained	1		2	1																		
Pearlware, mocha		1	1																			
Pearlware, cable	5	5																				
Pearlware, annular	4	9	2	3					7													
Pearlware, green edged	1																					
Pearlware, blue edged	2	4	1																			
Pearlware, blue transfer printed	7	4	8	6					10									4				
Whiteware, undecorated				1														1				
Whiteware, poly hand painted		2																				
Whiteware, blue hand painted		2												1								
Yellow ware, mocha										1												
White SG SW		1	5	4						12		2						1				
White SG SW, scratch blue	3		1	1					4	2												
White SG SW, slip dipped		1							5													
Delft, undecorated	2	3	13	9					11	7			3	3	2	2	1	2				
Delft, blue hand painted	1	1	3	6					4	4			1				1	1				
Delft, poly			2	1						2			1	1			1					
Chinese porcelain, undecorated	2	2	6	2					2	1				4		1	1	1	1			
Chinese porcelain, blue hand painted	4		18	20					18	13			1			2	3	2	3			
Chinese porcelain, poly HPOG			1	3			1			3			1									
White porcelain, undecorated	2																					
White porcelain, blue hand painted	2	2																				
Lead glazed slipware	13	11	18	34					22	64		3	1	3	4	1	7	3				
Black basalt		1							2													
Jackfield				2						7												
Elers ware	6								1													
Nottingham	1	1		3					1	8												
Westerwald	1								1	5				2				1				
Gray SG SW	6		1	4					5				1				2	1	1			
Southern European ware										2												
Brown SG SW	21		13	6		1			19	3		2	1	1		1		1				
Alkaline glazed stoneware	3																					
Coarse Red earthenware	8	4	9	6			1		7	16												
Red earthenware	1		3	1					2	6			1									
Burnt refined earthenware	4														1							1324.0
Glass, black	93	97	130	152		1	1		138	78	1	12	2	8	7	5	8	12	2	2		
Glass, aqua	2	4	8	7					14	5					3		2					
Glass, green	27	13	16	29					22	28			1	1				2				
Glass, light green	1		2	6					2	2			1		2		1					
Glass, other	6	1	1	2					2	1		1			1	1		2				
Glass, clear	6		13	10	1				10	7							1	2				
Glass, milk		1	1																			
Glass, tableware		2							1	4												
Utensil	4	2																				
Kitchenware	3	4		1					3	1								1	1			
Colono ware	1033	833	946	1089	11	9	3		785	263	4	119	72	106	95	121	35	208	7			5709.0

Table 11, cont.
Artifacts from the Slave Settlement Area

	340R230	340R240	390R350	390R360	390R360, ph 1	390R360, ph 2	390R360, ph 3	390R360, ph 4	400R360	660R410	Feature 2	Feature 3	Feature 4	Feature 5	Feature 6	Feature 7	Feature 8	Feature 9	Trench 16	Trench 17	Totals
Architecture Group																					1090
Window glass	8	9	40	32	1				37	22		4		11	6	2	2	3			
Roofing tile fragments				3																	
Hinge fragments		1																			
Pintle				1																	
Delft tile																					
Nails, wrought	21	9	8	2					5	38											
Nails, machine cut	9	1	1						2	19											
Nails, UID	150	156	147		1		2		109	106	1	10	7	13	21	10	18	40	2		
Spikes																					
Furniture Group																					6
Brass tacks		2		1																	
Drawer pull									1												
Escutcheon	1								1												
Arms Group																					2
Gunflint, light gray to white	1								1												
Tobacco Group																					461
Pipe stems, 4/64-inch	6	8	17	9					6	9			1	1		3	1	2	1		
Pipe stems, 5/64-inch	35	32	20	40					20	36		3	1	3		3		2			
Pipe stems, 6/64-inch	1	2	1	1					2												
Pipe stems, fragments		2	2	1					1									1			
Pipe bowl fragments	21	14	30	28					27	16		1	3	4	16	5	9	14			
Clothing Group																					24
Buttons	4	5	1	3					2												
Buckles			1							1											
Thimble				1																	
Straight pin										1			3				2				
Personal Group																					7
Key fragment		1							1												
Jewelry	1		1																		
Amethyst glass wax impression seal				1																	
Perfume bottle fragment		1																			
Beads			1																		
Activities Group																					104
Triangular file fragments	1																				
Strap fragments				3											1						
Lead seal		1																			
Misc. hardware	2	1	1	2						3											
Smoothing Stones	14	10	13	4					7	21		2					2				
Other			6	5					4									1			
TOTAL	1628	1371	1615	1658	15	11	9	1	1407	839	6	160	105	164	167	176	100	318	19	5	9,774

The abundance of Colono ware can be explained in many different ways. The poverty of the enslaved African Americans at Tranquil Hill may have played a role. They may have had a preference for traditional vessels. Or it may be that their foodways demanded a different type of vessel – perhaps one more adapted to one-pot, slow simmering meals.

Unfortunately, while Colono ware is abundant, 81% of the assemblage consists of sherds under 1-inch in diameter. Nevertheless, there are three foot rings, characteristic of European style vessel forms. There are eight handle fragments, also suggestive of pitchers or other European forms. Seven of the vessels exhibited incising, two were impressed, and one exhibits a paint or wash.

Perhaps the most intriguing is that one is incised with an "x." Similar findings have been discussed at length by Ferguson (1992:110-116) and have been attributed as Bakongo cosmograms, with the bowls serving as receptacles for minkisi or a similar ritual. Ferguson notes a strong association between the symbols and riverine settings (Fersuson 1992:114), although some are found in slave settlements. Relatively few, however, have been documented and, in the thousands of sherds recovered from Tranquil Hill, we have identified only this one specimen. Its recovery, therefore, is of special interest since it helps to document the spiritualism and religious activities of the enslaved African Americans on the eighteenth century Tranquil Hill Plantation.

There are other differences between the ceramics in the slave settlement and those in the house servants' area. Most notably, the European ceramics in the slave settlement contain a higher proportion of porcelains (9.3%) and stonewares (14.7%) than found associated with the house servants (5.6% and 12.9% respectively).

In addition, the slave settlement's European ceramic collection is dominated by creamware, with significantly reduced levels of both pearlware and whiteware. The most simple explanation is that the slave settlement was earlier and lasted for a shorter period of time than the well constructed and more permanent house servants' quarters. Thus, by the time that pealwares and whitewares were being discarded by the main house, slaves were no longer living in this particular location. Although there are some temporal differences between the two areas (to be discussed in a following section), we do not believe this fully explains the differences.

Another explanation is that the practice of supplying slaves with European wares changed over time at Tranquil Hill. Thus, while the practice was common early in the plantation's history (or perhaps with an early owner), it ceased later, with only favored slaves receiving, or having access to, European wares.

Glass container fragments account for about 12.6% of the kitchen assemblage, with barely three-quarters of the container glass again representing "black" bottle fragements related to beer and wine. Salvaged from elsewhere on the plantation these were probably used for storage containers. While the number of fragments is large, the minimum vessel count represents only 13 bottles – 10 of which likely represent beer styles dating from the second half of the eighteenth century (Jones 1986).

The remainder of the glass is heavily fragmented and only one other container can be identified, an aqua specimen with a blown base about 65 mm in diameter. Lacking from this collection are the number of medicinal vials and bottles that appear in the house servants' area – perhaps indicating either less medical care or a greater reliance on herbal cures.

The only kitchenware items recovered from the slave collection are 13 kettle fragments. Although similar remains were found in the house servants' area, the quantity is greater in

this collection and one rim reveals a relatively small pot 7-inches in diameter.

Tableware items included the remains of two tumblers and two goblets. Utensils were not common, with only three fragments of 2-tine forks and two fragments of knives and bolsters. All of the forks recovered from the slave settlements are typical of early English specimens according to Noël Hume (1978:180).

Architecture Group

Of the 1,090 specimens in this group, 908 or 83.3% are nails. Window glass accounts for 177 specimens or 16.2% of the group total. Overall, however, architectural items comprise only 11.2% of the total assemblage, compared to 27.4% at the house servants' area. In addition, the excavation data clearly reveals that the slave settlement consisted of ground-fast wall-trench structures. It is likely that such structures required relatively little architectural detailing.

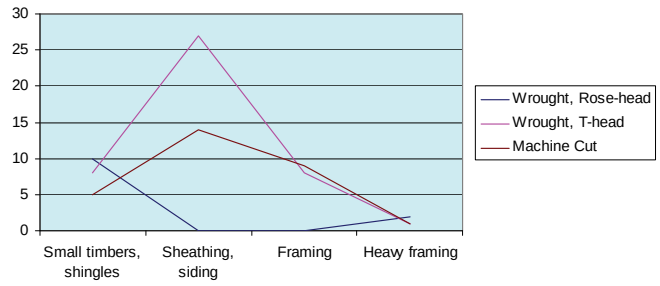


Figure 59. Function of nails at the Slave Settlement

Figure 59 shows graphically the function of the identifiable nails present in the slave settlement assemblage. Although the sample is small, it shows that rose-headed wrought nails are very uncommon. The other nails were of a size that would normally be used to attach siding. It is likely that the small quantity of nails present were perhaps used as repairs to structures that originally would have had few nails given their construction methods.

It also seems unlikely that wall trench structures – what some have euphemistically or disparangingly called "mud huts" – would have had need of glazing. We have previously suggested that it is inappropriate to attribute small quantities of window glass only to architectural functions. African Americans may have collected these fragements to serve other functions, including rituals or spiritual purposes.

Other architectural hardware items are sparse, consisting of only a pintle fragment, a fragment of a strap hinge, and three roofing tile fragments.

Furniture Group

Six items were identified from likely furniture sources: three brass tacks, a small brass drawer pull, a fragment of a brass escutcheon, and an iron escutcheon. All appear to have been salvaged from elsewhere on the plantation and were probably incorporated into the slave settlement in a non-furniture context.

Arms Group

The only arms artifacts in the slave settlement are two gray gunflints, both likely English in origin. Little can be deduced from their presence since flints could also be used with strike-a-lights. No gun parts or shot were recovered from this settlement unlike the house servants' area where other arms-related items were more common.

Tobacco Group

The collection of tobacco artifacts is dominated by 273 tobacco pipe stems, which comprise over 59% of the collection. Of these, the most common are those with a 5/64-inch diameter – a distribution very similar to that found associated with the house servants' area.

There are also 188 pipe bowl fragments, most (173 or 92%) are plain. Five, however, are ribbed and four are "T.D." bowls. Several have partial initials, although one is complete, evidencing a "W/C" on the foot. Unfortunately, this combination is very common, with Oswald attributing it to at least 25 potters spanning a period from 1635 to as late as 1856 (Oswald n.d.:28).

Clothing Group

In this category are 24 items, including 15 buttons (Table 12), two buckles, one thimble, and six straight pins. The assemblage is smaller and less diverse (except for the quantity of pins) than has been found with the house servants' quarters.

Ten of the 15 specimens are dated to the period prior to the American Revolution by South (1964); the remaining buttons date to the first third of the nineteenth century.

Table 12.
Buttons Recovered from the Main House

South's Type	Description	#	Measurements (in mm)
6	Cast brass with cast eye	1	18
7	Spun brass/white metal with cast eye	9	3-12, 14, 2-15, 16, 2-26
18	Stamped brass	1	14
24	Fabric covered iron with loose eye	1	24
-	Domed brass	1	13
-	Opaque black glass, cast with eye	2	2-14

Although other items are rather common, the thimble and one of the two buckles are notable since they are silver. These almost certainly originated in the main house and made their way to the slave settlement through salvage.

Personal Group

There are only seven personal items in the slave settlement, but several of these – like the silver thimble and buckle – are out of place and suggest movement from the main house to the enslaved African Americans. These include a white metal brooch fragment, a clear glass perfume bottle base with beveled edges, and an amethyst glass wax seal fragment.

The wax seal device is of special interest since it is an item that would have been reserved for the wealthy. The oval molded design measures 13.3 by 11.4 mm and consists of a flower surrounded above with the words, "SEEK AND FIND." The phrase is likely a reference to Jeremiah 29:13, "And ye shall seek me, and find me, when ye shall search for me with all your heart" (KJV).

Also present in the assemblage is a single cobalt blue tube bead with pale blue stripes (IIb70). Surprisingly, beads are far more common in the house servants' area than in the slave quarters. Whether this is an accident of chance or perhaps suggests that beads were differentially available is uncertain. While archaeologists frequently comment on the presence of beads in slave contexts, rarely are different slave contexts compared.

Activities Group

The final category is that of the Activities Group – a miscellaneous assortment often consisting of tools, hardware, and other utilitarian items. In the case of the slave settlement, the group consists of 104 specimens, 63 (60.6%) of which are smoothing stones thought to be associated with the production of Colono pottery. Their abundance in slave contexts is not unusual.

Also present, however, is a single tool – a triangular file. Five storage items are present, including four strap fragments and a portion of a lead seal. Hardware related items include chain links, washers, bolts, screws, a brass nut, and a brass fitting. Some of these items, such as

the brass fitting, screw, and nut, are specialized, perhaps associated with rice milling equipment or boats. Their presence in the slave settlement is likely a result of their salvage and perhaps reuse for other purposes.

Miscellaneous items include fragments of brass and lead wire; three fragments of thin, stamped brass; and various fragments of brass, white metal, and lead. The lettering on the stamped brass consists of two partial lines: "MACHT IOF__ N N GOTTFIUD/___ALDENI ___OF. IN HAN__U." Associated with it is a double headed eagle, a common symbol used historically by a number of East European countries.

The Garden Area

The garden area was a poor producer of artifacts, with only 253 items recovered (most, 210 or 83%) from Feature 12. Readers may recall that this appears to be a trash pit, found associated with the brick structure identified within the garden area.

The bulk of the artifacts present in the garden are kitchen related (n=169, or 66.8% of the assemblage), followed by architectural remains (Table 13).

Kitchen Group

The Kitchen Group consists of 102 European ceramics and only two Colono ware sherds. This suggests that the assemblage is associated with the main house or higher status individuals, rather than the slaves that constructed or tended the gardens.

Porcelains and stonewares are less frequent in this assemblage (each represents 8.2% of the ceramics) than anywhere else on the site. Curiously, however, the whitewares are the most abundant earthware. This is the only area investigated that reveals such a high proportion of whiteware compared to creamware and pearlware. The reason for this is uncertain, although it may admittedly be a sampling error since most of the data comes from one feature.

This area is also distinct in not being dominated by "black" glass. Container glass accounts for only 64 specimens, but 33 (51%) are aqua. Most are small, but we did identify two containers – a 1½-inch diameter bottle, possibly soda water, and a panel bottle, probably medicinal. There are four blown "black" glass bases, representing two wine sizes and two beer sizes (Jones 1986).

The single kitchenware item is a kettle fragment.

Architecture Group

The 70 architectural items are almost entirely nails (accounting for 68 specimens or 97%). Unfortunately, all but one nail is unidentifiable to size and type. Nevertheless, the low density of nails suggest that they were accidentally discarded in the area or may be from trellises or other garden furnishings. The only other two items recovered were small bits of window glass.

Arms Group

The single arms-related item is a brass scabbard tip. Considering the activities in the general area during the American Revolution, this may not relate to the plantation activities, but rather to the various military encampments.

Tobacco Group

Tobacco-related specimens are also relatively uncommon, consisting of two pipe stem fragments, and three bowl fragments (two plain and one ribbed).

Clothing Group

One iron buckle and two buttons (one each South's Type 10 and 20) were recovered

Table 13.
Artifacts from the Garden Area

	Feature 12	Feature 14	Tranch 5	Trench 6	Trench 7	Totals
Kitchen Group						169
Creamware, undecorated					2	
Creamware, annular	1					
Pearlware, blue hand painted	1					
Pearlware, poly hand pained					1	
Pearlware, cable					1	
Pearlware, annular	8				1	
Pearlware, blue edged	2					
Pearlware, blue transfer printed	16				4	
Whiteware, undecorated	12				2	
Whiteware, poly hand painted	1					
Whiteware, sponge	2					
Whiteware, annular	7				1	
Whiteware, cable	1					
Whiteware, blue edged	3					
Whiteware, blue transfer printed	8				4	
Whiteware, green transfer printed	1					
Whiteware, black transfer printed	1					
Yellow ware, annular	1					
White SG SW					1	
White SG SW, slip dipped	2					
Delft, blue hand painted	1					
Chinese porcelain, undecorated	1					
Chinese porcelain, blue hand painted	5		1	1		
White porcelain, HPOG	1					
Lead glazed slipware	2					
Black basalt	1					
Westerwald	4				1	
Glass, black	15		3	2	5	
Glass, aqua	33					
Glass, light green	2					
Glass, clear	4					
Kitchenware	1					
Colono ware					2	
Architecture Group						70
Window glass	2					
Nails, wrought	1					
Nails, UID	61	3			3	
Arms Group						1
Brass scabbard tip	1					
Tobacco Group						5
Pipe stems, 4/64-inch					1	
Pipe stems, 5/64-inch			1			
Pipe bowl fragments	2				1	
Clothing Group						2
Buttons	2					
Activities Group						6
Axe	1					
Hoe	1					
Knife hone	1					
Lead net weight				1		
Smoothing Stones		1				
Other	1					

from the garden area. The buttons span the early eighteenth through early nineteenth century, consistent with other specimens recovered from elsewhere on the plantation.

Activities Group

Six specimens were placed in this last category. Three of these are tools that might reasonably be expected in a garden (or any agricultural) context – an ax head, a hoe head, and a knife hone.

The remaining items include a nut, a smoothing stone, and a lead weight (probably a net weight).

Comparisons of the Assemblages

Having briefly reviewed the different assemblages from Tranquil Hill and provided some insight on the types of remains present at the plantation, it will be useful to explore what they tell us about the lives of those living at the plantation.

Dating the Assemblages

As explained in the introduction to this section, we have used a variety of techniques to date the assemblages. The most straight forward is South's mean ceramic dating. The dates for the four different site areas are shown in Table 14 and span the known historic occupation of the site. The earliest mean date, 1772.2, comes from the main house, closely followed by the date from the slave settlement, 1772.8. The area of the house servants dates two decades later, 1792.9, while the garden has the latest date, 1817.8.

The mean dates for the main house and slave settlement are so close that they are essentially contemporaneous. The garden date suggests that activities – perhaps rehabilitation or expansion – were taking place until shortly before Ann Waring's death.

If we examine the plantation using South's bracketing technique we find that the ceramics from the main house are suggestive of dates from 1795 to 1835 – this discounts the early occupation of the site, which dates back to at least the early 1770s when it was acquired by Richard Waring. The house servants' settlement provides identical bracketing dates – 1795-1835. This of course isn't surprising since the ceramics are a near mirror image of the main settlement. The slave settlement suggests very similar dates – 1790 to 1825. The tightest bracket is provided for the garden area – 1800 to 1810. This provides a very narrow window, indicating activities at least as late as the first date of the nineteenth century.

A different view is provided when the ceramics are examined using the technique of Salwen and Bridges – an approach that perhaps provides the best account of beginning and ending activities. The core dates determined for the main house – which represent the height of activities – are 1750 through 1820. This dates the plantation development to the period of Dr. Robert Dunbar, about 20 years prior to the plantation's occupation by the Warings. The height of activity ends about 1820 – six years before the death of Ann Waring.

Nevertheless, some activity began perhaps as early as 1740 and extended to perhaps 1840. This suggests that the plantation might have been taking form during the short tenure of Malachi Glaze and that the Waring descendants attempted to continue the plantation's operations for several decades after Ann Warings' death.

The area of the house servants to the east of the main house provides almost identical date ranges, with some activity as early as 1740 extending to about 1840, although the core occupation was from 1760 to 1830.

The slave settlement provides a beginning date of 1740, strongly suggesting that the settlement was begun either by Glaze or

Table 14.
Mean Ceramic Dates for Tranquil Hill

Ceramic	Date Range	Mean Date (xi)	Main House		House Servants'		Slave Settlement		Garden	
			(fi)	fi x xi	(fi)	fi x xi	(fi)	fi x xi	(fi)	fi x xi
Overglazed enamelled porc	1660-1800	1730	20	34600	21	36330	9	15570		
Underglazed blue porc	1660-1800	1730	334	577820	230	397900	84	145320	7	12110
Nottingham stoneware	1700-1810	1755	43	75465	8	14040	14	24570		
Westerwald	1700-1775	1738	48	83424	64	111232	10	17380	5	8690
White salt glazed stoneware	1740-1775	1758	212	372696	70	123060	31	54498	3	5274
White sg sw, scratch blue	1744-1775	1760	19	33440	20	35200	6	10560		
White sg sw, slip dip	1715-1775	1745	10	17450						
Black basalt	1750-1820	1785	3	5355	56	99960	3	5355	1	1785
Lead glazed slipware	1670-1795	1733	237	410721	188	325804	184	318872	2	3466
Jackfield	1740-1780	1760	23	40480	13	22880	9	15840		
Clouded wares	1740-1770	1755	12	21060	11	19305				
Decorated delft	1600-1802	1750	48	84000	21	36750	30	52500	1	1750
Plain delft	1640-1800	1720	76	130720	75	129000	58	99760		
North Devon	1650-1775	1713	27	46251	3	5139				
El Morro	1650-1750	1700	1	1700						
Agate ware	1750-1810	1780	3	5340						
Creamware, cable	1790-1820	1805			22	39710	3	5415		
Creamware, annular	1780-1815	1798	6	10788	46	82708	9	16182	1	1798
Creamware, hand painted	1790-1820	1805	3	5415	26	46930	3	5415		
Creamware, undecorated	1762-1820	1791	497	890127	917	1642347	444	795204	2	3582
Pearlware, mocha	1795-1890	1843	1	1843	7	12901	2	3686		
Pearlware, poly hand painted	1795-1815	1805	3	5415	116	209380	4	7220	1	1805
Pearlware, blue hand painted	1780-1820	1800	12	21600	112	201600	25	45000	1	1800
Pearlware, blue trans printed	1795-1840	1818	172	312696	387	703566	39	70902	20	36360
Pearlware, edged	1780-1830	1805	67	120935	121	218405	8	14440	2	3610
Pearlware, annular/cable	1790-1820	1805	70	126350	251	453055	35	63175	10	18050
Pearlware, molded	1800-1820	1810	1	1810	3	5430				
Pearlware, undecorated	1780-1830	1805	197	355585	588	1061340	95	171475		
Whiteware, blue edged	1826-1880	1853	1	1853	13	24089				
Whiteware, poly hand painted	1826-1870	1848	3	5544	7	12936	5	9240	1	1848
Whiteware, blue trans printed	1831-1865	1848	38	70224	116	214368			3	5544
Whiteware, non-blue trans printed	1826-1875	1851	5	9255	5	9255			14	25914
Whiteware, annular	1831-1900	1866	8	14928	31	57846			9	16794
Whiteware, sponge/splatter	1836-1870	1853	1	1853	1	1853			2	3706
Whiteware, tinted glaze	1911-1970	1941	4	7764	1	1941				
Whiteware, undecorated	1813-1900	1860	34	63240	102	189720	2	3720	14	26040
Yellow ware	1826-1880	1853	3	5559	28	51884	1	1853	1	1853
Total			2242	3973306	3680	6597864	1113	1973152	100	181779
Mean Ceramic Date				1772.2		1792.9		1772.8		1817.8

Dunbar and was likely inherited by Waring fully developed. The settlement continued to about 1820 – probably about the time of Ann Waring's death. Over this 60 year occupation the settlement did not move, although individual structures certainly shifted location and were periodically rebuilt.

Artifact Pattern

Recognizing Tranquil Hill as a well defined eighteenth century plantation, extending from perhaps 1740 or 1750 through about 1820, the artifact patterns of the different plantation settlement areas are of special interest. In particular, it is of interest to compare the pattern exhibited by the house servants to that of the field slaves. Even from the previous discussion of the artifacts it is clear that the two had very different possessions, but how might this have been reflected in the archaeological pattern?

Table 15.
Artifact Patterns for the Tranquil Hill settlement areas

	38RD141 Main House	38DR141 House Servants	38DR141 Slave Settlement	38DR141 Garden Area	Revised Carolina Artifact Pattern[1]	Carolina Slave Artifact Pattern[1]	Georgia Slave Artifact Pattern[2]	38BK1900 Area B 18th Cen. Overseer[3]	38CH1278 18th Cen. Overseer[4]
Kitchen	49.3	66.3	82.7	66.8	51.8-65.0	70.9-84.2	20.0-25.8	65.2	78.1
Architecture	46.0	27.4	11.2	27.6	25.2-31.4	11.8-24.8	67.9-73.2	21.2	8.9
Furniture	0.1	0.1	0.1	0.0	02-0.6	0.1	0.0-0.1	0.0	0.1
Arms	t	0.1	t	0.4	0.1-0.3	0.1-0.3	0.0-0.2	0.3	0.2
Tobacco	3.5	4.5	4.7	2.0	1.9-13.9	2.4-5.4	0.3-9.7	10.2	11.4
Clothing	0.2	0.4	0.2	0.8	0.6-5.4	0.3-0.8	0.3-1.7	0.1	0.2
Personal	0.1	0.1	0.1	0.0	0.2-0.5	0.1	0.1-0.2	0.1	0.2
Activities	0.8	1.1	1.1	2.4	0.9-1.7	0.2-0.9	0.2-0.4	2.9	1.1

[1]Garrow 1982
[2]Singlton 1980
[3]Trinkley et al. 2003
[4]Trinkley et al. 2005

A comparison of the different artifact patterns is provided in Table 15.

We would expect the main house to closely correspond to the pattern established for eighteenth century British-American settlements (the Revised Carolina Artifact Pattern), with perhaps the exception that architecture might be high given the placement of excavation units and that furniture might be low since we believe the house was abandoned by the time of its demolition. Both expectations appear to be supported. Kitchen remains are slightly low, architectural artifacts are notably higher than typical, and furniture items are almost non-existant. Clothing items, too, are lower than expected, although this may also the result of very selective excavation areas.

We would also expect the slave settlement to very closely match the previously established pattern for eighteenth century slave settlements (Carolina Slave Artifact Pattern). It does.

The only difference worth mentioning is that arms related items are almost non-existant in the collection. This, however, may not be suprising since the settlement began almost immediately after the Stono Rebellion (in 1739). Fear of slave rebellion among Carolina planters, especially in the isolated areas with large black populations was palpable. The Slave Code of 1740, which remained the central core of how planters dealt with blacks until 1865, for example, gave justices of the peace blanket authroization to search slave quarters for weapons.

Of greatest interest is the pattern present in the area east of the main house. Here we find a pattern that is actually a much closer match of the Revised Carolina Artifact Pattern

than the main house iteself. It is also situated almost midway between the main house and the slave settlement when we compare the two largest components, kitchen and architecture. It is also a near perfect match for the pattern observed from at least one eighteenth century overseer settlement (Trinkley et al. 2003). So, might the house servants' settlement not represent slaves at all, but rather an overseer for Tranquil Hill?

This is, of course, a difficult assessment to make. Our previous discussions of eighteenth century overseers have commented on how these whites lived their lives caught between the black and white worlds. While they were socially well above the slaves they supervised, they were forced to coexist with and even integrate with their charges in order to survive (see Trinkley et al. 2005).

Our assessment that the eastern settlement represents house slaves and not an overseer is based on several factors. The eastern settlement appears to consist of several structures in close proximity to one another; it seems more likely to have a clustered settlement of several domestics than for a white overseer. The settlement location is also situated in an area that would have reduced the ability of the occupant to keep watch over the slave settlement (which would have been largely hidden by the intervening hill). The historical account of Boston King mentions that his father was a driver. This would reduce (although not eliminate) the need for an overseer. The large assemblage of beads in the structure argues for African Americans (although a white overseer might have had a black cook).

Another factor that suggests the eastern settlement was occupied by African Americans of some special status is provided by the pattern observed in the garden. There we find a pattern that is almost identical to that of the eastern settlement. As previously mentioned, we have allowed that the settlement to the east of the main house may have included skilled slaves or mechanics, perhaps a gardener. Thus, the trash in the garden might reasonably have a very similar pattern to the trash found at the eastern settlement.

There is certainly a very strong difference between the artifact pattern found in the western and eastern settlements. If we are correct that the eastern settlement was also used by enslaved African Americans, then we are seeing an extraordinary difference in the lifeways of the two groups. Not only is the architecture of the settlements radically different, but the artifacts present in the two locations are very distinct.

Status

We can expand on the issue of pattern by broadening our discussions to include evidence of status. Or more precisely, what might 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. Archaeologists have evidence to believe that higher status individuals, because of their wealth, would tend to have diets that allowed or prefered the use of flatware and serving ware. Lower status individuals would be more inclined to eat one-pot meals that necessitate bowl or hollow ware forms.

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. On the other hand, lead

glazed slipwares were the wares of the yeoman farmer and laborer.

Table 16.
Proportions of motifs at the Main House

Type	Expensive Motifs (%)	Inexpensive Motifs (%)
Creamware	0.0	100.0
Pearlware	32.4	67.6
Whiteware	92.9	7.1

Thus, when we examine the collection from the main house we find an interesting evolution, as revealed in Table 16. The proportion of expensive motifs increases steadly from creamware through pearlware to whiteware. This evolution, however, is skewed by considering plain creamware and whiteware to be inexpensive – when they were first introduced both were actually quite expensive as they sought to immitate Chinese porcelains.

In addition, the main house exhibits a quanitity of porcelain, including hand painted overglazed, and white salt-glazed stonewares.

If we consider the vessel forms at the main house (Table 17) we find a range of both hollow wares and flat wares, with the latter most common. This seems characteristic of a high status table – what we would certainly expect of a wealthy plantation owner setting his (or her) table to impress and demonstrate their wealth and status.

Table 17.
Vessel Forms at the Main House

	Hollow Ware	Flat Ware	Serving	Utilitarian
Porcelain	26	28	1	0
Delft	6	5	0	0
WSG Stoneware	5	8	1	0
Lead Glazed Slipware	11	0	0	2
Creamware	10	13	5	2
Pearlware	22	43	2	1
Whiteware	1	13	0	0
Other	10	1	7	7
Totals	91	111	16	12
Percent	39.6	48.3	7.0	5.2

When we turn to the slave settlement we find very different results. Inexpensive motifs dominate both creamware and pearlware, although it appears that more expensive motifs are being discarded into the slave settlement during the period that pearlwares were in heavy use (Table 18). This may suggest that after Richard Waring's death, his wife began taking steps to economize where possible, perhaps reducing expenditures on slave ceramics.

Table 18.
Proportion of motifs at the Slave Settlement.

Type	Expensive Motifs (%)	Inexpensive Motifs (%)
Creamware	0.0	100.0
Pearlware	45.8	54.2

The proprotion of hollow wares has also increased, although we continue to see flatwares in the slave settlement (Table 19), likely because we continue to see ceramics from the planter's table flowing into the slave settlement. Relatively few serving pieces, however, were sent from the main house to the slave settlement. This may suggest that the planter was in nominal control of what left the main house for use by the enslaved African Americans (left to their own devices it seems likely that they might have taken any ceramic, finding some use for the item). Utilitarian items are found in about the same proprotion as at the main house, either because the need for food storage was similar or, more likely, because these items were also being discarded into the slave settlement.

Turning to the house servants' area to the east of the main house we see, especially among the later wares, an increase in the more expensive motifs. Although expensive motifs are never as

common as on the planter's table, there is a clear difference between this settlement and the larger field slave settlement to the west (Table 20).

Table 19.
Vessel Forms in the Slave Settlement

	Hollow Ware	Flat Ware	Serving	Utilitarian
Porcelain	3	14	0	0
Delft	1	1	0	0
WSG Stoneware	3	2	0	1
Lead Glazed Slipware	11	0	1	1
Creamware	12	23	0	0
Pearlware	11	13	0	0
Other	7	0	1	4
Totals	48	53	2	6
Percent	44.0	48.6	1.8	5.5

Interestingly, the proprotion of vessel forms is almost the same in both settlements (Table 21). Thus, while the domestic slaves may have had "nicer" items and perhaps even more of them, basic foodways don't seem to be appreciably different. Both tended to rely on one-pot meals favoring hollow ware vessels.

Table 20.
Proportion of motifs in the House Servants' Area

Type	Expensive Motifs (%)	Inexpensive Motifs (%)
Creamware	7.3	92.7
Pearlware	53.0	47.0
Whiteware	56.4	43.6

Table 21.
Vessel Forms in the House Servants' Area

	Hollow Ware	Flat Ware	Serving	Utilitarian
Porcelain	12	24	0	0
Delft	6	5	0	0
WSG Stoneware	4	6	0	0
Lead Glazed Slipware	7	6	0	8
Creamware	64	41	4	2
Pearlware	97	98	7	0
Whiteware	12	27	0	0
Other	15	1	2	6
Totals	217	208	13	16
Percent	47.8	45.8	2.9	3.5

When we turn to the garden trash it again seems to reflect what was found around the housing for the domestic servants. Creamwares tend to be inexpensive motifs, but the expense of the motifs increases with both pearlware and whiteware. There are some differences to be sure, but they seem best explained by the small sample sizes we have for the garden. Nothing seems to dramatically distinguish the two collections. In terms of vessel forms there are some differences, but again it is difficult to determine how much of these may be attributable to the small garden assemblage (remembering that most of the collection comes from a single feature). For example, the garden collection includes a very high proportion of utilitarian vessels (10.7%), although the total sample is only 28 vessels.

Regardless, we do see significant differences between the slave settlement and the house servants' area in terms of motifs, with the house servants receiving more elaborate vessels. The vessel forms, however, are very similar, suggesting that fundamental foodways were similar between the two groups of African Americans.

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. Table 22 examines the cost indices for the ceramics in the three site areas of the main house, house servants' area, and slave settlement. The garden area has been excluded since the collection is so small.

In the three areas examined we see clear differences, with the expense of the ceramics declining from one area to the next, regardless of motifs or vessel forms. So Miller's indices do allow us to observe what we might intuitively anticipate appears to hold

Table 22.
Miller's Ceramic Indices for the Main House (top), House Servants' Area (middle), and Slave Settlement (bottom)

	Plates			Bowls			Cups/Saucers		
	#	Index Value	Product	#	Index Value	Product	#	Index Value	Product
Creamware/Pearlware									
Undecorated	12	1.00	12.00	11	1.00	11.00	3	1.00	3.00
Annular			0.00	14	2.00	28.00			0.00
Edged	26	1.33	34.58	5	1.60	8.00		1.50	1.50
Hand painted		2.10	2.10		2.00	2.00	1	1.80	1.80
Transfer printed	11	4.00	44.00	3	3.14	9.42	7	5.36	37.52
Average Value			1.89			1.77			3.98
Whiteware									
Undecorated	2	1.00	2.00			0.00			0.00
Annular			0.00			0.00			0.00
Edged		1.13	1.13			0.00			0.00
Hand painted			0.00			0.00	1	1.80	1.80
Transfer printed	11	1.86	20.46			0.00	2	2.89	5.78
Average Value			1.81						2.53
Combined Average Index Value		2.40							

	Plates			Bowls			Cups/Saucers		
	#	Index Value	Product	#	Index Value	Product	#	Index Value	Product
Creamware/Pearlware									
Undecorated	37	1.00	37.00	45	1.00	45.00	9	1.00	9.00
Annular			0.00	37	2.00	74.00			0.00
Edged	43	1.33	57.19			0.00	1	1.50	1.50
Hand painted	9	2.10	18.90	35	2.00	70.00	18	1.80	32.40
Transfer printed	29	4.00	116.00	5	3.14	15.70	16	5.36	85.76
Average Value			1.94			1.68			2.92
Whiteware									
Undecorated	5	1.00	5.00	3	1.00	3.00			0.00
Annular			0.00	1	1.14	1.14			0.00
Edged	8	1.13	9.04			0.00			0.00
Hand painted			0.00	1	1.64	1.64			0.00
Transfer printed	13	1.86	24.18	1	2.00	2.00	5	2.89	14.45
Average Value			1.47			1.30			2.89
Combined Average Index Value		2.03							

	Plates			Bowls			Cups/Saucers		
	#	Index Value	Product	#	Index Value	Product	#	Index Value	Product
Creamware/Pearlware									
Undecorated	23	1.00	23.00	9	1.00	9.00	4	1.00	4.00
Annular	1		1.00	2	2.00	4.00	1		1.00
Edged	8	1.33	10.64			0.00		1.50	1.50
Hand painted		2.10	2.10	3	2.00	6.00	4	1.80	7.20
Transfer printed	3	4.00	12.00		3.14	3.14	1	5.36	5.36
Average Value			1.39			1.58			1.91
Combined Average Index Value		1.63							

true – the planter ate off more expensive ceramics than the house servants; and the house servants ate off more expensive vessels than the field slaves.

We can also compare the status of Tranquil Hill with the status of at least a few other plantations (regretably few archaeologists use Miller's indices, so the sample is not as large as it might be). Nevertheless, Figure 60 reveals that the ceramic index for the main house is second only to Cannon's Point, the sea island cotton plantation of the Couper family. Even the slave settlement is found in the upper 50% of the chart, far above many other slave settlements in the lower coastal plain. The house slaves at Tranquil Hill also rank just below those identified for the Stoney-Baynard settlement on Hilton Head Island, as well as above some overseers.

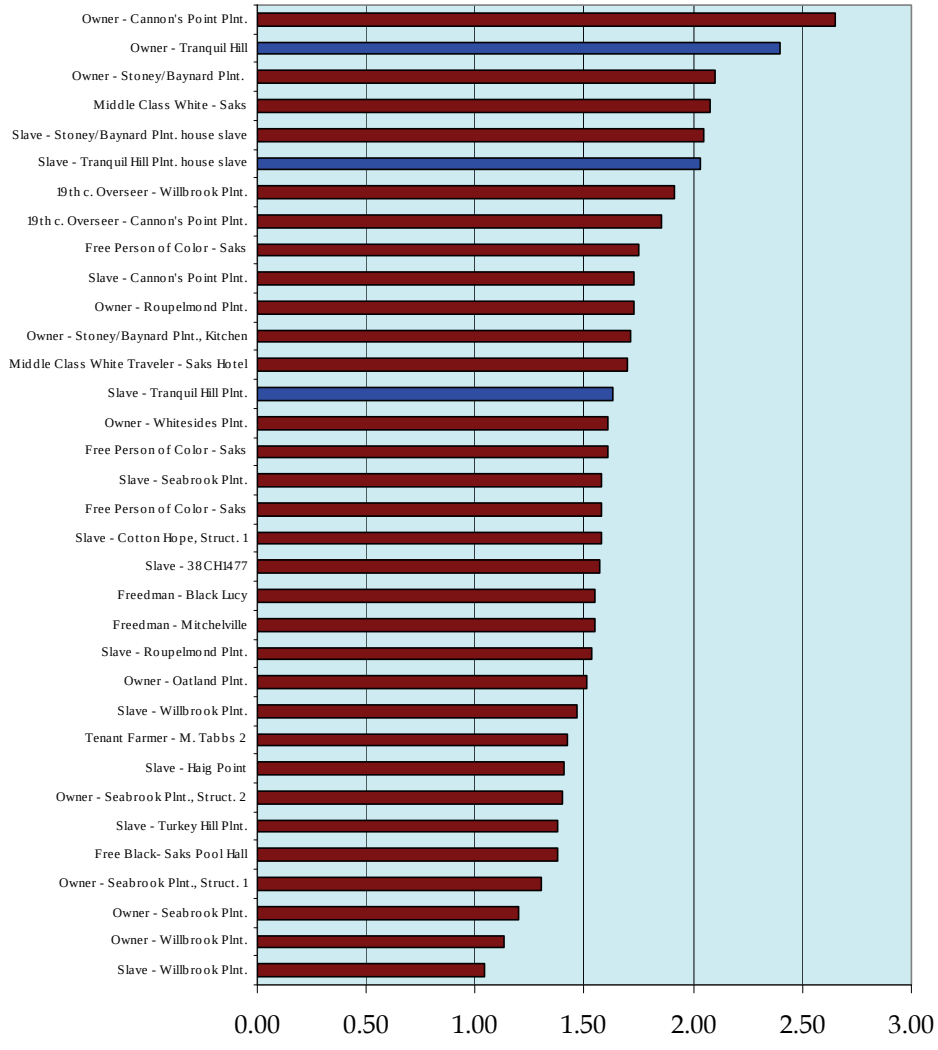


Figure 60. Comparison of the Miller Ceramic Indices for Tranquil Hill with other data sets.

Figure 61. Kitchen Group Artifacts. A, Chinese porcelain, blue hand painted; B, lead glazed slipware; C, delft, blue hand painted and manganese splatter; D-E, white salt glazed stoneware; F, black basalt; G, creamware, molded; H, pearlware, blue transfer printed; I, pearlware, poly hand painted; J-K, pearlware, annular; L, pearlware, blue shell edged.

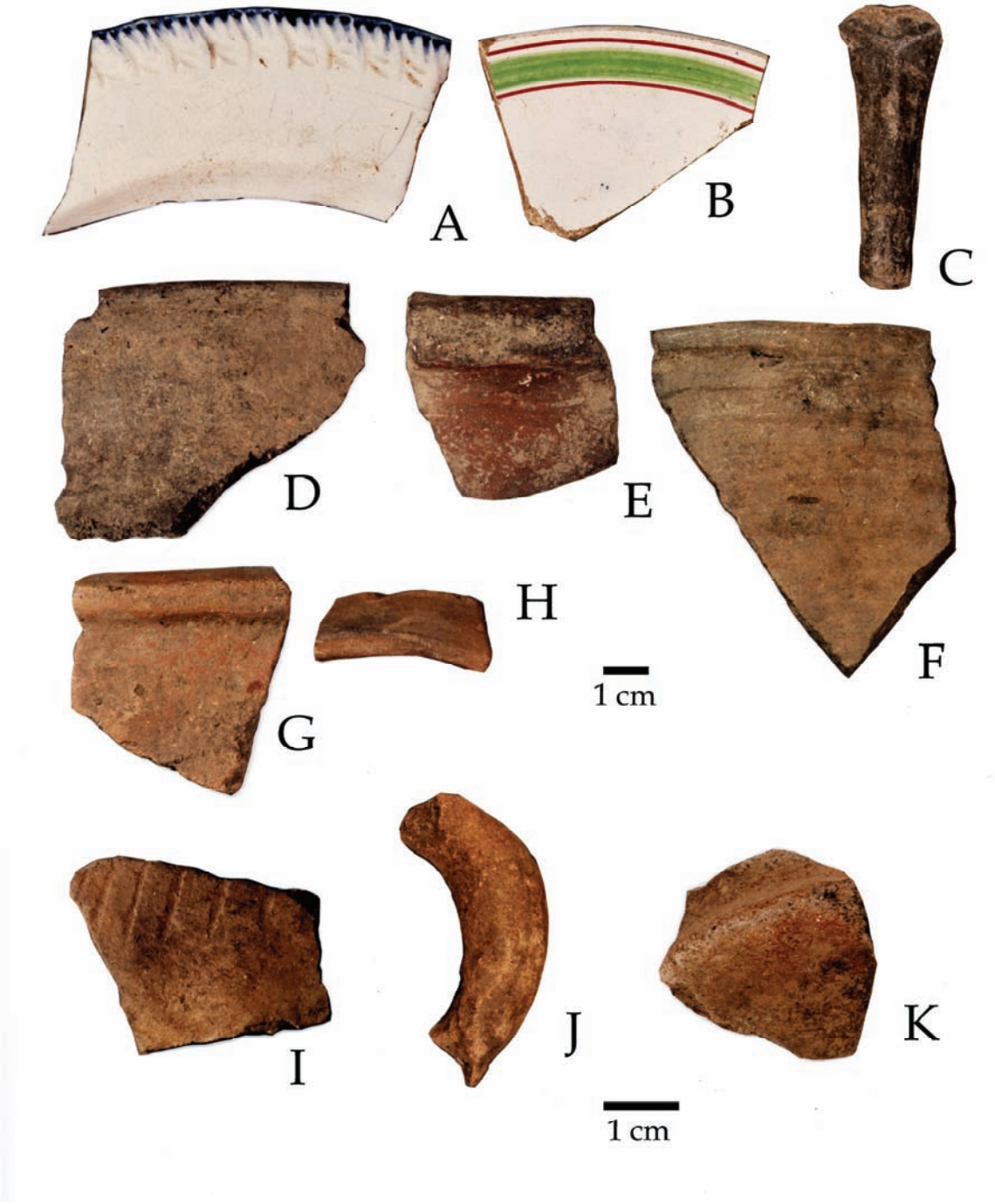


Figure 62. Kitchen Group Artifacts. A, whiteware, blue shell edged; B, whiteware, poly hand painted; C, white metal utensil handle; D-G, Colono ware, rim sherds; H, Colono ware, foot ring; I, Colono ware, incised; J, Colono ware, handle; K, Colono ware, base.

Figure 63. Miscellaneous artifact groups. A, brass scabbard tip; B, brass trigger guard tang fragment; C, George II halfpenny; D, silver thimble; E, South's Type 28 brass button; F, Type IIb70 tube bead; G, silver broach fragment.

GARDEN SOILS

Background

There are three broad concepts used in the study of soils – edaphic, pedologic, and geographic (Butler 1958). The edaphic concept examines issues of soil conditions that are important to the growth and well being of plants. Soils are viewed primarily as the natural medium for the growth of plants and the response of these plants is largely due to factors such as nutrients, the ability to allow root development, and the response of the soils to management practices. Clearly this is the focus of the current discussions. The pedologic concept embraces the study of soils as natural bodies, recognizing that soils are affected by parent material, climate, organisms, and topography. The geographic concept explores the areal distribution of soils.

These discussions will focus on edaphic issues, in particular the nutrients evidenced in the soils at Tranquil Hill.

Soil Fertility

Fertility is another way, typically, of expressing the productivity of a soil. Most comprehensively, it involves physical, biological, and chemical issues. We will take a somewhat more restrictive view, focusing on nutrients, in particular the most commonly discussed nutrients: nitrogen (N), phosphorus (P), and potassium (K). Thus, issues of soil physics (texture, structure, water, aeration, and temperature) and soil biology are not discussed.

Nitrogen

Nitrogen is required in rather large amounts by most plants. Other factors being equal, nitrogen will promote rapid growth and the development of a dark green color in the leaves. Nevertheless, there are generally only trace amounts present in most soils at any one time. Soils gain nitrogen through fixation of molecular nitrogen by microorganisms and from the return of ammonia and nitrate in rain water. Soil loses nitrogen through crop removal, leaching, and volatilization.

Table 23.
Total Amounts of Plant Nutrients Ordinarily Found in the Soils of Humid Regions
(adapted from Fairbridge and Finkl 1979:334)

Nutrient	Range (%)
Nitrogen (N)	0.02-0.50
Phosphorus (P)	0.01-0.20
Potassium (K)	0.17-3.30

Nearly all nitrogen found in soils is combined with organic matter, with most plowed soils in the humid region containing between 0.02 and 0.5% nitrogen (see Table 23). As organic matter decomposes, its nitrogen is released and most is quickly converted to NO_3. Losses through leaching are greatest for crops such as corn and cotton and lowest for grasses and forests (Fairbridge and Finkl 1979:334-335). Nitrogen tends to break down less easily in acidic conditions (Cornwall 1958:198)

Phosphorus

Phosphorus is highly reactive and is not found in its elemental form naturally. Instead it occurs as phosphate and this is generally how it is discussed in soil science. Phosphate is an essential element for seed formation, root development, maturation, ripening, and crop quality.

Soils contain both organic and inorganic phosphate. The organic forms readily bind with calcium, iron, and aluminum, being converted into an insoluble, inorganic form that accumulates in soils, forming the bulk of what is found. Although the "available" (generally organic) phosphate is of primary interest to farmers, it is the total or inorganic potassium that is of interest to our study (Miller and Gleason 1994b). In spite of its importance, there are generally low levels of phosphate in most soils (see Table 23). The availability of phosphates is also affected by soil reaction (pH), with greatest availability at levels of 6.0 or 6.5 to 7.0 (slightly acidic). In base-rich soils the phosphate tends to combine with magnesium and calcium and become immobilized. As a result its vertical movement is less likely to be affected by time and weathering (Olsen and Fried 1957:97)

Phosphate is lost through leaching, especially from sandy and organic soils (leaching is far less significant in clay soils) and soil erosion. Leaching is exacerbated when soils are flooded.

Potassium

Potassium (K) is a silvery-white, soft, highly reactive metal that does not occur in a free state naturally. Rather it is generally combined with other compounds and minerals. As a result, it is relatively abundant in soils, generally in an inorganic form. Consequently, in spite of its abundance, only a small amount is readily available to plants at any given time. The soils that are unable to supply natural and fixed potassium include organic soils, acidic sandy soils, and acidic soils low in illites (a clay mineral).

Potassium has a number of plant functions, including the formation of sugars and starches; enhancing the size, color, and flavor of some fruits and vegetables; increasing the resistance to some diseases; improving the rigidity of straw; and increasing the oil content of oil-bearing seeds. Low levels may not be easily detected since they usually result in slowed growth.

Potassium is lost through leaching, with relatively little lost through surface run-off. Considerable quantities, however, can be returned to the soil from animal manure, especially if they are pastured animals eating forage plants that have absorbed soluble soil potassium (Reitemeier 1957:106)

Soil Reaction

The pH of soil is the content of its hydrogen and hydroxyl ions, with the scale extending from 0 to 14. With 7 considered neutral, pH values below 7 indicate an acid solution, where there are more hydrogen ions than hydroxyl ions. When pH values are above 7 a soil is said to be basic or alkaline. The scale is based on logarithms, so that a pH of 5 has 10 times the hydrogen ion concentration of a solution at pH 6.

Soils become acidic through a process of downward percolating water replacing calcium and magnesium ions with hydrogen ions from the water. The more water moving through the soil, the faster the process. Consequently, the soils of humid regions are generally more acidic than soils of subhumid areas. And, since sandy soils can hold lesser amounts of replaceable bases, sandy soils usually become acidic more rapidly than do fine textured loams or clays (Allaway 1957:70).

Changes in the acidity of soils will frequently change the availability of different nutrients and bacteria and other micro-organisms will be affected. As previously mentioned, phosphorus (phosphate) availability is generally highest when soils are neutral or slightly acidic, and declines as the soil becomes either strongly acidic or alkaline. Bacteria that decompose soil organic matter are hindered in strong acid soils.

Consequently, a pH range of approximately 6 to 7 promotes the most ready availability of plant nutrients. In spite of this, there are some plants that prefer different pH levels. For example, so-called acid-loving plants such as azaleas and rhododendrons prefer lower pH levels.

Soils tend to become more acidic over time through the action of rainwater leaching basic ions, decomposing organic matter dissolving in soil water to form organic and inorganic acids, and carbon dioxide dissolving in soil water to form additional weak organic acids.

The Garden Soils

Samples were collected from two garden proveniences – Feature 14 and Trench 1. Feature 14 was a garden planting – an area of darker, humic soil measuring about 4 feet in diameter and 0.5 foot in depth. Trench 1 covers the garden interior and represents "generic" garden soil.

Table 24.
Analysis of Garden Soils from 38DR141

Provenience	Lab #	N%	P%	K%	pH
Feature 14	81-8119	0.09	0.34	0.16	6.21
Trench 1	81-8120	0.07	0.41	0.10	5.84
Control	81-8121	0.11	0.30	0.08	5.28

In addition, a sample was collected from outside the garden, main house, and slave settlement areas. Taken from an area with no evidence of occupation (i.e., no historic documentation suggesting activities in the area and no artifacts present during either shovel testing or surface inspection), this sample was intended to serve as a control.

The samples were submitted to Hahn Laboratories in Columbia and Table 24 provides the results of the analyses.

It is first useful to compare Tables 23 and 24. We see that the levels associated with Tranquil Hill are generally comparable to what would be found naturally – the nitrogen levels are within anticipated ranges and the potassium levels are within to slightly below. The phosphate levels, however, tend to be higher than we might anticipate. The soil reaction of Yauhannah surface soils is from 3.6 to 6.5, so the lab tests are within normal ranges.

What is more interesting is when the garden soils are compared to the control. In the case of the pH both the general garden soil and the planting bed are both noticeably less acidic. In particular the planting bed seems clearly to have been modified to produce a very favorable environment.

Nitrogen levels within the garden are lower than the control. However, nitrogen rapidly converts to the nitrate form and quickly moves through soil – making nitrogen soil tests quite difficult to interpret.

Phosphate levels, on the other hand, are higher in the garden area than at the control site. Potassium levels are also higher. Thus, for those macronutrients where tests tend to be reliable, the Tranquil Hill garden appears to have better soils.

Since both the garden and the control area were both used for pasture crops, it seems that recent farming activities cannot be the explanation. Instead, we believe that we are seeing an effort to improve the Tranquil Hill garden soils. In particular, we believe that there was likely adjustment of the soil pH, probably by liming, along with the use of some fertilizer.

Planters during the late eighteenth and early nineteenth centuries used a variety of material, including blood, burnt clay, coal tar, chalk, charcoal, cotton seed, decomposed animals, feathers, fish, gypsum, hair, hay, horn, lime, malt dust, peat ashes, rags, salt, saltpeter, sawdust, seaweed, soot, straw, urate, urine,

vegetable matter, weeds, and woody fiber, to improve the quality of their land (Jordan 1950). Of all of these, probably the most common on low country plantations (prior to guano) was manure (Gray 1958:II:801-802).

Although from the late antebellum, both Ruffin and Chaplin discuss manuring in some detail. Ruffin, for example, notes that not only are cattle penned to provide animal manure on lands, but that some sea island planters also use "salt mud & marsh grass" (Mathew 1992:116, 169). Chaplin, in his Tombee diary, frequently comments on carting manure, often "out of the hog pen, cow house, and stable" where there was apparently "a very fine quantity of it" (Rosengarten 1987:486-487). Mud, however, was also used (Rosengarten 1987:527), as was "sedge," a reference to marsh grass (Rosengarten 1987:567, 597), and Chaplin also comments on moving his pens in order to manure different fields (Rosengarten 1987:489). Chaplin also provides some clues concerning how particular plants might be planted and fertilized. Speaking about cabbage plants, he notes that they were, "manured with soft mud under a light list, & compost & fowl house manure on the list, then banked pretty heavy" (Rosengarten 1987:537).

Although these methods are referenced (at least in our survey) for only cash crops and various kitchen garden produce, it seems entirely likely that similar materials would have been used for the pleasure gardens – and would easily explain the higher than anticipated potassium and phosphate levels, as well as the slightly limed soils.

Our investigations suggest that chemical studies of Carolina low country soils are likely to yield significant results and should be included in additional investigations.

MORTAR ANALYSIS

Introduction

Mortar analysis is typically conducted by architectural conservators for two reasons, either to develop replacement mortars or to determine the original mortar composition. Clearly, when applied to archaeological contexts, the motivation is the latter – to determine the composition of the mortar and evaluate what that composition may be able to tell us about the structure, its construction, and when it was built.

Although archaeologists routinely identify structural remains, and while these remains are often described in considerable detail, there is rarely any discussion of the mortar involved. We believe this misses the potential of mortar to address significant building questions.

The analysis of mortar, however, can be problematic and the results can be open to different interpretations. At the level of analysis, the two primary approaches are "simple acid digestion," meaning the technique presented by Cliver (1974) or "gas collection," meaning the technique presented by Jedrzejewska (1960). Unfortunately, simple acid digestion, while simple, inexpensive, and widely used, provides little objective information. Work by Stewart and Moore used this method, along with that proposed by Jedrzejewska, to analyze a set of mortars of known composition. Regrettably, simple acid digestion was found to be unrealiable – none of the standard mortars could be correctly identified by this method (Stewart and Moore 1982). Simple acid digestion, at best, can be used to provide only general conclusions about mortar composition. It cannot be used to calculate proportions of original components.

In contrast, Jedrzejewska uses acid digestion, but in a closed system so that the volume of escaping carbon dioxide given off by the digestion can be measured. In general the presence of either significant levels of soluble complex silicates or fines indicates that the mixes were slightly to moderately hydraulic. Those samples containing <10% solubles or fines are identified as non-hydraulic. Those samples with >10% and especially >20% are identified as moderately hydraulic and possibly natural cements (see also Schnabel 1993).

Even this approach has certain limitations. For example, acid digestion provides no data on the relationships between the various components of the mortar or on its appearance. In addition, acid digestion cannot take into account the potential that some of the aggregate might be carbonate-based, and hence subject to digestion.

This is why other studies, such as thin sectioning and petrographic analysis, are often conducted if detailed information concerning mortars is necessary.

Analysis and Results

For this study, three mortar samples from the Tranquil Hill main house were selected for study. One (2004-1) represents the base coat of a plaster sample, another (2004-2) represents a stucco or render laid over the brick wall in the basement, and the third (2004-3) is mortar from the main house wall. At the time of the study, Chicora was using simple acid digestion (switching to the Jedrzejewska method in 2005), as a result, only the most rudimentary results are available.

Plaster Base Coat

The sample was soft and friable with abundant white to occasional gray shell fragments, some up to 1 cm in diameter. The color, overall, was very pale orange (10YR8/2). Upon digestion there was an aggressive reaction and the liquid was a green-brown color. The resulting sand was white (7.5YR8/1) and microscopic examination revealed the sand to be rounded quartz.

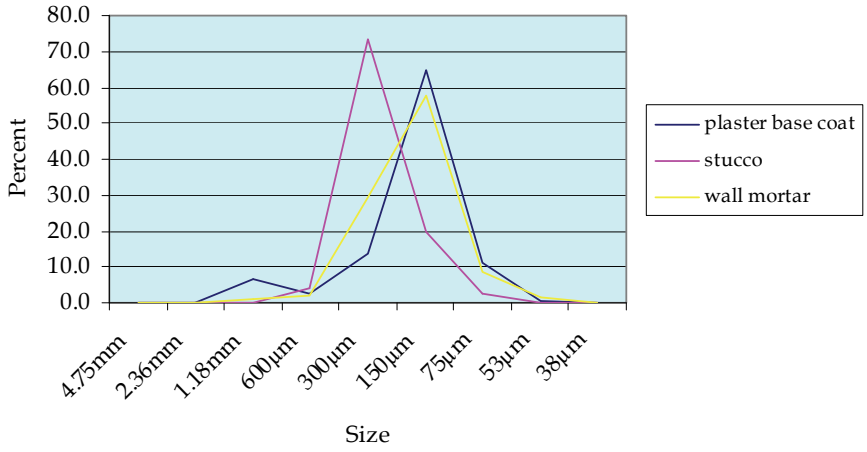


Figure 64. Sand grain size analysis of samples from Tranquil Hill.

Stucco

The sample's surface was quite hard, while the interior was softer and friable. The surface has parallel striations in the stucco, suggestive of a brushed surface; there was, however, no evidence of any painting or whitewashing. The stucco was 9.5 mm in thickness and the color was white, N9. Upon digestion the reaction was very aggressive with much foaming and a resulting green color. The microscopic examination of the remaining sand revealed quartz with mica or schist, all subangular. Overall, the sand color was very pale brown (10YR8/2).

Wall Mortar

The mortar, from the interior of an exterior wall, was soft and friable. The mortar exhibited a moderate amount of white to gray shell fragments that range in size from 1 to 5 mm. The color was a very pale orange (10YR8/2). Reaction was aggressive. The microscopic examination revealed rounded quartz.

Sand Grain Size Analysis

Each of the three samples yields a sand grain size analysis that is essentially a bell curve, with the most abundant material being in the mid-range of identified sizes – a characteristic of good mortars.

The three analyses are shown in Figure 64. Although superficially the same, the plaster base coat and mortar are more similar to each other than to the stucco, not only in terms of size distribution, but also in terms of roundness. With only one sample of each it is impossible to estimate sampling variation, but it is tempting to suggest that the two are essentially the same.

The stucco, however, seems different. Not only is the size distribution distinct, but the use of subangular sand with some mica or schist inclusions suggests an entirely different source.

Conclusions

This study, while very preliminary, provides support for expanding the level of analysis to additional archaeological projects (although we recommend using a closed gas collection, such as the Jedrzejewska method).

The study suggests, most fundamentally, that the masons were familiar with the benefit of using a sand that was rounded and relatively well sorted – both of which improve the workability of the mix. Although the quartz is typical of area sands, this study did not attempt to identify where the masons might have mined their sands.

The study also reveals that the mixes, including the stucco, were using large amounts of lime, probably as quicklime produced from locally available oyster shells. This shell lime was still clearly seen in the mortar mix. Both the plaster and the stucco provide clear evidence of the lime through the aggressive reaction during acid digestion – although in both cases the lime was finer. This suggests that the plasters, as was generally the case, were getting the finer lime in the slake pits, leaving the coarser material for the brick masons.

The striations on the stucco suggest that it received only limited finishing. It seems likely that the reason for this is its basement location – described in historical accounts as a dry basement, the space was likely used for servants and storage. Thus careful finishing was likely not thought necessary.

The brick mortar exhibits about equal proportions of sand (44.42%) and lime (45.43%), with a minor quantity of fines (10.15%). This is suggestive of a conventional mortar mix, although rather heavy on the lime. This is something of an oddity since the prevailing wisdom is that lime – given the difficulty of production – would have been used sparingly. At least this sample suggests a rich, rather high-lime, mortar. The fines also suggest that the sand was not particularly well cleaned; the resulting fines may have provided a slightly hydraulic affect, helping the mortar to set more quickly than it would have otherwise through simple carbonation.

The plaster base coat exhibits about equal proportions of sand (48.97%) and lime (47.31%), with only a small quantity of fines (3.72%). The similarity to the brick mortar is obvious, although this sample suggests that the plaster aggregate may have been a little better prepared.

The stucco reveals sand dominating the mix (53.15%), with lime composing about 42.56%. Fines account for the remaining 4.29%. This again suggests that the stucco was being treated differently than the mortar and plaster.

Further research would assist in the development of a broader temporal and spatial sample of plantation masonry practices. It may be possible to better see under what conditions lime:sand mixes were as rich as those at Tranquil Hill. It might also be possible to detect differences in owner wealth, or possibly in the crews available to undertake the building. We urge more attention be directed to the collection of data that has, thus far, been ignored by archaeologists.

FAUNAL ANALYSIS

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Introduction

By analyzing the faunal materials from Tranquil Hill, 38DR141, a plantation site in South Carolina, many questions may be posed and answered. Of obvious interest is subsistence patterns associated with plantation owners, house servants, and slaves. Are there any major differences in the subsistence patterns between the Main House area, the House Servant area, and the Slave area? These differing subsistence patterns may be used to discern differences in wealth and status. It is usually expected to find better quality cuts of meat as well as more meat elements at the Main House area while the Slave area has fewer cuts of meat of lower quality. Animal domestication and exploitation practices may also be interpreted from the faunal materials. Also, are there specific species associated with specific activity areas? Finally, are there any modifications such as cut marks, burning, or gnawing present on the bones?

The four main areas used in this analysis were the Main House area, the Slave area, the House Servants area, and the Garden area. All features and postholes in this collection were associated with one of the four activity areas. By examining the faunal collection with respect to activity area, differential use of and access to animal foods can be identified. Differences in animal use and meat cuts are expected to occur between the Main House area and the Slave area. Differential access to specific cuts of meat can be used to extrapolate status or prestige differences among the different activity areas (Weinand and Reitz 1996). It is expected that groups with the higher status would have more and better (forequarter and hindquarter) cuts of meat. Those of lower status would have less desirable (elements of the axial skeleton, cranium, and lower legs and feet) cuts of meat.

Methods

The faunal remains were recovered from the areas of Tranquil Hill, 38DR141, using ¼ inch mesh. Faunal analysis was performed in the Zooarchaeology Lab located in the Cobb Institute of Archaeology of Mississippi State University. The analysis was performed with the aid of the faunal comparative collection housed at the Cobb Institute of Archaeology along with available texts located there as well (Olsen 1968). The data was analyzed and organized according to feature and area. Features were analyzed separately from the area units with individual tables constructed for each provenience. These were then combined for each activity area.

Standard zooarcheological methods (Davis 1987; O' Conner 2000; Reitz 1999; Searfoss 1995) were used to analyze the faunal remains. First each specimen was identified to class and species. Then, the element, side (right or left), and section (epiphysis, proximal, distal, etc.) of specimen were determined. All specimens were weighed to the nearest 0.01

gram. The level of fragmentation was also recorded. From this information, the minimum number of individuals for the species located in each area (Grayson 1973) was estimated. The MNI for each area data set were computed separately as were the MNI for each feature data set.

The MNI for the Tranquil Hill faunal assemblage were determined by using horizontal stratigraphic divisions by area. This method of determining MNI is more conservative than determining MNI for each horizontal and vertical strata-Maximum Distinction Method, but is less conservative than determining the MNI of the whole site as a single unit-Minimum Distinction Method (Grayson 1973). Information from the areas and associated features were added together by area in order to consider elemental group representation. The use of MNI is problematic in that there are several ways to determine it and no set standard for use. This may result in the MNI being over or under representative (Casteel 1977; Grayson 1973; 1984). Also, human influence may bias the number of specific bone elements present thereby affecting the MNI (Reitz and Weinand 1995; Scott 1981; Thomas 1971; Welch 1991; Reitz 1986).

Biomass of each taxon present was determined in order to help offset some of the inherent problems that can be found in the MNI method. Biomass represents the biological relationship between bone mass and soft tissue mass, also known as allometry. The allometric equation $Y=aX^b$, also written as log Y=Log a+b (logX), expresses the relationship between skeletal weight and body weight (Simpson et al. 1960:397). In this equation, "Y" is the biomass in kilograms and "X" is the weight of bone in kilograms. The Y-intercept for a log-log plot using a method of least squares regression and the best-fit line is represented by "a" in the equation. The constant of allometry is the slope of the line defined by the least squares regression and the best-fit line and is represented in the equation by "b." Taking into account bone weight, this least squares analysis of logarithmic data estimates the amount of soft tissue 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 percentages of the MNI for specific faunal categories found in each area were determined and compared. The faunal categories used were domestic mammal, wild mammal, domestic bird, wild bird, reptile, fish, and commensal. This comparison can be useful in observing similarities and differences in the faunal assemblage between the areas.

The presence or absence of certain elemental groups (head, axial, forequarter, hindquarter, forefoot, hindfoot, and foot) can be useful in identifying butchery and animal husbandry patterns. Data for cow, pig, and deer were organized in this manner in order to more easily observe patterns through a visual representation. Log difference scale models for cattle (Reitz and Zierden 1991), deer (Reitz and Wing 1999), and pig (McCain, personal communication) were used to observe elemental group representation for the different areas. Percentages of the NISP for each category were used in computing the log-scale difference.

Any human modifications to the bones were also noted. Bone modifications observed in the Tranquil Hill faunal assemblage include sawed, clean cut, chopped/hacked, burned, and gnawed.

Identified Fauna

The habitat preference and use of the recovered fauna of Tranquil Hill, 38DR141, will be discussed in the following sections. A total of 3,533 bone fragments were identified in the Tranquil Hill collection. The fragments weighed a total of 6,116.94 grams and seventeen species were identified. Table 25 lists the faunal species identified in the entire collection.

Table 25.
Minimum Number of Individuals (MNI), Number of Bones (NISP), Weight, and Estimated Biomass by Species for the Tranquil Hill Site

Whole Site Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	10	18.52	215	2556.2	30.6726	39.36
Cow, Bos taurus-Burned	-	-	1	16.65	0.3305	0.42
Horse, *Equus caballus*	1	1.85	2	65.53	1.1343	1.46
Pig, *Sus scrofa*	11	20.37	150	435.4	6.2361	8
Deer, *Odocoileus virginianus*	5	9.26	32	522.71	7.3511	9.43
Eastern Cottontail, *Sylvilagus floridanus*	2	3.7	5	3.08	0.0724	0.09
Opossum, *Didelphis virginiana*	1	1.85	1	1.96	0.0482	0.06
Grey Squirrel, *Sciurus sciurus*	2	3.7	3	1.39	0.0354	0.05
Rattus sp.	1	1.85	2	0.36	0.0105	0.01
Unidentified Large Mammal	-	-	1415	2071.53	25.385	32.57
Unidentified Large Mammal-Burned	-	-	296	224.61	3.4372	4.41
Unidentified Small Mammal	-	-	13	4.11	0.0939	0.12
Unidentified Mammal	-	-	321	20.71	0.4022	0.52
Unidentified Mammal-Burned	-	-	4	1.05	0.0275	0.04
Mammal Subtotal	**33**		**2460**	**5925.29**	**75.2369**	**96.53**
Turkey, *Melagris gallapavo*	2	3.7	6	5.57	0.0974	0.12
Chicken, *Gallus gallus*	2	3.7	10	5.54	0.097	0.12
Chicken, Gallus gallus-Burned	-	-	1	0.13	0.0032	0.004
Duck, *Anantidae* spp.	1	1.85	3	2.56	0.048	0.06
Unidentified Bird	-	-	85	36.39	0.5377	0.69
Unidentified Bird-Burned	-	-	1	0.31	0.007	0.009
Bird Subtotal	**5**		**106**	**50.5**	**0.7903**	**1.01**
Box Turtle, *Terrapene carolina*	3	5.56	16	19.38	0.2304	0.3
River Cooter, *Chrysemys floridana*	1	1.85	18	40.1	0.3751	0.48
Unidentified Turtle	-	-	9	20.65	0.2404	0.31
Unidentified Turtle-Burned	-	-	1	0.55	0.0212	0.03
Reptile Subtotal	**4**		**44**	**80.68**	**0.8671**	**1.11**
Skate/Shark, *Rajidae* spp.	4	7.41	6	8	0.7527	0.97
Channel Catfish, *Ictalurus punctatus*	1	1.85	2	2.67	0.0507	0.07
Bass, *Micropterus* spp.	3	5.56	21	2.36	0.0562	0.07
Drum, *Scianidae* spp.	4	7.41	5	2.43	0.075	0.1
Unidentified Fish	-	-	9	4.98	0.1088	0.14
Fish Subtotal	**12**		**43**	**20.44**	**1.0434**	**1.34**
Miscellaneous Unidentified	-	-	874	38.27	-	-
Miscellaneous Unidentified-Burned	-	-	6	1.76	-	-
Total	**54**	**99.99**	**3533**	**6116.94**	**77.9377**	**99.99**

Summary tables for each area and feature are provided in Appendix A.

Domestic Mammals

Three domestic mammals were identified in the Tranquil Hill faunal collection: cow (*Bos Taurus*); horse (*Equus caballus*); and pig (*Sus scrofa*).

Pigs were a very important food source in the Southeastern United States (Hilliard 1972). Little care is required to raise these mammals. Pigs may roam free or be penned and subsist on many different sources of flora, fauna, and waste. They gain weight easily, up to 2 pounds for every 15 to 25 pounds of feed they consume (Towne and Wentworth 1950). A dressed pig carcass can yield up to 65-80% usable meat. Pork preserves well through salting, smoking, and pickling (Horry 1984). In the ethnohistoric record pork is often cited as an important food source in the historic Southeastern United States; however Reitz (1995) suggests that cattle were more important than pigs in this area. She holds that pork was reserved for wealthy homes and special occasions. Another factor in this view is that cattle seem to handle the hot humid weather of the Southeast better than pigs (Reitz 1995).

Cattle were also a very important food source in the Southeastern United States although cattle were somewhat difficult to raise (Hilliard 1972; Rouse 1973; Towne and Wentworth 1950). Grain and grass requirements are essential for adequate meat yield. The amount of calories stored versus the amount of calories consumed is only approximately 11%. A dressed cow will only yield up to 50-60% meat. Beef does not preserve well, however a great demand for hides, beef, and dairy products kept this animal in high demand (Hilliard 1972; Rouse 1973; Towne and Wentworth 1955).

The third domestic mammal found in this collection was the horse. Only two horse teeth (mandibular P4 and M3) fragments were recovered from Tranquil Hill. These were located in the House Servants area.

Domestic Birds

The only domestic bird recovered from the Tranquil Hill collection was the chicken (*Gallus gallus*). Chickens are relatively easy to keep since they can freely roam as scavengers or be penned. Chickens not only provided meat, but also eggs and feathers (Hilliard 1972).

Wild Mammals

Four wild mammals species were recovered from the Tranquil Hill collection: deer (*Odocoileus virginianus*); rabbit (*Sylvilagus floridanus*); opossum (*Didelphis virginiana*); and grey squirrel (*Sciurus sciurus*). All of these mammals can be found in forest habitats. Deer prefer the edge of a deciduous forest, an open forest, or bushy areas and farmland (Whitaker 1997). Rabbits, specifically the eastern cottontail, occupy deciduous forests, forest edges, and fields. Rabbits have also become somewhat of a commensal where humans are found in close conjunction with farms and even some urban areas. Opossums tend to prefer deciduous forests, open woods, farmlands, and brushy areas and range over much of eastern North America. Grey squirrels live in hardwood or mixed forests with nut trees, such as an oak-hickory forest and also range over much of eastern North America (Choate et al 1994; Whitaker 1997).

Wild Birds

Two wild bird species were recovered from the Tranquil Hill collection: turkey (*Melagris gallapavo*) and unidentified duck (*Anantidae* spp.). Wild turkey tend to prefer oak woodlands and pine-oak forests. They range from Arizona to the east coast of North America and north to New England while duck inhabit wetlands all over North America (Bull and Farrand Jr. 1994).

Reptiles

Two reptile species were identified in the Tranquil Hill collection: Box Turtle (*Terrapene carolina*) and River Cooter (*Chrysemys floridana*). Both of these species are associated with fresh water. The River Cooter has been recorded as a food source during the eighteenth and nineteenth centuries in the Southern United States (Hilliard 1972). They inhabit areas with abundant water and vegetation. The Box Turtle, specifically the Eastern Box Turtle, prefers moist forested areas and wet meadows (Behler 1998).

Pisces

Four species of fish were identified in the Tranquil Hill collection: unidentified skate/shark (*Rajidae* spp.); unidentified drum (*Scianidae* spp.); channel catfish (*Ictalurus punctatus*); and unidentified bass (*Micropterus* spp.). Young drum are typically found in estuarine environments and tidal shores (Boschung et al. 1983). Drum species grow to large sizes ranging from 92 to 109 pounds. The channel catfish inhabits rivers and large creeks with a slow to moderate current and are the principal catfish used commercially today. Bass, of the family Centrarchidae prefer warm waters east of the Rocky Mountains (Boschung et al. 1983).

Commensal Species

Commensal species are animals that are found near human habitations but are not usually a human food source. This can include vermin, pests, and pets. Rats, mice, snakes, and amphibians are common examples of commensal species. The only commensal species identified in the Tranquil Hill collection was unidentified rat (*Rattus* sp.), which was found in the Main House area. Rats and mice are one of the most adaptive groups of mammals in the world. The family Muridae contains more species than any other family (Choate et al. 1994; Whitaker 1997).

Results

The identified fauna of Tranquil Hill were investigated in four ways. The first involved an assessment of MNI and biomass weight percentages for each animal group and species. This provides an inventory of the faunal remains associated with the different activity areas along with the estimated species contribution to diet. Subsistence patterns can then be derived through activity area comparisons and comparisons with other collections.

The second investigation uses MNI percentages for seven faunal categories. As mentioned earlier in this study, the MNI was determined using horizontal stratified divisions as outlined by Grayson (1973).

The third investigation concentrates on the comparison of number and weight of bone elements to represent different cuts of meat. Only the commonly identified large mammals (cow, deer, and pig) of the Tranquil Hill collection were considered. The log difference scale (Reitz and Wing 1999) was used to make comparisons among the different activity areas. This aids in determining differential access to foods by those humans in different activity areas.

The fourth investigation centers on bone modification. Cut marks, gnawing, chop/hack marks, sawed, and burned bones are examples of bone modifications. This information aids in understanding butchering techniques and animal bone processing.

Main House Area

The whole Main House area (including features) contained a total of 1,703 bones (Table 26). Six mammal, four fish, three bird, and two turtle species were identified.

Of the six mammals, two were domestic (cow and pig), three were wild (deer, rabbit, and

Table 26.
Minimum Number of Individuals (MNI), Number of Bones (NISP), Weight, and Estimated Biomass by Species for the Main House Area

Main House Grouped Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	5	16.67	141	1441.11	18.4233	40.24
Cow, *Bos taurus*-Burned	-	-	1	16.65	0.3305	0.72
Pig, *Sus scrofa*	4	13.33	90	194.91	3.0253	6.61
Deer, *Odocoileus virginianus*	2	6.67	19	160.48	2.5398	5.55
Eastern Cottontail, *Sylvilagus floridanus*	2	6.67	5	3.08	0.0858	0.19
Grey Squirrel, *Sciurus sciurus*	1	3.33	2	0.94	0.0249	0.05
Rattus sp.	1	3.33	2	0.36	0.0105	0.02
Unidentified Large Mammal	-	-	818	1417.86	18.1959	39.74
Unidentified Large Mammal-Burned	-	-	44	47.35	0.8466	1.85
Unidentified Small Mammal	-	-	12	4.07	0.093	0.20
Unidentified Mammal	-	-	76	9.42	0.2064	0.45
Mammal Subtotals	**15**		**1210**	**3296.23**	**43.782**	**95.62**
Turkey, *Melagris gallapavo*	1	3.33	5	3.69	0.067	0.15
Chicken, *Gallus gallus*	1	3.33	8	5.04	0.089	0.19
Chicken, Gallus gallus-Burned	-	-	1	0.13	0.0032	0.007
Duck, *Anantidae* spp.	1	3.33	3	2.56	0.048	0.10
Unidentified Bird	-	-	74	28.55	0.4311	0.94
Bird Subtotals	**3**		**91**	**39.97**	**0.6383**	**1.39**
Box Turtle, *Terrapene carolina*	1	3.33	14	18.25	0.2213	0.48
River Cooter, *Chrysemys floridana*	1	3.33	18	40.1	0.3751	0.82
Unidentified Turtle	-	-	5	19.6	0.2322	0.51
Reptile Subtotals	**2**		**37**	**77.95**	**0.8286**	**1.81**
Skate/Shark, *Rajidae* spp.	2	6.67	2	2.16	0.2481	0.54
Channel Catfish, *Ictalurus punctatus*	1	3.33	2	2.67	0.0507	0.11
Bass, *Micropterus* spp.	3	10.00	21	2.36	0.0575	0.13
Drum, *Scianidae* spp.	4	13.33	5	2.43	0.0777	0.17
Unidentified Fish	-	-	7	4.7	0.1038	0.23
Fish Subtotals	**10**		**37**	**14.32**	**0.5378**	**1.18**
Miscellaneous Unidentified	-	-	327	27.14	-	-
Miscellaneous Unidentified-Burned	-	-	1	1.16	-	-
Total	**30**		**1703**	**3456.77**	**45.7867**	**100**

squirrel), and one was commensal (rat). Of the three bird species, one was domestic (chicken). Cattle accounted for 40.96% of the total biomass weight of the Main House area, while pig accounted for 6.61%. Deer accounted for 5.55% of the total biomass weight of the Main House area, while rabbit and squirrel accounted for 0.19% and 0.05% respectively.

When modifications are considered, two cow fragments displayed clean-cut marks and seven cow fragments displayed chop marks.

Table 27.
Minimum Number of Individuals (MNI), Number of Bones (NISP), Weight, and Estimated Biomass by Species for the Slave Area.

Slave Area Grouped Species	MNI #	MNI %	# of Bones	Weight (Gm)	Biomass Kg	Biomass %
Cow, *Bos taurus*	2	33.33	25	279.28	4.4454	47.36
Deer, *Odocoileus virginianus*	1	16.67	1	3.68	0.085	0.91
Pig, *Sus scrofa*	3	50.00	15	108.81	1.8919	20.16
Unidentified Large Mammal	-	-	157	98.79	1.8883	20.12
Unidentified Large Mammal-Burned	-	-	83	48.80	1.0067	10.73
Unidentified Small Mammal	-	-	1	0.04	0.0015	0.02
Unidentified Mammal	-	-	139	2.65	0.0667	0.71
Miscellaneous Unidentified	-	-	15	0.12	-	-
Total	**6**	**100.00**	**436**	**542.05**	**9.3855**	**100.01**

One pig fragment had evidence of gnawing. One unidentified large mammal fragment displayed saw marks. Thirty-six unidentified large mammal fragments, one cow fragment, one deer fragment, one chicken fragment, and one unidentified fragment all displayed evidence of burning.

Slave Area

The slave area (including features and postholes) contained a total of 436 bones (Table 27). Of these, 67.52% represented domestic mammals. Cattle accounted for 47.36% of the biomass weight while pig accounted for 20.16% of the biomass weight of the slave area. Deer only represented 0.91% of the biomass weight.

One pig fragment displayed a clean-cut mark and one unidentified large mammal fragment displayed a chop mark. There were a total of 83 burned unidentified large mammal fragments recovered from the slave area.

House Servants Area

The entire House Servant area (including features) contains a total of 1,341 bones (Table 28). Six mammal, two bird, one turtle, and one fish species were identified. Of the six mammals, three were domestic (cow, pig, horse) and three were wild (deer, opossum, squirrel). Of the birds, one was domestic (chicken) and one was wild (turkey). Cow accounted for 37.17% of the biomass weight of the House Servants area, while pig accounted for 4.94%. The only horse fragments of the whole site were found in this area and account for 3.76% of the biomass weight of this area. Deer accounted for 17.35% of the total biomass weight while squirrel accounted for 0.04% of the House Servants area. Opossum was found only

Table 28.
Minimum Number of Individuals (MNI), Number of Bones (NISP), Weight, and Estimated Biomass by Species for the House Servants' Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	3	20.00	49	835.81	11.2153	37.17
Horse, *Equus caballus*	1	6.67	2	65.53	1.1343	3.76
Pig, *Sus scrofa*	2	13.33	38	84.94	1.4915	4.94
Deer, *Odocoileus virginianus*	2	13.33	12	358.55	5.2361	17.35
Opossum, *Didelphis virginiana*	1	6.67	1	1.96	0.0482	0.16
Grey Squirrel, *Sciurus sciurus*	1	6.67	1	0.45	0.01282	0.04
Unidentified Large Mammal	-	-	419	532.20	7.8524	26.02
Unidentified Large Mammal-Burned	-	-	164	125.83	2.0698	6.86
Unidentified Mammal	-	-	106	8.64	0.1831	0.61
Unidentified Mammal-Burned	-	-	4	1.05	0.0275	0.09
Mammal Subtotals	**10**		**796**	**2014.96**	**29.27102**	**97.00**
Turkey, *Melagris gallapavo*	1	6.67	1	1.88	0.0363	0.12
Chicken, *Gallus gallus*	1	6.67	2	0.50	0.0109	0.04
Unidentified Bird	-	-	11	7.84	0.133	0.44
Unidentified Bird-Burned	-	-	1	0.31	0.007	0.02
Bird Subtotals	**2**		**15**	**10.53**	**0.1872**	**0.62**
Box Turtle, *Terrapene carolina*	1	6.67	1	0.92	0.0299	0.10
Unidentified Turtle	-	-	4	1.05	0.0327	0.11
Unidentified Turtle-Burned			1	0.55	0.0212	0.07
Reptile Subtotals	**1**		**6**	**2.52**	**0.0838**	**2.12**
Skate/Shark, *Rajidae* spp.	2	13.33	4	5.84	0.6309	2.09
Unidentified Fish	-	-	2	0.28	0.0103	0.03
Fish Subtotals	**2**		**4**	**5.84**	**0.6309**	**2.09**
Miscellaneous Unidentified	-	-	515	9.91	-	-
Miscellaneous Unidentified-Burned	-	-	5	0.60	-	-
Totals	**15**	**100.01**	**1341**	**2044.36**	**30.1729**	**100.02**

in the house servant area and accounts for 0.16% of the total biomass weight of this area.

One deer fragment displayed evidence of chopping. One squirrel fragment and one unidentified large mammal fragment displayed clean-cut marks. One hundred and sixty-four unidentified large mammal fragments, four unidentified mammal fragments, one unidentified bird fragment, one unidentified turtle fragment, and five unidentified fragments all show evidence of burning.

Table 29.
Minimum Number of Individuals (MNI), Number of Bones (NISP), Weight, and Estimated Biomass by Species for the Garden Area

Garden Area Grouped Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	2	50.00	7	46.77	0.8879	62.28
Unidentified Large Mammal	-	-	21	22.68	0.4639	32.54
Unidentified Large Mammal-Burned	-	-	5	2.63	0.0628	4.40
Box Turtle, *Terrapene carolina*	1	50.00	1	0.21	0.0111	0.78
Miscellaneous Unidentified	-	-	17	1.1	-	-
Total	**3**	**100.00**	**51**	**73.39**	**1.4257**	**100.00**

Garden Area

There were a total of 51 bones recovered from Trench 7 and Feature 12 (Table 29). Only two species were identified in this assemblage. Pig accounted for 62.28% of the biomass weight of the Garden area while box turtle accounted for 0.78%. Five unidentified large mammal fragments displayed evidence of burning.

Faunal Category Patterns

An inventory of the faunal categories for each of the Tranquil Hill activity areas is presented in Figure 65. The categories used in this study were domestic mammal, wild mammal, domestic bird, wild bird, reptiles, fish, and commensal species. MNI was used to calculate percentages. The MNI for each area were summed for all of the excavation units and associated features.

Based on MNI percentages, domestic mammals (83.33%) formed the majority of the faunal group for the Slave area. This was supplemented in the Slave area only by deer (16.67%). Domestic mammals (40.0%) were the majority found in the House Servants area followed by wild mammals (26.67%), fish (13.33%), domestic birds (6.67%), wild birds (6.67%), and reptiles (6.67%). Fish (33.33%) were the majority animal group associated with the Main House area. Domestic mammals (30.0%) made up the next largest group followed by wild mammals (16.67%), wild birds (6.67%), reptiles (6.67%), domestic birds (6.67%), and commensals (3.33%). Domestic mammals (66.67%) were the majority found in the Garden area followed by reptiles (33.33%). The animal group frequencies for the Main House resemble a pattern described by Reitz (1986) in a study of eighteenth and nineteenth upper-class households where it was documented that prominent households enjoyed more variety in food choices, especially wild game.

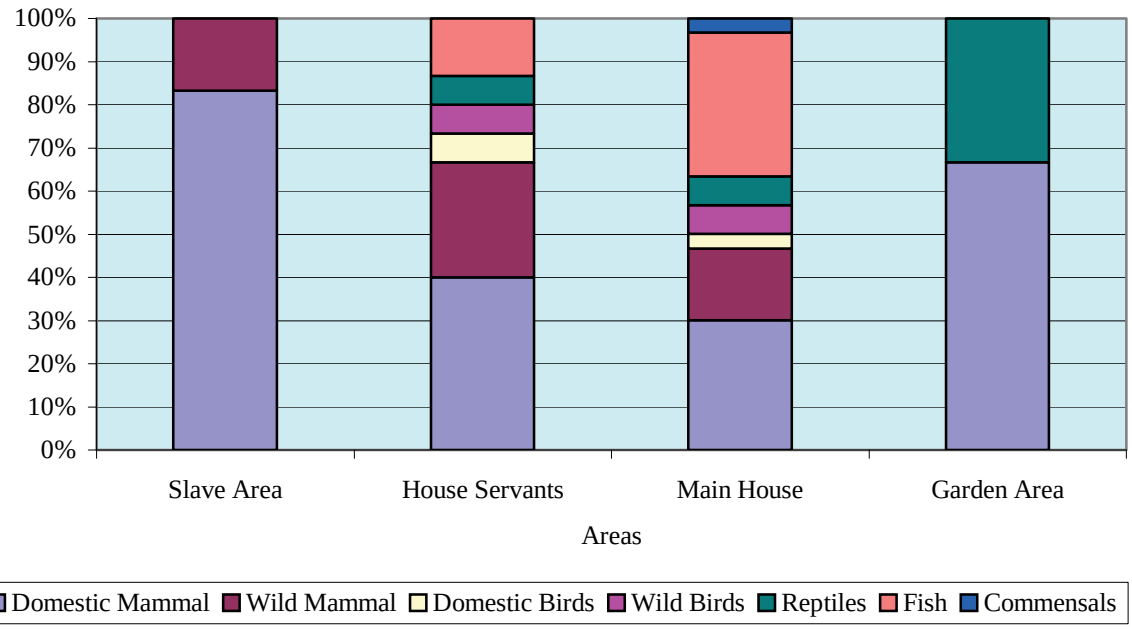

Figure 65. Comparison of the faunal materials from the Tranquil Hill activity areas. Percentages are based on MNI for each animal category.

Differential Meat Portions

The activity areas of Tranquil Hill were examined for segment usage patterns of deer, pig and cattle. The skeletons of these animals were divided into seven categories. These categories consist of: head, axial, forequarter, hindquarter, forefoot, hindfoot, and foot. The better cuts of meat are associated with the forequarter and hindquarter along with the axial to a lesser degree. The head, forefoot, hindfoot, and feet are the less desirable cuts of meat. The NISP of each segment category for each animal was counted and a percentage of the total NISP for each animal was derived. Next, the $\log_e X$ was calculated and the $\log_e Y$ was subtracted from $\log_e X$. Here, X is the percentage of each category and $\log_e Y$ is the log of the animal's expected percentage for each category (Reitz and Zierden 1991; Reitz and Wing 1999). This value was then plotted from the center line, the expected percentage, so the deviation could be studied. Observing the difference between the expected and the observed values provides insight on the different animal segments used in the Tranquil Hill activity areas. Only the Slave area, the House Servants area and the Main House area contained all three animals required for this endeavor; pig was the only large mammal identified in the Garden area.

Deviation from Standard Cow

As shown in Figure 66 all three of the areas examined display more than the expected amount in the head category. These three areas also display lower amounts than expected in the axial category.

The Slave area displays low values for the forequarter, hindfoot, and foot categories with expected values for hindquarter and slightly lower than expected values for forefoot. This indicates that in the Slave area, there was a higher frequency of head, hindquarter, and forefoot elements with a lower frequency of axial, forequarter, hindfoot, and foot. Since cuts associated with the hindquarter are considered

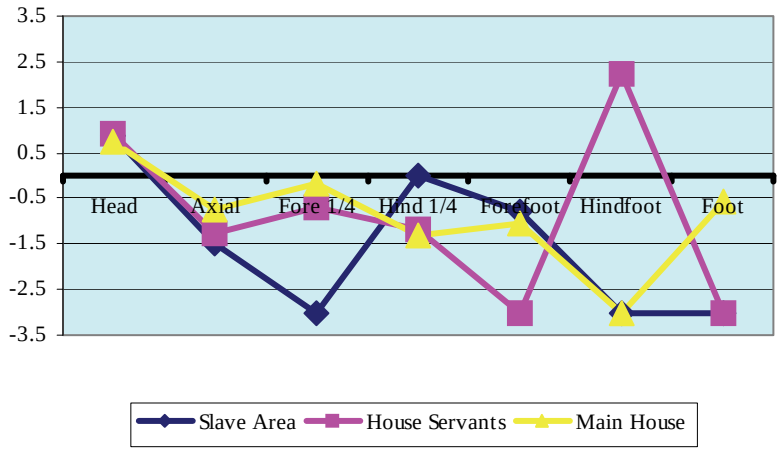

Figure 66. Log graph of cattle segments (Based on NISP) by locations. The center line (0) represents the standard percentage of elements for each category.

meatier the overrepresentation of this element is unexpected.

The House Servants' area has a much higher than expected value for hindfoot and a much lower than expected value for forefoot and foot with a moderately lower than expected value for forequarter and hindquarter. This might suggests that these less meatier parts were provided to the house servants for their use.

The Main House has near the expected value for forequarter and moderately lower than expected values for hindquarter, forefoot, and foot with a much lower value than expected for hindfoot. Overall, the meatier parts are associated with this activity area, although the hindquarters are somewhat under-represented compared with the other areas.

Deviations from Standard Pig

Figure 67 compares the log-values for pig and shows all three areas displaying values above those expected for the head category with lower than expected values for the axial category.

The Slave area displays very low values for pig elements in all categories except head and hindfoot and the House Servant area displays very low values of pig in all categories expect head and axial. These findings are not unexpected as the less preferred cuts of meat

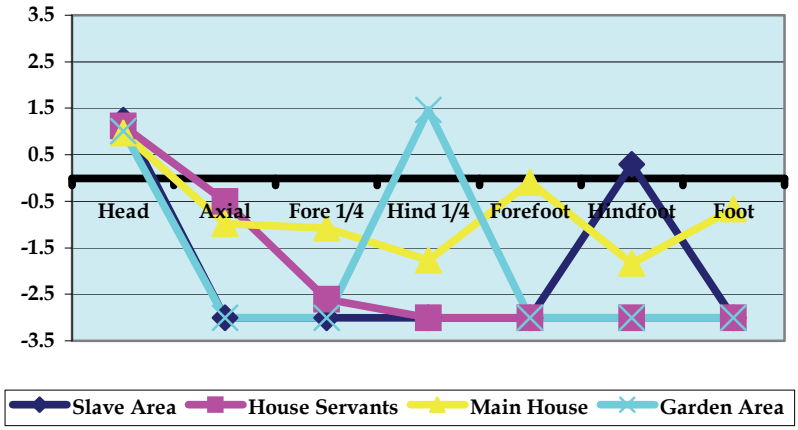

Figure 67. Log graph of pig segments (based on NISP) by locations. The center line (0) represents the standard percentage of elements for each category.

would have been more readily available to the lower status groups on the plantation.

The Garden area displays very low values for pig in all categories except for head and hindquarter. This area may have been a location for animal butchering and this could explain the high frequency of hind-quarter parts in this area.

The Main House area displays the expected value for the forefoot category but displays moderately low values for forequarter, hindquarter, hindfoot, and foot.

Deviation from Standard Deer

Figure 68 shows that the Slave area has a higher than expected value for the axial category and a much lower than expected value for all other categories.

The House Servants' area displays a moderately lower than expected value for axial and foot categories with a very low value for the forequarter category. The House Servants' area displays higher than expected values for hindquarter, forefoot, hindfoot, and head categories. This suggests that perhaps the House Servants were allowed to procure their own deer and that there was possibly on-site butchering with the forequarter being removed.

The Main House area displays moderately lower than expected values for hindfoot and foot with very low values for forefoot and head. The Main House area also displays a much higher than expected value for the forequarter category. By comparing this to the House Servants, it appears that the House Servants provisioned the Main House with forequarter and hindquarter deer elements or that the Main House provisioned the House Servants with the hind-end of the deer. Due to this pattern, it appears that butchering likely took place either at the House Servants area or the Main House area.

Overall, it appears that deer elements were the most plentiful in the Main House area and the House Servants area while the Slave area contains more cattle. The only deer element that is represented in the Slave area is the somewhat less desirable axial element. The Slave area also displays plenty of head elements of cattle and pig with cattle hindquarter and pig hindfoot represented at the expected amounts. Cattle were more important to the House Servants area than pig and the House Servants area did not display many pig elements other than head elements. This is shown by the high values for cattle hindfoot and head elements with moderately low values in the axial, forequarter, and hindquarter cattle elements. Deer, however, seem to provide more of the meat used in the House Servants area than cattle or pig. The Main House displays cattle and pig elements in similar proportions but Figure 68 shows that the Main House area had high values of deer forequarter and hindquarter elements - the preferred cuts of meat.

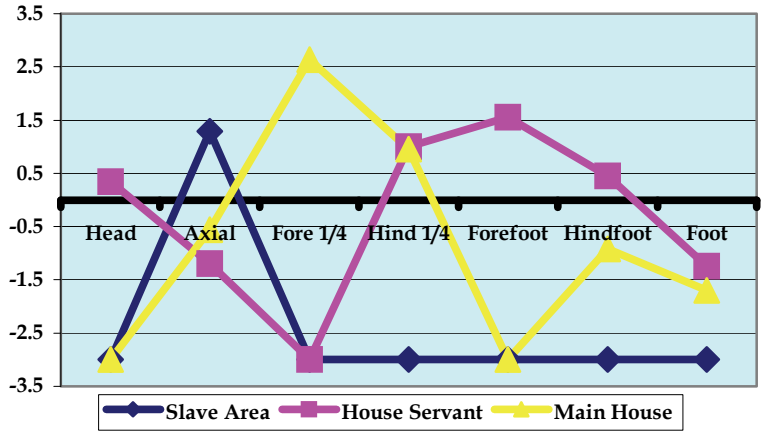

Figure 68. Log graph of deer segments (based on NISP) by locations. The center line (0) represents the standard percentage of elements for each category.

Table 30.
Bone Modifications for Tranquil Hill

Modified Bones from the Slave Area

	Sawed	Clean Cut	Burned	Chopped/Hacked	Gnawed
Cow	-	-	-	-	-
Pig	-	1	-	-	-
Deer	-	-	-	-	-
Unidentified Large Mammal	-	-	83	1	-
Unidentified Mammal	-	-	-	-	-
Totals	0	1	83	1	0
% of NISP (436 total)	0.00	0.23	19.04	0.23	0.00

Modified Bones from Main House Area

	Sawed	Clean Cut	Burned	Chopped/Hacked	Gnawed
Cow	-	2	1	7	-
Pig	-	-	-	-	1
Deer	-	-	1	-	-
Unidentified Large Mammal	1	-	36	-	-
Unidentified Mammal	-	-	-	-	-
Chicken	-	-	1	-	-
Unidentified	-	-	1	-	-
Totals	1	2	40	7	1
% of NISP (1703 total)	0.06	0.12	2.30	0.41	0.06

Modified Bones from Garden Area

	Sawed	Clean Cut	Burned	Chopped/Hacked	Gnawed
Unidentified Large Mammal	-	-	5	-	-
Totals	0	0	5	0	0
% of NISP (51 total)	0.00	0.00	9.80	0.00	0.00

Modified Bones from House Servants Area

	Sawed	Clean Cut	Burned	Chopped/Hacked	Gnawed
Deer	-	-	-	1	-
Squirrel	-	1	-	-	-
Unidentified Large Mammal	-	1	164	-	-
Unidentified Mammal	-	-	4	-	-
Unidentified Bird	-	-	1	-	-
Unidentified Turtle	-	-	1	-	-
Unidentified	-	-	5	-	-
Totals	0	2	175	1	0
% of NISP (1343 total)	0.00	0.15	13.03	0.07	0.00

Site Total	1	5	303	9	1
Site Percentage	0.03	0.14	8.58	0.25	0.03

Modified Bone

Table 30 displays bone modification data for the four separate areas of Tranquil Hill. Modifications are classified as sawed, clean-cut, burned, chopped/hacked, or gnawed. No worked bone was present in this assemblage. Sawing is displayed by parallel striations on the outer layer of bone. Clean cut marks are simply marks with no parallel striations present and are generally shallow incisions on the bone surface. Chopping/hacking marks are created by the use of a cleaver or ax. Burning is caused by exposure to heat or fire, either before or after disposal. Gnawing is an indication of exposed bone, in other words, bone that has not been buried so that it is available to scavengers (Reitz and Weinand 1995). Of the total site assemblage, 9.03% was modified bone. Ninety-five percent (8.58% of the total site NISP) of these modified bones were burned.

One unidentified large mammal fragment present in the Main House area was the only occurrence of saw marks (see Table 30). Clean cut marks were found on both large and small mammals. One pig fragment from the Slave area, two cow fragments from the Main House area, and one squirrel fragment and one unidentified large mammal fragment from the House Servant area displayed clean cut marks.

As stated previously, burning was the most prominent form of bone modification present in the Tranquil Hill assemblage. Most of the burned fragments came from the House Servant area and the Slave area. These two areas combined account for 85.15% of the total burned fragments. This could indicate refuse disposal. The majority of chopped/hacked bones are found in the Main House area. This area accounts for 77.78% of the total chopped/hacked fragments, perhaps indicating more processing occurring in this area. Only one incidence of gnawing was discovered. This suggests that most of the fragments from this assemblage were unavailable to scavengers after discard, thus indicating possible burial.

Conclusions

The study of the faunal remains recovered from Tranquil Hill allows an opportunity to examine the use of faunal resources and the access to faunal resources in different activity areas of Tranquil Hill. A total of 3,533 bone fragments weighing 6,116.94 grams were recovered from Tranquil Hill. Several identified patterns are discussed and inferences are given. This identification of patterns and their related inferences is crucial in attempting to understand dietary patterns at Tranquil Hill and for the study of other plantation sites.

Domestic mammals, specifically cattle and pig, dominated the Tranquil Hill assemblage. Cattle consisted of more bone fragments than pig, however pig displayed a higher MNI. Therefore, it is reasonable to assume that both cattle and pig were important in the diets of the inhabitants of Tranquil Hill. Deer also formed a somewhat large part of the diet, mainly in the Main House area and the House Servants area.

The Main House area was the most diverse area with fifteen identified species. The Main House area was highly dependant on domestic mammals, wild mammals, and fish. A study performed by Reitz on eighteenth and nineteenth century upper-class households reveals a more variable diet for this social class. This more variable diet includes both domestic and wild mammals along with a higher frequency of fish (Reitz 1986). The Main House area fits Reitz's conclusions for this class, thus the Main House area likely represents an elite social class. This is also displayed at the Youghal plantation's Colonial structure (Hogue and McCain 2006). The Main House area also displays better cuts of beef, pork, and venison as compared to other activity areas at Tranquil Hill. Fifty-one bones from the Main House area were modified. This, coupled with the log-difference graphs (Figures 66, 67, and 68), suggests that butchering took place elsewhere.

The House Servants' area displayed the next highest species diversity with ten identified species. This area was the only place that horse and opossum were identified. One-hundred and seventy-eight of the bone fragments retrieved from this area were modified. This high number of modified bones may indicate more processing or refuse disposal occurring in this area as compared to other areas. Based on the log-difference graphs (Figures 66, 67, and 68) it appears that swine were not very important to the House Servants area while cattle were somewhat important and deer definitely were important. The comparison of the Main House area and the House Servants area on the log-difference graph for deer (Figure 68) shows an interesting pattern. It appears that either the House Servants were provisioning the Main House with preferred cuts of deer or that the Main House was provisioning the House Servants with moderately preferred as well as less desirable cuts of deer. Thus, it also appears that butchering took place at the House Servants area or the Main House area.

The log-difference graphs of cattle, pig, and deer (Figures 66, 67, and 68) show the Slave area displaying poorer cuts of meat in general, as expected. This area displayed the highest amount of domestic mammal relative to the other areas of Tranquil Hills. Eight-five bone fragments were modified in this area and only three species were identified. Thus, it appears that the diet of the Slave area of Tranquil Hill was not very diverse. The Slave areas of Youghal plantation displayed more diversity than the Slave area of Tranquil Hill (Hogue and McCain 2006). The high number of modified fragments may suggest that processing or refuse disposal occurred here more than at other areas (except the House Servants area which displayed higher numbers of modified bone) of Tranquil Hill.

Only two species were identified in the Garden area and only five bones were modified. This suggests that perhaps the Garden area did not play a large part in the faunal dietary patterns of Tranquil Hill and perhaps partially functioned as a refuse pit.

The information provided by the examination of the Tranquil Hill faunal materials should be compared with other faunal collections from similar sites in an attempt to discern common or uncommon patterns among plantations of the same region or different regions in an attempt to better understand subsistence patterns and faunal use.

POLLEN AND PHYTOLITH ANALYSIS

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Introduction

Nine combination pollen and phytolith samples were examined from a variety of contexts from a late eighteenth and early nineteenth century plantation in Charleston County, South Carolina. Suspected garden plantings, garden parterres, an interior brick wall, thought to represent a walled garden or a retainer for compost, as well as a wall trench from an African American slave house were examined.

Methods

Pollen

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for the removal of the pollen from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extraction of pollen from soils where preservation has been less than ideal and pollen density is lower than in peat.

Table 31.
Provenience Data

Sample	Provenience/Description
Control	A-horizon, on-site in area without garden or dense plantation occupation
Interior Brick Wall	Blk. Loamy soil from walled garden or compost retainer
Planting 1	Garden planting hole; rich, loamy soil
Planting 2	Garden planting hole; rich, loamy soil
Trench 1	Garden trench, possible parterre
Trench 2	Garden trench, possible parterre
F.13	Shallow pit from suspected garden planting
F.14	Shallow pit from suspected garden planting
F.6	Wall trench of slave house

Hydrochloric acid (10%) was used to remove calcium carbonates present in the soil, after which the samples were screened through 150 micron mesh. The samples were rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the beaker was again filled with water and allowed to stand for 2 hours. The samples were again rinsed until neutral, filling the beakers only with water. This step was added to remove clay prior to heavy liquid separation. At this time the samples are dried then gently pulverized. Sodium polytungstate (density 2.1) was used for the flotation process. The samples were mixed with sodium polytungstate and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains is decanted. Sodium polytungstate is again added to the inorganic fraction to repeat the separation process. The supernatant is decanted into the same tube as the supernatant from the first separation. This supernatant is then centrifuged at 1500 rpm for 10 minutes to allow any silica remaining to be separated from the organics. Following this, the supernatant is decanted into a 50 ml conical tube and diluted with distilled water. These samples are centrifuged at 3000 rpm to concentrate the organic fraction in the bottom of the tube. After rinsing the pollen-rich organic fraction obtained by this separation, all samples received a short (20-30 minute) treatment in hot hydrofluoric acid to

remove any remaining inorganic particles. The samples were then acetolated for 3-5 minutes to remove any extraneous organic matter.

A light microscope was used to count the pollen to a total of approximately 50 to 200 pollen grains at a magnification of 500x. Pollen preservation in these samples varied from good to poor. Comparative reference material collected at the Intermountain Herbarium at Utah State University and the University of Colorado Herbarium was used to identify the pollen 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 pollen dispersal over short distances, or the introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the pollen diagram. A plus (+) on the pollen diagram indicates that the pollen type was observed, but that a statistically minimal count of 50 grains could not be achieved. Pollen diagrams are produced using Tilia, which was developed by Dr. Eric Grimm of the Illinois State Museum. Pollen concentrations are calculated in Tilia using the quantity of sample processed (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 ml of sediment.

Indeterminate pollen includes pollen grains that are folded, mutilated, and otherwise distorted beyond recognition. These grains are included in the total pollen count, as they are part of the pollen record.

Pollen analysis also included identification of starch granules to general categories. 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: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, eccentric). 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.

Phytoliths

Extraction of phytoliths from these sediments was also based on heavy liquid flotation. Sodium hypochlorite (bleach) was first used to destroy the organic fraction from 50 ml of sediment. Once this reaction was complete, sodium hexametaphosphate was added to the mixture to suspend the clays. The sample was rinsed thoroughly with distilled water to remove the clays, allowing the samples to settle by gravity. Once most of the clays were removed, the silt and sand size fraction was dried. The dried silts and sands were then mixed with sodium polytungstate (density 2.3) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. Phytoliths, in the broader sense, may include opal phytoliths and calcium oxalate crystals. Calcium oxalate crystals are formed by *Spinacia* (spinach) and other plants and are separated, rather than destroyed, using this extraction technique, if these forms have survived in the sediments. Any remaining clay is floated with the phytoliths, and is further removed by mixing with sodium hexametaphosphate and distilled water. The samples are then rinsed with distilled water, then alcohols to remove the water. After several alcohol rinses, the samples are mounted in cinnamaldehyde for counting with a light microscope at a magnification of 500x. Phytolith diagrams are produced using Tilia, which was developed by Dr. Eric Grimm of the Illinois State Museum for diagramming pollen.

Phytolith Review

Phytoliths are silica bodies produced by plants when soluble silica in the ground water is absorbed by the roots and carried up to the plant via the 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. They are, however, subject to mechanical breakage and erosion and deterioration in high pH soils. Phytoliths are usually introduced directly into the soils in which the plants decay. Transportation of phytoliths occurs primarily by animal consumption, man's gathering of plants, or by erosion or transportation of the soil by wind, water, or ice.

The three major types of grass short-cell phytoliths include festucoid, chloridoid, and panicoid. Smooth elongate phytoliths are of no aid in interpreting either paleoenvironmental conditions or the subsistence record because they are produced by all grasses. Phytoliths tabulated to represent "total phytoliths" include the grass short-cells, buliform, trichome, elongate, and dicot forms. Frequencies for all other bodies recovered 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 occur most abundantly in cool, moist climates. However, Brown (1984) notes that festucoid phytoliths are produced in small quantity by nearly all grasses. Therefore, while they are typical phytoliths produced by the Subfamily Pooideae, they are not exclusive to this subfamily. Chloridoid phytoliths are found primarily in the Subfamily Chloridoideae, a warm-season grass that grows in arid to semi-arid areas and require less available soil moisture. Chloridoid grasses are the most abundant in the American Southwest (Gould and Shaw 1983:120). Bilobates and polylobates are produced mainly by panicoid grasses, although a few of the festucoid grasses also produce these forms. Panicoid phytoliths occur in warm-season or tall grasses that frequently thrive in humid conditions. Twiss (1987:181) also notes that some members of the Subfamily Chloridoideae produce both bilobate (Panicoid) and Festucoid phytoliths. "According to (Gould and Shaw 1983:110) more than 97% of the native US grass species (1,026 or 1,053) are divided equally among three subfamilies Pooideae, Chloridoideae, and Panicoideae" (Twiss 1987:181).

Buliform phytoliths are produced by grasses in response to wet conditions and are to be expected in wet habitats of floodplains and other places. Trichomes represent silicified hairs, which may occur on the stems, leaves, and the glumes or bran surrounding grass seeds.

Diatoms and sponge spicules also were noted. Diatoms indicate wet conditions. Sponge spicules represent fresh water sponges. Their presence in these samples probably indicates wind transport of lacustrine deposits. For instance, in Illinois their recovery in upland soils is noted to accompany loess deposits derived from floodplains (Jones and Beavers 1963).

Foraminifera

Foraminifera could not be identified by genus, but rather are reported as foraminifera. The forms reported in this study were all planispiral (coiled on a single plane) and may represent the same genus. "Most foraminifera are marine and benthic, although a few genera are planktonic and some ... inhabit fresh water" (Boersma 1978:33). At least some of the foraminifera have an inner lining composed of chitin (Loeblich 1965:61-63) or tectin (Boersma 1978:26}. Since tectin also occurs in pollen, it is not surprising to recover these inner layers of foraminifera in pollen samples. Unfortunately, the inner layers, while preserving evidence of interior chambers, are not considered diagnostic for genus level identification. Test (outer wall) mineralization usually involves "the attraction of the calcium ion from sea water by the amino acids in the protein template", which then attracts the carbonate cation (Boersma 1978:26}. Study of foraminifera comprises a separate field of study from palynology and is often used to reconstruct marine temperature, as well as to identify geologic time period.

Ethnobotanic Review

It is a commonly accepted practice in archaeological studies to reference ethnological (historic) plant uses as indicators of possible or even probable plant uses in historic times. It gives evidence of the exploitation, in historic times, of numerous plants, both by broad categories, such as greens, seeds, roots, and tubers, etc. and by specific example, i.e., seeds parched and ground into meal which was formed into cakes and fried in grease. Pollen, starch, and phytolith evidence, when compared with the material culture (artifacts and features) recovered by the archaeologists, become indicators of use. Plants represented by pollen, starch, and/or phytoliths will be discussed in the following paragraphs in order to provide an ethnobotanic background for discussing the remains.

Decorative Plants

Artemisia (Sagebrush)

The genus *Artemisia* includes sagebrush, wormwoods, mugwort, and tarragon. Several species of *Artemisia* are popular garden perennials, such as *A. ludoviciana* (white sage), *A. lactiflora* (white mugwort), *A. vulgaris* (mugwort), *A. abrotanum* (southernwood), and *A. absinthium* (wormwood). These plants have silver-gray or silver-green foliage and often are aromatic. The dried branches can be used in flower arrangements. Southernwood has a lemony fragrance that is reported to repel bees and other insects. This plant is an old European herbal remedy and once was used to flavor Vermouth. The *Artemisia* plants prefer full sun in poor, sandy, well-drained soil (Ambler, et al. 1994:295, 565-567; Bunney 1984:74-77).

Brassicaceae (Mustard Family)

Many members of this family also are cultivated as ornamentals and include such plants as *Iberis hubridus* (candytuft), *Alyssum* (alyssum), and *Hesperis matronalis* (dame's rocket). While these plants are annuals, they seed freely, thus establishing themselves in gardens over a period of many years.

Liliaceae (Lily Family)

The Liliaceae (lily) family consists mainly of perennial herbs with sympodial rhizomes or bulbs. Their major economic value is as ornamentals. "A considerable number of genera are highly decorative and of horticultural significance" (Hickey and King 1981:491). The flowers are typically large with brightly-colored perianths and conspicuous stamens. Many secrete nectar and attract bees and various butterflies. Some of the important ornamental members of this family include *Tulipa* (tulip), *Lilium* (lily), *Calochortus* (mariposa-lily or globe-tulip), *Erythronium* (adder's-tongue, dog-tooth violet), *Fritillaria* (fritillary, mission bells), *Endymion* (bluebell), and *Convallaria* (lily-of-the-valley). Species of *Allium* (onion, garlic, chive, shallot, and leek) are important food plants (Hickey and King 1981:491-493; Phillips and Rix 1993:241-255; Tomanova 1986:259; Zomlefer 1994:270-272).

Rosaceae (Rose Family)

The Rosaceae family consists of thousands of species of trees, shrubs, and herbs. A number of genera provide fruits of economic importance including *Malus* (apple), *Pyrus* (pear), *Prunus* (plum, cherry, apricot, peach, almond), *Rubus* (blackberry, raspberry), and *Fragaria* (strawberry). *Rosa* (rose) is the most widely cultivated genus for ornamental purposes. Roses have been grown in gardens since ancient times and now there are thousands of varieties (Hickey and King 1981:180).

Edible Plants

Apiaceae (Parsley Family)

Members of the Apiaceae (parsley family) are biennial or perennial, mostly herbs with stout stems, often aromatic. Many of the species in this family are of economic importance, including *Anethum graveolens* (dill), *Anthriscus cerefolium* (chervil), *Carum carvi* (caraway), *Coriandrum sativum* (coriander), *Cuminum cyminum* (cumin),

Daucus carota (carrot), *Foeniculum vulgare* (fennel), *Pastinaca sativa* (parsnip), *Petroselinum crispum* (parsley), and *Pimpinella anisum* (anise). Other members of this family, including but not limited to *Cymopterus*, *Lomatium* (biscuitroot, prairie parsley), *Perideridia* (yampa), and *Pseudocymopterus* (mountain parsley) are noted to have been used by many Native American groups. The roots, stems, and leaves of these plants were used for food, seasoning, and medicine (Harrington 1967; Kirk 1975). Several members are noted to be poisonous, such as *Conium maculatum* (poison-hemlock) and species of *Cicuta* (water-hemlock). Members of the Apiaceae are found primarily in the temperate northern hemisphere (Hickey and King 1981:298-299; Muenscher 1980:321-331; Smith 1977:177).

***Artemisia* (Sagebrush)**

The genus *Artemisia* includes sagebrush, wormwoods, mugwort, and tarragon. *A. dracunculus* (tarragon) is a perennial with long, narrow, medium-green, pointed leaves that can be used fresh, dried, or frozen and added to fish, vinegars, tomatoes, salads, eggs, chicken, and pickles. Several species of *Artemisia* are popular garden perennials, such as *A. ludoviciana* (white sage), *A. lactiflora* (white mugwort), *A. vulgaris* (mugwort), *A. abrotanum* (southernwood), and *A. absinthium* (wormwood). These plants have silver-gray or silver-green foliage and often are aromatic. The dried branches can be used in flower arrangements. Southernwood has a lemony fragrance that is reported to repel bees and other insects. This plant is an old European herbal remedy and once was used to flavor Vermouth. The flowering stems of mugwort also were used medicinally, and the leaves used to season roast meat such as pork, mutton, goose, and duck. The *Artemisia* plants prefer full sun in poor, sandy, well-drained soil (Ambler, et al. 1994:295, 565-567; Bunney 1984:74-77).

Brassicaceae (Mustard Family)

Members of the Brassicaceae (mustard) family are annual, biennial, or perennial herbs with yellow, four-petaled flowers. The young leaves are rich in vitamins A, B1, B2, and C, and may be boiled as greens. Many species are cultivated for food including *Brassica oleracea* (broccoli, cabbage, kale, cauliflower, kohl-rabi, and brussel sprouts), *Brassica rapa* (turnip), *Sinapsis alba* (mustard), *Rorippa nasturtium-aquaticum* (water cress), *Lepidium sativum* (garden cress), *Raphanus* (radish), and *Armoracia rusticana* (horse-radish). About 57 species are grown as ornamentals including *Iberis* (candytuft), *Arabis* (rockcress), *Erysimum* (wallflower), *Hesperis* (rocket), *Lunaria* (honesty, money plant) and *Lobularia maritima* (sweet alison). This family also contains many weedy species such as *Capsella* (shepherd's purse), *Descurainia* (tansy-mustard), and *Lepidium* (peppergrass). Wild members of this family may be found in waste places, grain fields, pastures, neglected fields, cultivated areas, in ditches, and along banks of streams (Hedrick 1972:100; Hickey and King 1981:150; Martin 1972:64-65; McGee 1984:196; Muenscher 1980:232-236; Zomlefer 1994:125-129).

***Zea mays* (Corn)**

Zea mays (corn, maize) is a New World cultigen that has become a very important resource. Native people in Central America first domesticated maize over a thousand years ago. Native Americans grew maize as a staple and introduced it to visiting Europeans. Today, corn is used for food, starch, alcohol, and animal feed. It is still a staple for millions of people in developing nations in Latin America, Africa, and Asia. Maize continues to be grown by native peoples in the Southwest, and it is big business for American farmers in the corn belt of the Midwest. Often corn is grown in gardens. Fresh, boiled ears of corn are a common food when in season, and fresh corn kernels are canned and/or frozen. Kernels also are dried and made into cornmeal. Popcorn is a genetic variant whose kernels are heated and popped. Corn also is fermented into bourbon whiskey (Rhoades 1993:92-117).

Weedy Plants

Apiaceae (Parsley Family)

Some members of this family are weedy, such as Queen Anne's lace (*Daucus*), while some are both poisonous and weedy, such as poison or water hemlock (*Cicuta*). Members of this family tend to grow in moist to wet ground and some escape cultivation (Fernald 1950:1087-1105).

***Euphorbia* (Spurge)**

Euphorbia (spurge) plants 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 snakebites, asthma, and bronchial congestion. The juice of *E. marginata* (snow-on-the-mountain) has been used in Texas to brand cattle, and other species, such as *E. pulcherina* (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).

***Malva* (Mallow, Cheeseweed)**

Malva (mallow, cheeseweed) are biennial or annual weeds that were introduced from Europe and Asia, some as ornamentals. The young stems and leaves can be boiled and eaten like spinach or used to thicken soups and stews. The cheese-shaped disks of young, green fruits can be eaten raw. *Malva*, especially *M. neglecta* (common mallow), is widespread throughout the United States and can be found in dry, grassy fields, meadows, cultivated areas, disturbed places, lawns, farmyards, and gardens (Britton and Brown 1970:514-516; Hedrick 1972:754; Kirk 1975:27; Martin 1972:83; Muenscher 1980:311-313; Peterson 1977:108).

***Tribulus terrestris* (Puncture-Vine, Caltrop)**

Tribulus terrestris (caltrop, puncture-vine) is a prostrate, herbaceous plant with spiny stems and hard, spiny seed cases. It is naturalized from the Old World and can be found growing in disturbed habitats of waste places, along roadsides, and even in deserts (Munz 1974:159).

Discussion

A garden area associated with a late eighteenth and early nineteenth century plantation, as well as an African American slave house, probably dating to approximately 1770, were sampled for pollen, starch, and phytoliths in an effort to identify plants grown and/or used in these areas.

Situated in the Lower Coastal Plain of South Carolina, this site lies within an area that supports loblolly pine (*Pinus taeda*), longleaf pine (*Pinus palustris*), oak (*Quercus*), and hickory (*Carya*). Trees in wetter soils include sweet gum (*Liquidambar*), blackgum (*Nyssa sylvatica*), yellow poplar (*Liriodendron*), maple (*Acer*), tupelo (*Nyssa*), ash (*Fraxinus*), and cypress (Cupressaceae). Other trees in the area include live oak (*Quercus virginiana*), poplar (*Populus*), beech (*Fagus*), walnut (*Juglans*), chestnut (*Castanea*), and palmetto (*Serenoa repens*).

Samples represent an interior brick wall in a garden planting area, planting holes, trenches, suspected garden plantings (Features 13 and 14), and a wall trench associated with an 18th century slave structure (Table 31). Pollen analysis of the control sample, collected outside the garden and occupation areas, yielded *Pinus*, *Quercus*, High-spine Asteraceae, Cyperaceae, and Poaceae pollen (Figure 69, Table 32) as sub-dominant types, representing pine, oak, members of the sunflower family, sedges, and grasses. In addition, a smaller quantity of Low-spine Asteraceae pollen was observed, reflecting more weedy members of the sunflower family. Small quantities of *Carya*, *Castanea*, Corylaceae, *Corylus*, and Cupressaceae pollen were noted, indicating the presence of

Table 32.
Pollen Types Observed in Samples from Tranquil Hill

Scientific Name	Common Name	Scientific Name	Common Name
Arborial Pollen:		Cheno-am	Includes goosefoot family and amaranth
Acer	Maple	Cyperaceae	Sedge family
Carya	Hickory, Pecan	*Euphorbia*	Spurge
Castanea	Chestnut	Liliaceae	Lily family
Corylaceae	Birch family	Malvaceae	Mallow family
Corylus	Hazel	Nyctaginaceae	Four o'clock family
Cupressaceae	Cypress family	Poaceae	Grass family
Liquidambar	Gum	Rosaceae	Rose family
Pinus	Pine	*Tribulus terrestrus*	Puncture vine
Planera	Water Elm	Indeterminate	Too badly deteriorated to identify
Quercus	Oak	**Starches:**	
Non-Arboreal Pollen:		Zea-type starch	Typical of starches produced by maize
Apiaceae	Parsley/Carrot family	Starch Hollow	Deteriorated starch
Asteraceae	Sunflower family	**Spores:**	
Artemisia	Sagebrush	Monelete	Fern
Low-Spine	Includes ragweed, cocklebur, sumpweed	Trilete	Fern
High-Spine	Includes aster, rabbitbrush, snakeweed, sunflower, etc.	**Other:**	
Liguliflorae	Chicory tribe, i.e., dandelion and chicory	Concentricyste	Indicator of wet, oxidized conditions
Brassicaceae	Mustard family	Foraminifera	Forams
Caryophyllaceae	Pink family	Scolecodont	Worm jaw

hickory, chestnut, hazel family, hazel, and cypress family trees. Non-tree pollen included small quantities of Apiaceae, Cheno-am, *Euphorbia*, Liliaceae, Rosaceae, and *Tribulus terrestrus* pollen, reflecting a member of the umbel family, cheno-ams, spurge, members of the lily and rose families, and puncture-vine or a related plant. Charred Asteraceae tissue fragments were noted, but not abundant, in this sample, suggesting the possibility that vegetation was burned. Fern spores were present, but not abundant. The estimated charcoal abundance was relatively low, at less than 40% of the organic debris on the microscope slide. Organic Foraminifera fragments were observed in the control sample, reflecting the presence of these organisms that live in water. Total pollen concentration was substantial, at approximately 2800 pollen per ml. of sediment.

The phytolith record from this sample yielded panicoid, chloridoid, and festucoid short cells, reflecting the presence of tall, short, and cool season grasses as part of the grass assemblage. Moderate quantities of buliforms were noted, suggesting that these grasses received much of the water they require for good growth. Trichome forms were present, which reflect silicified hairs on the glumes surrounding grass seeds. Elongates were present, but did not overwhelm the record, suggesting moderately good preservation conditions for phytoliths. Cyperaceae phytoliths were noted, indicating the presence of sedges growing along with the grasses. Charred Asteraceae fragments were noted in the phytolith sample, as well as the pollen sample, and probably are associated with burning local vegetation. A few long diatoms were recovered, which are considered to be ubiquitous in sediments, rather than having diagnostic significance.

The interior brick wall sample was collected within a "three-sided brick wall that appeared to be either a walled garden or a retainer for compost" (Michael Trinkley, personal

communication, November 3, 2004). This sample yielded a rather large quantity of charred Asteraceae tissue fragments, indicating burning, perhaps of this area. In addition, both the Low-spine Asteraceae and High-spine Asteraceae pollen frequencies were elevated, which is consistent with weedy members of the sunflower family growing in this area. Grasses and sedges also were part of the local vegetation, as noted by the presence of both Poaceae and Cyperaceae pollen. Recovery of small quantities of Corylaceae, Cupressaceae, *Pinus*, *Quercus*, Liguliflorae, Brassicaceae, Cheno-am, Nyctaginaceae, and Rosaceae pollen complete the record, indicating the local presence of hazel family, cypress, pine, oak, dandelion-type plants, a member of the mustard family (often weedy, although many species are edible and some are ornamental), cheno-ams, and members of the four o'clock and rose families. In addition, this sample yielded some evidence of ferns and mushrooms in the spore record. The estimated charcoal abundance was moderate, at about half of the organic fragments noted. A scolecodont was noted, representing the jaw of a worm. Foraminifera were present, again. The pollen sample does not exhibit clear evidence that this sample represents either a walled garden or a retainer for compost. The Brassicaceae pollen might represent either a weedy, edible, or ornamental plant. Recovery of Rosaceae pollen reflects growth of a member of the rose family, which might be ornamental or native. The Nyctaginaceae pollen might represent either a weedy or ornamental member of the four o'clock family. Total pollen concentration for this sample was relatively high at over 1500 pollen per ml of sediment.

The phytolith record for this sample is very similar to that in the control sample, with the exception that fewer panicoid grass short cells were noted, indicating that tall grasses were less abundant. Elongate forms were more abundant and less diagnostic. Spiny spheroid forms were present, which might represent spurge or perhaps another plant. At this point in time, they are not considered diagnostic to any particular plant family. Tracheary spiny elements were present, probably reflecting decay of woody tissue.

Plantings 1 and 2 represent garden planting holes in rich, loamy soil. Samples collected from Plantings 1 and 2 provided different pollen signatures from one another. The sample from Planting 1 did not contain sufficient pollen for analysis, yielding only approximately 90 pollen per ml of sediment and an abundance of charcoal (approximately 90% of the remains present). Pollen types noted in the attempt to count this sample include *Pinus Quercus*, High-spine Asteraceae, Cheno-am, Malvaceae, and Poaceae, reflecting the local presence of pine, oak, members of the sunflower family, cheno-am, members of the mallow family, and grass. Charred Asteraceae tissue fragments were approximately 6 times as abundant as pollen and the total estimated charcoal abundance was large (90% of organic remains). Planting 2 yielded a total pollen count of 50 grains, which included a moderate quantity of *Quercus* pollen, reflecting oaks in the local vegetation. In addition, this sample contained moderate to moderately small quantities of pollen reflecting a variety of trees including *Carya* (hickory), Corylaceae (hazel family), Cupressaceae (cypress), *Pinus* (pine), and *Planera* (water elm).

This sample contained the only *Artemisia* pollen observed at this site, reflecting the presence of wormwood, known to have medicinal properties, or tarragon, a cooking herb. In addition, some of the *Artemisia* are planted as accent plants because of their silvery foliage. It is likely that recovery of *Artemisia* pollen in this sample has interpretive significance for the presence of a cooking herb, a medicinal herb, or perhaps an ornamental plant.

High-spine Asteraceae and Liguliflorae pollen represent the presence of various members of the sunflower family, including dandelion. Recovery of Caryophyllaceae pollen indicates the presence of members of the pink family, which includes sweet William, carnations, and other flowers often cultivated in gardens.

The Cheno-am pollen frequency is small, suggesting few weedy plants of this group growing in this area and also indicating that amaranths were not planted here. The Cyperaceae and Poaceae pollen frequencies were similar to those noted in other samples, probably reflecting various sedges and grasses growing in the area. Sedges and grasses are expected to have been encouraged in pathways and probably tolerated in some other areas. Recovery of Rosaceae pollen in this sample might reflect planting roses in this area. Alternatively, it might reflect the presence of various wild or native members of this family. Recovery of a single *Zea mays*-type angular starch in this sample suggests the use of compost or discard of kitchen debris. If maize or corn had been grown here, one would expect a significant rise in the bilobate and total panicoid phytolith signature, which was not observed. Hollow starches are starches that are deteriorated, so no morphology that could lead to interpretation was noted. Recovery of a variety of fern spores indicates that ferns might also have been planted in this garden area. It is interesting that this sample yielded the largest quantity of mushroom spores. These spores represent a wide variety of mushrooms, including edible mushrooms. At this time, they are not considered to be interpretive to indicate that edible mushrooms were grown in this area, but rather point to the possibility that edible mushrooms might have been among the kitchen debris discarded or used as compost or that some sort of mushroom grew in this area. Scolecodonts (worm jaw fragments) represent deterioration of worms in these sediments. Charred Asteraceae tissue fragments were abundant, suggesting the possibility that this area was burned, perhaps for weed control, or that burned yard debris was incorporated, perhaps as part of a compost mix. Approximately 90% of the microscopic remains examined were charred, possibly reflecting a combination of charcoal derived from burning wood in a fireplace and subsequent wind dispersal of the ash, microscopic coal flecks also dispersed as ash, and burning yard debris. Once again, a few Foraminifera were observed.

The phytolith record from Planting 2 was heavily dominated by elongate smooth forms, representing grasses. Of the grass short cells, nearly equal quantities of festucoid, chloridoid, and panicoid types were recorded, representing cool season, short, and tall grasses. Buliforms were moderately abundant, suggesting that grasses growing in this area received sufficient moisture. Several silica forms recovered represent dicots, although they were not specific to family or genus level. They include spiny spheroid, straight hair, and tracheary spiny elements.

Trenches 1 and 2 are thought to be from garden parterres and yielded differing pollen records. Trench 1 yielded a count of 50 grains and moderate to moderately small quantities of *Pinus*, *Quercus*, Low-spine Asteraceae, High-spine Asteraceae, Cheno-am, Cyperaceae, and Poaceae pollen, reflecting local pines, oak, various members of the sunflower family, at least some of which were weedy, cheno-ams, sedges, and grasses. This pollen signature provides evidence of weedy plants through the presence of Low-spine Asteraceae and Cheno-am pollen, and suggests this area might have supported a population of grasses and sedges, as well. No evidence of shrubs that might have been pruned, such as boxwood, was observed. Charred Asteraceae tissue fragments were not particularly abundant, although total charcoal fragments were. Fern spores were only moderately abundant. Trench 2 yielded very little pollen, most of which was obscured by the presence of a very large quantity of both charred Asteraceae tissue and charcoal fragments in general. Two pollen types were noted: Poaceae and indeterminate.

The phytolith record from Trenches 1 and 2 also were different from one another, although both yielded an abundance of phytoliths. Bilobate phytoliths were much more prevalent in Trench 1 than in Trench 2, in a frequency reminiscent of that observed in Planting 1 and in the Control sample. Festucoid and chloridoid short cells also were present, indicating a variety of grasses growing in this area. The Trench 2 sample yielded dicot knobby forms, as well as parallelepiped long forms, which were not observed in any other

sample. Parallelepiped forms are observed in several different reference specimens of different families, so are not considered to be diagnostic. The particular dicot knobby forms observed here have not yet been observed in reference specimens, so no information is available concerning which plants they might represent.

Feature 13, a suspected garden planting area, yielded very little pollen. Once again, the combination of large quantities of both charred Asteraceae tissue and general charcoal fragments overwhelmed the pollen record, which was only approximately 170 pollen per ml of sediment. Pollen types observed include *Carya*, *Liquidambar,* Low-spine Asteraceae, High-spine Asteraceae, and Poaceae, reflecting local hickory, gum trees, a variety of members of the sunflower family, including weedy plants, and grasses. Fern spores and mushroom spores were noted. Charred Asteraceae tissue fragments were abundant in this sample, as were microscopic charcoal fragments. The phytolith record from this area exhibits one of the largest quantities of chloridoid phytoliths observed from this plantation, indicating that sort grasses were abundant in this area, suggesting an open habitat, rather than a shady one. The greater abundance of chloridoid compared to panicoid grass phytoliths suggests that this area might have been a bit dry. Most of the remaining phytoliths represent grasses.

Feature 14, another suspected garden planting area, yielded sufficient pollen to obtain a count of 50. This sample was dominated by Poaceae pollen, reflecting the presence of an abundance of grasses. Other pollen types noted include Cupressaceae, *Liquidambar*, *Pinus*, *Quercus*, High-spine Asteraceae, Liguliflorae, Caryophyllaceae, and Cyperaceae, indicating the presence of cypress, gum trees, pine, oak, various members of the sunflower family including dandelion, a member of the pink family, possibly planted for its ornamental flowers, and sedges. Charred Asteraceae tissue fragments were far less abundant in this area than most of the other areas sampled, although microscopic charcoal was still abundant. The phytolith record indicates that the grasses growing in this area were more heavily dominated by cool season grasses, suggesting that this area was shaded.

Feature 6 was collected from a wall trench of an African American slave house probably dating from approximately 1770. This pollen record yielded moderate quantities of *Pinus*, *Quercus*, Low-spine Asteraceae, High-spine Asteraceae, Cheno-am, Cyperaceae, and Poaceae pollen reflecting the presence of pine, oak, various members of the sunflower family including weedy ragweed, cheno-ams, sedges, and grasses. It is interesting to note that this sample yielded fewer pollen types than most of the samples that yielded counts. In addition, this sample yielded evidence of ferns and mushrooms. Charred Asteraceae tissue fragments were present in a similar frequency to those noted in Feature 13, although microscopic charcoal was abundant. The phytolith record from this sample yielded elevated chloridoid and panicoid short cell frequencies, indicating an open habitat that supported short and tall grasses.

Summary and Conclusions

Combined pollen, starch, and phytolith analyses of sediments from a variety of locations on this plantation indicate that local trees included primarily pines and oaks, although the variety was much greater and included maple, hickory, chestnut, hazel and hazel family, cypress, gum trees, and water elms. Local weedy plants appear to have included at least a member of the Apiaceae or umbel family (possibly Queen Anne's lace), ragweed, dandelion, a member of the mustard family, cheno-ams, mallow, a member of the four o'clock family, sedges, spurge, and puncture vine.

Plants that might have been planted include *Artemisia* (as a medicinal, an herb, or an accent plant), Liliaceae, a member of the four o'clock family, and roses. The pollen record also included starches in one sample (Planting 2), possibly reflecting the presence of kitchen debris

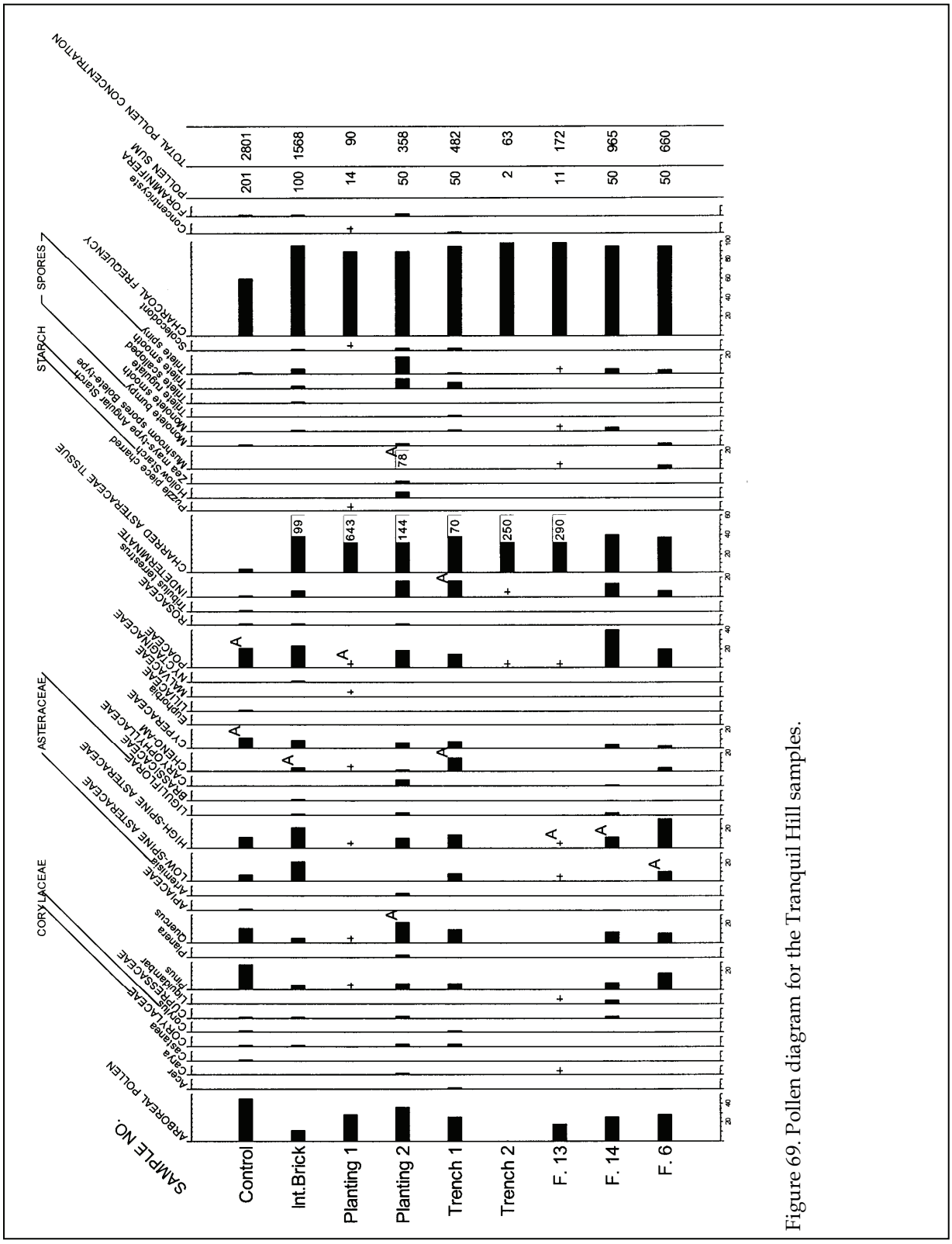

Figure 69. Pollen diagram for the Tranquil Hill samples.

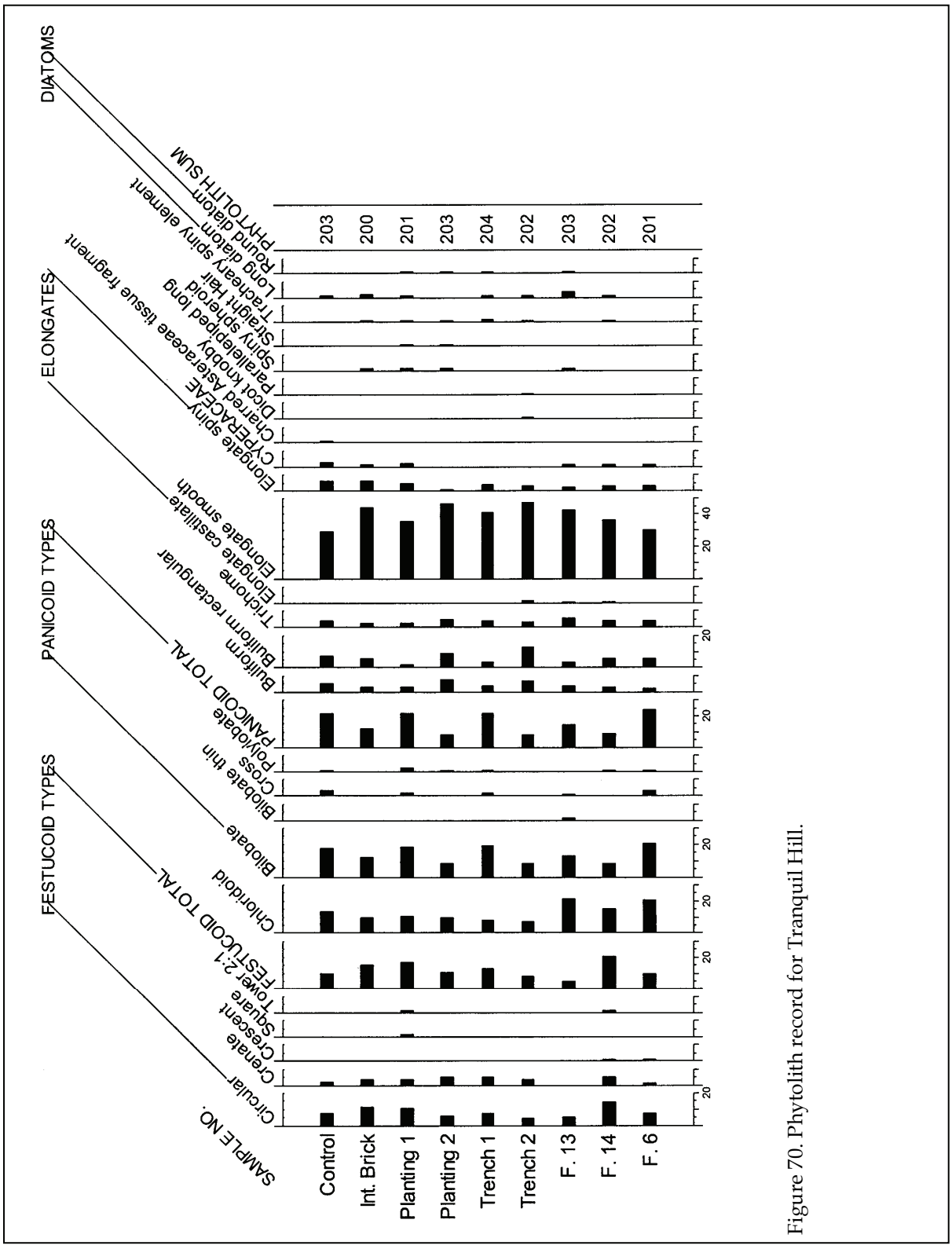

Figure 70. Phytolith record for Tranquil Hill.

used as compost. Charred Asteraceae tissue fragments might be used as an index of burning yard debris or clearing with the use of fire, while the frequency of microscopic charcoal probably also incorporates airborne ash from wood fires and possibly also coal fires. The phytolith record indicates that the grasses growing on this plantation were a mixture of cool season grasses in the more shaded areas and chloridoid (short grasses) and panicoid (tall grasses) in the sunnier areas. Short grasses thrive in drier areas, while tall grasses require more moisture. The combined pollen and phytolith records indicate growing both *Artemisia* and a member of the pink family, and possibly roses, in the area represented by Planting 2. In addition, a member of the pink family appears to have been grown in the area represented by Feature 14, another garden planting area. Flowers in the pink family all have "pinked" or jagged edges. Examples include sweet William and carnations. Feature 14 appears to have been shadier than other areas, while Feature 6 appears to have been sunnier and more open.

ETHNOBOTANICAL REMAINS

Introduction

Ethnobotanical remains were recovered from flotation samples, as well as being handpicked during excavation.

Flotation samples, offering the potential to recover very small seeds and other food remains, provide the most reliable and sensitive subsistence information. Samples of 10 to 20 grams are usually considered adequate, if no bias was introduced in the field. 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.

In the case of Tranquil Hill the soil samples were each 5 gallons in volume (representing soil prescreened to remove artifacts and architectural debris to ¼-inch) and were water floated (using a machine assisted system) at Chicora's Columbia laboratories. Prescreening may cause some fragmentation, but it ensures a much larger soil sample than would be the case if artifacts, brick, and mortar were retained.

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 and Results

The 11 flotation samples were prepared in a manner similar to that described by Yarnell (1974:113-114) and were examined under low magnification (7 to 30x) to identify carbonized plant foods and food remains. Remains were identified based on gross morphological features and seed identification relied on Schopmeyer (1974), United States Department of Agriculture (1971), Martin and Barkley (1961), and Montgomery (1977). All float samples consisted of the charcoal obtained from 5 gallons of soil (by volume). The entire sample from this floated amount was examined.

Table 33.
Flotation Sample Proveniences

Feature No.	Location	Description
1	House Servants'	well
2	Slave Settlement	wall trench
3	Slave Settlement	pit
4	Slave Settlement	pit
5	Slave Settlement	clay extraction, trash
6	Slave Settlement	wall trench
7	Slave Settlement	pit
8	Slave Settlement	post hole cluster
9	Slave Settlement	wall trench
10	Main House	low area with rubble
11	Main House	robbed porch wall

The proveniences are listed in Table 33 and we provide some brief information on the nature of the feature for the benefit of the reader. The results of the analysis are provided in Table 34. Reference to Table 33 reveals that most of the features were found in the slave settlement and the bulk of the information is applicable to the enslaved African Americans at Tranquil Hill.

Several of the features were dominated by uncarbonized organic debris (rootlets). When these uncarbonized components are ignored, the collections are composed largely of wood charcoal (which clearly dominates all of the features except for Features 2 and 4).

Ten of the 11 features contain seeds, although in most cases the quantities are relatively small. Five of the features contain remains of corn (*Zea mays*) – other cultigens include the peach and possibly the *Brassica* discussed below. Three of the samples include hickory nutshells, although it is not clear if these remains (never accounting for more than 1% of the sample) represent food debris or were accidental inclusions.

Seeds, while not common, do represent nine different genera. These include *Polygonum* sp. (knotweed), *Galium* sp. (bedstraw), *Eleusine indica* (goose grass), *Euphorbia* sp. (probably a spurge), *Chenopodium* sp. (pigweed), *Brassica* sp. (mustard, rape, turnip), *Amaranthus* sp. (pigweed), *Passiflora incarnate* (maypops), and *Prunus persica* (peach).

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 also examined under low magnification with the larger pieces of wood charcoal identified, where possible, to the genus level using comparative samples, Panshin and de Zeeuw (1970), and Koehler (1917). Wood charcoal samples were broken in half to expose a fresh transverse surface. The results of this analysis are shown in Table 35.

All but two of the 18 hand-picked samples (89%) contained pine (*Pinus* sp.). The only other common wood was oak (*Quercus* sp.), found in five of the samples (28%). The remaining species include maple (*Acer* sp.), hickory (*Carya* sp.), cedar (*Juniperus* sp.), and ash (*Fraxinus* sp.). All are represented by single occurrences.

Polygonum or knotweed is an annual or perennial commonly found in disturbed habitats and waste places. It fruits from May until the first frost (Radford et al. 1968:409-410). Although Yarnell (1974:117) suggests that it is primarily indicative of disturbed habitats, both the leaves

Table 34.
Analysis of Flotation Samples from Tranquil Hill

Feature & Provenience	Wood Charcoal		Uncarb. Organic		Stone/Soil		Bone		Shell		Hickory Nutshell		Corn		Seeds		Total	Seeds
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%		
Fea 1.	10.14	89.84	1.11	9.87	0.02	0.15									0.02	0.15	11.29	*Polygonum* 1; *Chenopodium* 1; *Eleusine* 8; *Gallium* 1; UID 1
Fea. 2	0.58	19.43	2.41	80.57											t	t	2.99	*Eleusine* 1; *Brassica* 1
Fea. 3	16.97	65.92	8.73	33.91							0.03	0.11	0.01	0.06	t	t	25.74	*Euphorbia* 1
Fea. 4	4.70	16.30	13.16	45.69			10.70	37.14	0.13	0.47	0.02	0.06			0.10	0.35	28.81	*Euphorbia* 1; *Chenopodium* 2; UID 1
Fea. 5	5.11	78.13	1.36	20.74			0.07	1.14							t	t	6.54	*Brassica* 2
Fea. 6	10.35	61.35	6.48	38.43									0.02	0.11	0.02	0.11	16.87	*Prunus persica sp.* 1; *Chenopodium* 1; UID 1
Fea. 7	15.40	85.57	2.58	14.32									0.02	0.12	t	t	18.00	*Brassica* 16
Fea. 8	18.26	70.77	7.26	28.14									0.28	1.09	t	t	25.80	*Brassica* 36
Fea. 9	7.63	51.36	7.05	47.49			0.15	1.00					0.02	0.14	t	t	14.85	*Galium* 8; *Brassica* 12; UID 1
Fea. 10	6.98	84.14	1.01	12.18					0.29	3.45					0.02	0.23	8.30	*Amaranthus* 1; *Passiflora* 1
Fea. 11	1.71	82.00	0.35	17.00							0.02	1.00					2.08	
																	0.00	

and tuber are edible (Medsger 1966:162). Morton (1974:115) also notes the plant has been used by low country African Americans as an antiseptic and astringent. The single specimen is found in the house servants' area, in association with the well.

Table 35.
Wood Charcoal Identified from Hand-Picked Samples
(calculated as % of each sample)

Provenience	*Pinus* sp.	*Quercus* sp.	*Acer* sp.	*Carya* sp.	*Juniperus* sp.	*Fraxius* sp.	Other
Slave Settlement							
400R360, lv. 1	100						
Fea 3, N½	100						
Fea. 3 S½	100						
Fea 5, E½	100						
Fea. 5, W½		100					
Fea. 6	100						
Fea. 7, E½	62		25	13			
Fea. 7 W½	100						
Fea. 8	66	34					
Fea. 9	100						
Main House							
820R670, lv. 1	50					50	
820R680, lv. 1		100					
House Servants							
820R970, lv. 1	100						
840R930, lv. 1	50						50
840R930, PH 1	71	29					
Fea. 1	40	40			20		
Trench 15	100						
Garden Area							
Fea. 12	50						50

Bedstraw (*Galium* sp.) is a perennial or annual herb found in woods and clearings which fruits from May through August (Radford et al. 1968:986). At least one common plant, *Galium tinctorium*, is found extensively in swamps, marshes, and other wet areas. While there are occasional reports of various uses, this plant was most likely drawn to the disturbed habitat of the African American settlement. Both samples are from wall trench features; it may be that roof drainage maintained relatively damp soils in these areas.

Goose grass (*Eleusine indica)* is a summer annual introduced from Europe or possibly Africa. It seeds from June through October and is typically found in fields, gardens, and waste places (Radford et al. 1968:116). Although a common weed, we have found no indications that it has been used as a food, herb, or medicine.

Euphorbia sp. is a large and variable genus of annual or perennial herbs, trees, and shrubs. The closest match is *E. maculate*, known as spotted spurge or nodding spurge. This is a native found through the area in gardens, waste places, cultivated fields, and on other disturbed ground (United States Department of Agriculture 1971:250; Radford et al. 1968:674). This plant is closely related to two other spurges identified by Morton (1974:51, 149) as possessing medicinal qualities known to low country African Americans. Fleming (1998:843) provides additional details concerning a third species, *E. cyparissias*, noting its use in homeopathic dilutions.

Pigweed (*Chenopodium* sp.) is an erect annual found in rich soils of cultivated fields, waste places, ditches, or barnyards (Radford et al. 1968:418; United Stated Department of Agriculture 1971:132). Seeds are produced from June until frost. Morton (1974:43-45) describes the uses of C. *ambrosioides* or Mexican Tea by African Americans as a vermifuge. Fleming (1998:739) confirms its use against roundworms and hookworms. C. *vulvaria*, known as stinking goosefoot, has been used to relieve cramps and as an emmenagogue (Fleming 1998:740). Radford et al. (1968) do not note its presence in South Carolina, although it is found in Alabama and Florida.

Brassica sp. includes mustard, turnip, and rape. The latter was identified at the Crowfield slave settlement in the analysis of carbonized residue on Colono sherds – so the plant is documented as having been used by African Americans during the colonial period (Trinkley et al. 2003:136-137). That research noted the plant was often traded as "greens" and the oil, pressed from seeds, was used for cooking. Thomas Jefferson grew *Brassica*,

although his plants may have been mustard or turnips and was used primarily for animal feed – a use that has been documented in at least one other source. Porcher (1863:72-75) provides considerable information concerning mustard and recommends that it be grown on every plantation. Regardless, *Brassica* grows in disturbed habitats and areas of previous cultivation. It produces seeds from March through June (Radford et al. 1968:497).

Pigweed (*Amaranthus* sp.) is an annual found in fields, barnyards, and waste places. It produces seeds from May until the first frost. Although Morton does not note any known use by African Americans, Fleming (1998:638) describes the use of A. *hypochondriacus* for diarrhea, ulcers, and inflammation of the mouth and throat.

Maypops (*Passiflora incarnata*) is an herbaceous or woody vine. The fruit is produced from July through October and the plant is found in fields, on roadsides, and along fence rows. Fleming (1998:1015) notes that it has been used for gastrointestinal complaints as well as for "hysteria." Porcher, however, observes that while several species are used medicinally and the fruit can be eaten, they "have received no attention, being more remarkable on account of the structure of their flowers" (Porcher 1863:77-78). Given that the plant was found in the vicinity of the main house, it may be that it was intentionally grown.

The peach (*Prunus persica*) is well known in the Southeast. 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). In South Carolina, the peach is best cultivated in the upstate, although plantation records and diaries are replete with evidence that the peach was grown in the low country. Radford et al. (1968:566) note that the peach is frequently found escaped from cultivation and fruits from June through July.

There are four hickories common to the Dorchester area -- bitternut (*Carya cordiformis*), water (*C. aquatica*), mockernut (*C. ovalis*), 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 Tranquil Hill, the bitternut and water hickories would have been common in the low wet soils of the rice producing areas.

In South 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.

All of the corn (*Zea mays*) recovered from the samples are fragmentary cupules. 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).

Although it is likely that corn was grown on Tranquil Hill, it seems unlikely that it ever matched rice production or that it was a major food for the slaves. The presence of the cupules indicates that the cobs were burned after the removal of the kernels. Since all of the specimens are recovered from the slave settlement, the corn cobs may have been burned in smudge pits.

While prehistorians typically relate smudge production to either tanning hides or smudging ceramics, other functions are likely. For example, at the Spanish Mission San Luis de Talimali, McEwan and Hann (2000) suggest smudge pits were intended for insect control. Stickler (2004) makes a similar observation for the early nineteenth century smudge pits at Fort Mitchel in Alabama. Research by the Center for Archaeological Studies, South Alabama University at the colonial Dog River Plantation in Louisiana found smudge pits in the slave settlement area. The researchers believe that the smoke produced drove off mosquitoes (http://www.southalabama.edu/archaeology/plantation-slavery.htm). Low country blacks still use smudge pits for this purpose.

Turning to the wood species, the most abundant was pine (*Pinus* sp.). 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. Other species include hickory (*Carya* sp.), oak (*Quercus* sp.), and cedar (*Juniperus* sp., possibly southern red cedar, *J. silicicola*). All are typical of maritime forests and will be found on sandy soils, generally well drained.

Other species include maple (*Acer* sp.), probably red maple (A. *rubrum*) which is found in low, rich soils (Radford et al. 1968:688). Fowells (1965:58) notes that the red maple will mostly be found on moderately well-drained moist sites at low to intermediate elevations, although it will also be encountered in swampy areas and in depressions. The ash recovered is most likely either the water ash (*Fraxinus caroliniana*) or the American ash (F. *Americana*). Both are found in low woods – again a setting typical of the upland rice areas of Tranquil Hill (Radford et al. 1968:829-830).

The wood species are suggestive of two distinct habitats – the pine, oak, cedar, and hickory are generally characterized by sandier and better drained upland soils; the maple and ash are more often associated with low to swampy locations.

Discussion

The flotation samples have produced few charred foods. The small quantity of hickory may well be fuel-related. The corn and peach, while certainly foods, provide little information concerning their dietary contributions and are more revealing about African American lifeways. In fact, the absence of carbonized food remains helps confirm the idea that the African Americans were consuming one-pot, slow cook meals. There would have been few opportunities for plant foods to be incorporated into the archaeological record.

The recovered seeds do, however, provide a glimpse of the environment around the settlements. Many are indicative of disturbed habitats, fallow fields, and waste places. In spite of this, the chenopod and amaranth may be evidence of the African American use of greens. Many of the plant remains identified may have medicinal or herbal uses. It is difficult to separate accidental inclusions from those that may have been purposefully collected and used by the enslaved Africans.

Although the British West Indies experience cannot be lifted out of context and used to frame all slave activities in the Carolina low country, there is abundant evidence of the importance that African medicine assumed among English planters. One of the most complete discussions is that Sheridan (1985). He notes that, "as in Africa, folk medicine in the

West Indies was divided between good and bad medicine men" and that in both Africa and the West Indies folk medicine "made extensive use of herbal and other remedies" (Sheridan 1985:77). It was impossible to extricate purely medical undertakings from the more inclusive religious and spiritual activities. Folk medicine made extensive of "charms, spells, fetishes, incantations, and poison," typically with women playing a major role. So strong was the English fear of "Obeah" or "bad medicine," that in 1760 the Jamaican legislature enacted a law that,

> any Negro or other Slave, who shall pretend to any supernatural Power, and be detected in making use of any Blood, Feathers, Parrots Beaks, Dogs Teeth, Alligators Teeth, broken Bottles, Grave Dirt, Rum, Egg-shells or any other Materials relative to the Practice of Obeah or Witchcraft, in order to delude and impose on the Minds of others, shall upon conviction thereof, before two Magistrates and three Freeholders, suffer Death or Transportation (quoted in Sheridan 1985:78-79).

There is ample evidence that the Africans in the West Indies brought with them considerable cultural baggage concerning disease and medicine. It seems likely that much of this transferred to the low country of South Carolina and that many of the "weeds" encountered in the archaeological record are actually remnants of these belief systems. As long, however, as they are treated as only evidence of a disturbed habitat and various non-economic grasses or plants, we will fail to fully understand the depth of African-American cultural practices.

The charcoal represents woods that can reasonably be associated with the forests surrounding Tranquil Hill. 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.

By the antebellum, pines were common in the 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 – like oaks – might be found in a variety of settings. 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 the remains of fuel.

Unlike oak, however, pine was 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. For example, 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).

SUMMARY AND CONCLUSIONS

Our research at Tranquil Hill focused on four broad research topics or areas. Each is briefly discussed here in order to examine the success of the project.

Comparison of Plantation Areas

The first research goal was to examine the assemblages from three different – and culturally distinct – areas of the plantation. These include the main house, the slave settlement, and what we have interpreted to be the residence of house slaves. Of particular interest was the comparison of the two slave settlements.

It has been suggested that slaves could be divided into two broad categories. Privileged slaves might include house servants, drivers, artisans, preachers, conjurors and formed a "slave elite," set off from the mass of slaves who worked in the fields. Establishing this division opened other fields of historical inquiry, such as whether these elite slaves betrayed their brothers and sisters or did slaves maintain a strong loyalty to one another regardless of status?

While the answers to the question of relationships are varied and complex, relatively few historians have doubted that a dichotomy between slaves existed. Dusinberre, in fact, is one of the few historians to dispute the presence of a slave elite, suggesting instead that privileges granted were easily withdrawn. In addition, he shows that on some plantations a household was a mix of both field slaves and those holding privileged positions (Dusinberre 1996:179).

If we assume that both management techniques were practiced, either by different owners or during different periods, then the archaeological patterning of the two systems would be distinguishable.

At Tranquil Hill we observed clear differences in the architecture, artifacts, and faunal remains found at the two slave settlements.

In the slave settlement, wall trench structures were the norm. In the house servants' area we found "cabins" set on brick piers with brick chimneys. These European style houses became the norm in the antebellum period as planters sought to forestall criticism by abolitionists. At Tranquil Hill, however, they appear to have been in use by the late colonial period for the slaves in this one area.

There were also noticeable differences in the artifacts of the two areas. The field hands possessed much lower quantities of European wares and much higher quantities of slave-made Colono ware. The European wares present in the slave settlement also exhibit lower cost motifs than those in the house servants' area. In the house servants' area we see an assemblage that appears to stand mid-way between slave and master.

Even the foodways of the two areas reveal some differences. For example, wild foods are far more common at the house servants' settlement (where arms allowing hunting are present) than in the settlement of the field slaves (where arms are virtually non-existent). The house servants' also had greater diversity in food remains than did the field slaves. However, it is worth noting that in spite of these differences, vessel forms reveal that both areas had similar foodways, relying on one-pot meals.

Of course, with privileges the African Americans would have given up some of their autonomy. Although this is difficult to see in the archaeological record, it is perhaps revealed in the proximity of the house servants' quarters to the main house – only 300 feet – compared to the 500 feet distance to the slave settlement.

It is also inappropriate to assume that a European-style house was more favored by slaves than their perhaps more traditional wall trench structures. Some evidence of this is provided by the reduction in house size found after emancipation among some blacks (Hamer and Trinkley 1997).

Analysis of the main house was made difficult by robbing of foundations and evidence that the settlement stood abandoned for a period before it entered the archaeological record. Nevertheless, the owner's assemblage represents one of the highest ceramic indices determined in our research. This provides clear evidence of the wealth of the Tranquil Hill owners. It is of no surprise that their assemblage is significantly different than that of either African American group on the plantation.

Table 36.
Comparison of the Tranquil Hill Faunal Categories by MNI Percentages with the Rural and Slave Patterns

Faunal Category	Rural Pattern[a]	Slave Pattern[b]	Main House	House Servants'	Slave Settlement
Domestic Mammals	17.2	20.5	30.0	23.3	83.3
Domestic Birds	4.1	3.0	6.7	13.3	-
Wild Mammals	19.2	24.7	16.7	26.6	16.7
Wild Birds	3.0	2.1	3.3	-	-
Reptiles	13.7	10.4	6.7	6.7	-
Fish	38.4	36.6	33.3	13.3	-
Commensals	4.3	2.8	3.3	-	-

[a] Reitz 1988
[b] Reitz 1986:Table 7

In our comparisons we also tackled the issue of how the settlement to the east of the main house could be distinguished from that of an overseer, noting that the historical research failed to mention an overseer, that the use of a slave driver is documented, and that the cluster of structures seems more characteristic of a small slave settlement than the settlement of a single overseer.

We have previously noted that eighteenth century overseers were in constant competition with their slaves for scarce resources, had few material possessions, and had very close interaction with their charges at a variety of levels. The overseer was therefore on a sliding – and somewhat precarious scale – between the owner and the slave. It will likely continue to be difficult to distinguish the two, especially in mixed assemblages.

Examination of the Slave Faunal Assemblage

A second goal of the research was to add to the literature of early slave foodways and the analysis of the field and house slave assemblages contributes to that goal.

Neither assemblage is as large as we wish and the results are therefore not as clear as we would hope. Nevertheless, we see that the field slaves relied on a diet consisting largely of domestic animals, supplemented with a small quantity of wild species. Given the quantity of modified bone, it appears that some butchering was taking place in the slave settlement area. In spite of this, the slaves received the poorest cuts. The other assemblages on the plantation revealed considerably greater diversity and better cuts of meat.

The large proportion of domestic animals, especially beef, may be a reflection of colonial reliance on free ranging cattle. It may be that upland rice plantations such as Tranquil Hill exhibit an especially attractive environment for cattle. Chaplin notes that 63% of the coastal estates possessed cattle between 1740 and 1779. That number dropped to only 37% during the period from 1780-1815 (Chaplin 1993:253). She also demonstrates that the mean plantation value held in livestock consistently

declines from 6.2% in the 1780s to only 3.6% by the 1810s (Chaplin 1993:335).

We continue to see considerable variation when MNI contributions are compared to the pattern offered by Reitz (Table 36). While this may be the result of the small sample sizes, it may also reflect spatial, temporal, or cultural variations that have not been fully explored.

Structural Remains

We were especially interested in documenting the architecture of main house. Not only is plantation architecture poorly understood (e.g., Smith 1999; Fick 2005), but we were interested in comparing the artist's rendition of the main house with the archaeological footprint. Our research is able to add significant archaeological data to the architectural understanding of early eighteenth century structures.

We believe that the main house was constructed prior to 1732/3 when it was advertised for sale as "a beautiful Dwelling-House 45 Foot long and 35 Foot wide 2 floors 4 rooms on a Floor with Buffets Closets &c a dry cellar underneath." We found the actual dimensions to be 40.5 feet east-west (across its front) and 36 feet north-south (representing its depth). The internal plan of the structure revealed a central hall, probably 8.5 feet in width, with two rooms on either side. The rooms on the east side of the structure were 13 feet in width and approximately 15 and 17 feet in length. The basement was floored in brick.

The archaeological evidence suggests that this was a frame house, with only the basement level in brick. We recovered examples of both red and gray clay flooring tiles, measuring about 8 to 9 inches square. Based on their recovery, we believe that they were originally used on the north, or front, porch.

Smith (1999:107) notes that the second quarter of the eighteenth century was a period of considerable construction as owners sought to display their wealth. The "typical" structure was compact in plan with symmetrical massing. The Tranquil Hill example, with a first floor footprint of about 1458 square feet, is toward the smaller end of what was being built during this period. This may perhaps indicate its relatively early construction date.

It was also during this early period that double-pile houses begin to be more common. The plan allowed better lighting and heating, as well as greater privacy. The plan also promoted a compact massing and a single, hipped roof. Smith (1999:118-119) notes that wood was more commonly accepted. Clapboard siding was similarly gaining in acceptance.

In almost every respect the archaeological footprint matches the watercolor of the structure – square in shape, hipped roof, frame with brick basement, five bay façade, and two floors above the basement. Although the painting may be rustic in form, it appears to faithfully depict the Tranquil Hill structure.

The archaeological evidence also reveals that the dwelling received few modifications, with no evidence of expansion during the nineteenth century.

In addition to the main house, we were able to fully document one structure to the east of the main house, thought to represent the dwelling of house servants. It measured 17 by 16 feet, with an exterior end chimney measuring 7 by 3.5 feet. The structure was supported on brick piers, three to a side. Overall, the structure is a typical slave house. What is most interesting is that it dates to at least the last quarter of the eighteenth century – considerably before any effort to improve conditions.

Structures in the slave settlement were not so well preserved. We found several examples of partial wall trench structures, documenting not only this typical eighteenth century slave house style, but also frequent

rebuilding on the same site. All of the structures appear to have a northeast-southwest orientation. A roughly linear arrangement extending east to west is possible but uncertain.

The Tranquil Hill Garden

The last research topic involved the Tranquil Hill garden. While we were unable to identify any documentation specific to this garden (with the exception of the brief comments by Elizabeth Poyas), we were able to develop a detailed context for colonial plantation gardens. We hope that the research will inspire other researchers to devote more attention to plantation gardens – a topic which is typically ignored (the only plantation garden archaeological research for South Carolina appears to be Trinkley et al. 1992). If so, this study should assist these researchers in better understand the features and remains they will identify. It also provides some recommendations for that future research.

Our investigations combine pollen and phytolith study, soil analysis, and extensive stripping of overlying soil.

Pollen and phytolith data suggest a very mixed environment in the general area. While pines and oaks were the most common trees (a finding consistent with the archaeobotanical research), there was considerable variety that included maple, hickory, chestnut, hazel, cypress, gum trees, and water elms (several of which were also identified by the archaeobotanical study). Members of the mustard family were also encountered in both the pollen and ethnobotanical records.

Plantings that may have been associated with the garden include Queen Anne's lace, a member of the four o'clock family, *Artemisia* (as a medicinal, an herb, or an accent plant), a member of the pink family, Liliaceae, and roses. We also see that different garden areas were likely open and sunny, or shady – suggestive of different compartments with different themes and plantings.

The soils study was equally interesting – demonstrating that the examination of macronutrients in a garden setting is likely to yield significant data. For example, we found that the pH of the garden area was noticeably less acidic than our control sample. In particular the soil from the planting bed seems clearly to have been modified to produce a very favorable environment.

We also found that both phosphate and potassium levels were higher in the garden area than elsewhere. This further supports intentional modification of these soils to support plantings.

The archaeological investigations were able to distinguish specific garden areas. Trenches were identified that appear to represent a portion of a parterre measuring about 220 feet square. This is consistent with the garden design shown on the 1800 John Diamond plat. A number of distinct square post holes, some with clay fill and a few with a post mold in their centers, were identified during the study. At present these appear random, but likely are associated with various garden structures or follies typical of the period. Also present are circular stains that we interpret to be individual plantings. Several of the larger examples are basin-shaped, measuring about 4 feet in diameter and about 0.5 foot in depth.

The garden work also revealed two three-sided structures. One was evidenced by a wall trench measuring 15 by 24 feet. This may have been an arbor alcove for seating prior to entry into the garden. The second was of brick. It evidenced two construction episodes. The initial structure was 15 by 24 feet (the same as the wall trench structure); it was subsequently expanded to 24 feet square. This structure was likely a low garden wall, probably also an alcove.

We were initially uncertain that time spent in the garden area would prove productive since the area had been converted to pasture and no visible evidence of the garden remained. This study should conclusively demonstrate the work was justified and, in fact, it is unfortunate that more investigations were not conducted.

It is clear that stripping is an entirely appropriate discovery technique for plantation gardens that have been abandoned and no longer retain visual or topographic features. Judicious stripping and mapping should be able to provide detailed plans, helping us to better understand the design and layout of low country gardens. Archaeology has the potential to remove conjecture and reliance on English examples and, in their place, reliably establish how local planters sought to control and tame their environments.

Evidence of Religious Activities

Religion, magic, and myth have always occupied a place in anthropological thought, beginning with E.B. Tylor's efforts at definition focused on animism. It seems, however, that few archaeologists have sought evidence of religious or magical behavior among the African American slaves found along the Carolina coast. Ferguson's (1992) study of Colono pottery and Wilkie's (1995) effort to understand the cultural and ideological significance of artifacts are notable exceptions.

We are fortunate that there are several recent examinations of African religion or magic – as exemplified by practices such as Vodu, Voodoo, or Hoodoo – including Long (2001) as well as more popular authors such as Mitchell (1999) and Pinckney (1998). To these Creel (1988) adds a discussion of African American spiritual roots and creolization with Christianity and the work of the Savannah Unit, Georgia Writers' Project (1940) adds important antecedent information.

In spite of these accounts, archaeologists are strangely inhibited from looking for alternative explanations. For example, we find small bits of broken mirror at a slave settlement and among the obvious conclusions are that a slave must have stolen a mirror from the main house or that a mirror was discarded and was salvaged by a member of the slave community. There is little or no speculation concerning what the individual may have done with the mirror and few archaeologists suggest that the artifact might have played a role in the magic of the slaves.

Thus, when the accounts of gris-gris, conjuring, magic, or whatever name is applied, are examined, we find many items that are often found in the archaeological record – things like copper scraps or nails, pierced coins, mirror fragments, small polished stones, and even bits of window glass or ceramics (in the West Indies even broken bottles were recognized as evidence of magic or spiritualism). The historic record is replete with interesting oddities, such as the clay grave marker of Siras Bowen on which was the "roughly cut outline of an open hand with a small mirror glittering in the middle" (Savannah Unit, Georgia Writers' Project 1940:117). While this might be mere whimsy, the hand motif ("lucky hands") are common among African American magic, charms, and hoodoo. Even the Savannah Unit, Georgia Writers' Project (1940:94) describes one black recounting a girl "cunjuhed buy a han from a root man."

In the context of Tranquil Hill, do the "trash pits" truly represent holes dug for the disposal of ordinary trash, or might they instead represent deposits of bodily and household debris being buried to prevent use in hexes? If it makes no sense to bury trash in the midst of so many areas where it could be thrown, might not an alternative explanation be as likely, or perhaps even more likely? In the context of Yaughan and Curriboo, do the outside hearths, with no real evidence of cooking, truly represent hearths, or might they, too, be associated with ritual behavior, perhaps associated with the

power that fire has to implement and intensify hexes (Long 2001:55)?

In fact, although the "traditional" explanation for swept yards (and even graveyards) is that the practice destroyed grass and allowed snakes to be more easily seen, we suspect that the sweeping has far more to do with preventing hexes than with preventing snakes. Moreover, we are inclined to believe that the snake story is a convenient – and socially acceptable – explanation for whites. Long (2001:52, 55) provides several accounts of sweeping. The Savannah Unit, Georgia Writers' Project (1940:94) describes how particularly powerful charms could be made from the dust of foot tracks, so that many blacks would take care to sweep away their tracks.

Also at Tranquil Hill are a number of fossilized shark's teeth. Unlikely finds in the shallow excavations thus far characterizing the plantation landscape, their presence suggests recovery elsewhere and curation at the settlement. Like prehistoric artifacts (see Wilkie 1995:143), they could easily be dismissed as "curios." Yet with a little research we find that at least some African Americans believed that an "alligatuh tusk" was beneficial to a teething baby (Savannah Unit, Georgia Writers' Project 1940:129) – and it seems easy to shift from an alligator tooth to that of a shark. We also see that alligator teeth were another item used in West Indies conjuring. Such objects seem also to easily fit what Wilkie would consider a "power object."

Tranquil Hill has provided another opportunity to explore alternative explanations for seemingly common artifacts. Such an approach provides another means of viewing dominance, power, and resistance on low country plantations. It also demonstrates that historians – using only the documents whites chose to create – may be unable to understand the complex relationship between blacks and whites on these plantations.

SOURCES CITED

Allaway, W.H.
1957 pH, Soil Acidity, and Plant Growth. In *Soil: The Yearbook of Agriculture*, edited by Alfred Stefferud, pp. 67-70. U.S. Department of Agriculture, Government Printing Office, Washington, D.C.

Allston, R.F.W.
1854 *Essay on Sea Coast Crops*. A.E. Miller, Charleston.

Ambler, Wayne, Carol Landa Christensen, Larry Hodgson, Peter Loewer and Ted Marston
1994 *Treasury of Gardening*. Publications International Ltd., Lincolnwood, Illinois.

Baldwin, Agnes Leland
1985 *First Settlers of South Carolina, 1670-1700*. Southern Historical Press, Easley, South Carolina.

Baldwin, Cinda K.
1990 The Scene at the Crossroads: The Alkaline-Glazed Stoneware Tradition of South Carolina. In *Crossroads of Clay: The Southern Alkaline-Glazed Stoneware Tradition*, edited by Catherine Wilson Horne, pp. 41-88. McKissick Museum, University of South Carolina, Columbia.

Ball, Edward
1998 *Slaves in the Family*. Farrar, Strauss and Giroux, New York.

Barry, John M.
1980 *Natural Vegetation of South Carolina*. University of South Carolina Press, Columbia.

Bartovics, Albert
1981 *The Archaeology of Daniels Village: an Experiment in Settlement Archaeology*. Unpublished Ph.D. dissertation, Department of Anthropology, Brown University, Providence.

Behler, John L.
1998 *National Audubon Society Field Guide to North American Reptiles and Amphibians*. Alfred A. Knopf, New York.

Bisgrove, Richard
1990 *The National Trust Book of the English Garden*. Viking, London.

Boersma, A.
1978 Foraminifera. Chapter 2. In *Introduction to Marine Micropaleontology*, edited by B. U. Haq and A. Boersma. Elsevier, New York.

Bonner, F.T. and L.C. Maisenhelder
1974 *Carya* Nutt. - Hickory. In *Seeds of Woody Plants in the United States*, edited by C.S. Schopmeyer, pp. 269-272. Agricultural Handbook 450, U.S. Department of Agriculture, Forest Service, Washington, D.C.

Boschung, H.T., J.D. Williams, D.W. Gotshall, and D.K. Caldwell
1983 *National Audubon Society Field Guide to North American Fishes, Whales, and Dolphins*. Alfred A. Knopf, New York.

Briggs, Loutrel W.
1951 *Charleston Gardens*. University of South Carolina Press, Columbia.

Britton, Nathaniel Lord and Hon. Addison Brown
1970 *An Illustrated Flora of the Northern United States and Canada* II. 3 vols. Dover Publications, New York, New York.

Brown, Dwight A.
1984 Prospects and Limits of Phytolith Key for Grasses in the Central United States. *Journal of Archeological Science* 11:345-368.

Brownell, Morris R.
1984 "Bursting Prospect": British Garden History Now. In *British and American Gardens in the Eighteenth Century*, edited by Robert P. Maccubbin and Peter Martin, pp. 5-18. Colonial Williamsburg Foundation, Williamsburg, Virginia.

Bull, J. and J. Farrand
1994 *National Audubon Society Field Guide to North American Birds*. Alfred A. Knopf, New York.

Bunney, Sarah
1984 *The Illustrated Encyclopedia of Herbs*. Barnes and Nobel Books, New York, New York.

Bushman, Richard L.
1992 *The Refinement of America: Perhaps, Houses, Cities*. Random House, New York.

Butler, B.E.
1958 The diversity of concepts about soils. *Journal of the Australian Institute for Agricultural Science* 24:14-20.

Byra, Patti L.
1996 *The Contextual Meaning of the 1830s Landscaping at Middleburg Plantation, Berkeley County, S.C.* Unpublished M.A. Thesis, Department of Anthropology, University of South Carolina, Columbia.

Campo, Rachel, Michael Trinkley, and Debi Hacker
1998 *The Plantation Landscape: Slaves and Freedmen at Seabrook Plantation, Hilton Head Island, S.C.* Research Series 34. Chicora Foundation, Inc., Columbia.

Carr, Lois Green and Lorena S. Walsh
1994 Changing Lifestyles and Consumer Behavior in the Colonial Chesapeake. In *Of Consuming Interests: The Style of Life in the Eighteenth Century*, edited by Cary Carson, Ronald Hoffman, and Peter J. Albert, pp. 59-165. University Press of Virginia, Charlottesville.

Casteel, R.W.
1978 Faunal Assemblages and "Wiegemethode" or Weight Method. *Journal of Field Archaeology* 5:72-77.

Chaplin, Joyce E.
1993 *An Anxious Pursuit: Agricultural Innovation and Modernity in the Lower South, 1730-1815*. University of North Carolina Press, Chapel Hill.

Choate, J., J. Jones, and C. Jones
1994 *Handbook of Mammals of the South-Central States*. Louisiana State University Press, Baton Rouge.

Cliver, E. Blaine
1974 Tests for the Analysis of Mortar Samples. *APT Bulletin* 6(1):68-73.

Cohen, David and Catherine Hess
1993 *Looking at European Ceramics: A Guide to Technical Terms*. J. Paul Getty Museum, Malibu.

Cohen, Hennig
1953 *The South Carolina Gazette, 1732-1775*. University of South Carolina Press, Columbia.

Collard, Elizabeth
1967 *Nineteenth Century Pottery and Porcelain in Canada*. McGill University Press, Montreal.

Cooke, C. Wythe
1936 *Geology of the Coastal Plain of South Carolina*. Bulletin 867. U.S. Geological Survey, Washington, D.C.

Cornwall, I.W.
1958 *Soils for the Archaeologist*. Phoenix House, London.

Cothran, James R.
1995 *Gardens of Historic Charleston*. University of South Carolina Press, Columbia.

2003 *Gardens and Historic Plants of the Antebellum South*. University of South Carolina Press, Columbia.

Creel, Margaret Washington
1988 *"A Peculiar People": Slave Religion and Community – Culture Among the Gullahs.* New York University Press, New York.

Cushion, John P.
1976 *Pottery and Porcelain Tablewares*. Studio Vista, London.

Davis, Simon J.M.
1987 *The Archaeology of Animals*. Yale University Press, New Haven.

Deagan, Kathleen
1987 *Artifacts of the Spanish Colonies of Florida and the Caribbean, 1500-1800*. Vol. 1: Ceramics, Glassware, and Beads. Smithsonian Institution Press, Washington, D.C.

DeVorsey, Louis, Jr.
1971 *DeBrahm's Report of the General Survey in the Southern District of North America*. University of South Carolina Press, Columbia.

Duffy, John
1952 Eighteenth-Century Carolina Health Conditions. *Journal of Southern History* 18:289-302.

Dusinberre, William
1996 *Them Dark Days: Slavery in the American Rice Swamps*. Oxford University Press, New York.

Edgar, Walter B.
1972 *The Letterbook of Robert Pringle*. University of South Carolina Press, Columbia.

Edgar, Walter B. and N. Louise Bailey
1977 *Biographical Directory of the South Carolina House of Representatives*, vol. 2. University of South Carolina Press, Columbia.

Eppinette, Robert T.
1990 *Soil Survey of Dorchester County, South Carolina.* Soil Conservation Service, United States Department of

Agriculture, Washington, D.C.

Erickson, Michelle and Robert Hunter
2001 Dots, Dashes, and Squiggles: Early English Slipware Technology. In *Ceramics in America, 2001*, edited by Robert Hunter, pp. 95-114. University Press of New England, Hanover, Connecticut.

2003 Swirls and Whirls: English Agateware Technology. In *Ceramics in America, 2003*, edited by Robert Hunter, pp. 87-110. University Press of New England, Hanover, Connecticut.

Fairbridge, Rhodes W. and Charles W. Finkl, Jr.
1979 *The Encyclopedia of Soil Science, Part 1: Physics, Chemistry, Biology, Fertility, and Technology*. Dowden, Hutchinson & Rose, Florence, Kentucky

Ferguson, Leland
1992 *Uncommon Ground: Archaeology and Early African America, 1650-1800*. Smithsonian Institution Press, Washington, D.C.

Fernald, M.L.
1950 *Gray's Manual of Botany*. 8 ed. American Book Company, New York, New York.

Fick, Sarah
2005 Sea Island Cotton Plantation Architecture. In *The Story of Sea Island Cotton*, pp. 359-486, edited by Richard D. Porcher and Sarah Fick. Wyrick & Company, Charleston, South Carolina.

Fish, Suzanne K.
1994 Archaeological Palynology of Gardens and Fields. In *The Archaeology of Garden and Field*, edited by Naomi F. Miller and Kathryn L. Gleason, pp. 44-69. University of Pennsylvania Press, Philadelphia.

Fleming, Thomas (editor)
1998 *PDR for Herbal Medicines*. Medical Economics Company, Montvale, New Jersey.

Fowells, H.A.
1965 *Silvics of Forest Trees of the United States*. Agricultural Handbook 271. U.S. Department of Agriculture, Washington, D.C.

Godden, Geoffrey A.
1964 *Encyclopaedia of British Pottery and Porcelain Marks*. Schiffer Publishing, Exton, Pennsylvania.

1985 *English China*. Barrie and Jenkins, London.

Gould, F. N. and R. B. Shaw
1983 *Grass Systematics*. Texas A&M University Press, College Station.

Goulty, Sheena Mackellar
1993 *Heritage Gardens: Care, Conservation and Management*. Routledge, London.

Graves, Henry S.
1919 *The Use of Wood for Fuel*. Bulletin 753. United States Department of Agriculture, Washington, D.C.

Gray, Lewis Cecil
1958 *History of Agriculture in the Southern United States to 1860*. Volume 2. Peter Smith, Gloucester, Massachusetts.

Grayson, D.K.
1973 On the Methodology of Faunal Analysis. *American Antiquity* 38(4):432-439.

1984 On Quantification of Vertebrate Archaeofauna. In *Advances in Archaeological Method and Theory*. Vol. 2, pp. 199-237. Academic Press, New York.

Greene, Jack P. (editor)
1989 *Selling a New World: Two Colonial South Carolina Promotional Pamphlets*. University of South Carolina Press, Columbia.

Hadfield, Miles
1964 Gardens and Gardening in Britain, an Introduction. In *The Shell Garden Book*, edited by Peter Hunt, pp. 17-32. Phoenix House, London.

1985 *A History of British Gardening*. Penguin Press, New York.

Hagy, James W.
1995 *City Directories for Charleston, South Carolina for the Years 1803, 1806, 1807, 1809 and 1813*. Clearfield Company, Baltimore, MD.

Hamer, Fritz and Michael Trinkley
1997 African Architectural Transference to the South Carolina Low Country, 1700-1880. *Tennessee Anthropologist* 22(1):1-34.

Hamer, Philip M., George C. Rogers, Jr., and Maude E. Lyles
1968 *The Papers of Henry Laurens*. Vol. 1. University of South Carolina Press, Columbia.

Hamer, Philip M., George C. Rogers, Jr., and Peggy J. Wehage
1970 *Papers of Henry Laurens*. Vol. 2. University of South Carolina Press, Columbia.

Hammond, Henry
1884 Report on Cotton Production of the State of South Carolina. In *Report on the Cotton Production in the United States*, edited by Eugene W. Hilgard, pp. 451-526. Census Office, Department of the Interior, Washington, D.C.

Harrington, H. D.
1967 *Edible Native Plants of the Rocky Mountains*. University of New Mexico Press, Albuquerque, New Mexico.

Hedrick, U. P. (editor)
1972 *Sturtevant's Edible Plants of the World*. Dover Publications, Inc., New York, New York.

Hendrix, Pat, Carol Poplin, Bruce Harvey, and Ralph Bailey, Jr.
2002 *Cultural Resources Management Plan for the City of North Charleston, Planning Area Three Dorchester County, South Carolina*. Brockington and Associates, Inc., Charleston.

Hickey, Michael and Clive J. King
1981 *100 Families of Flowering Plants*. Cambridge University Press, Cambridge.

Hicks, Theresa M., editor
1998 *South Carolina Indians, Indian Traders, and Other Ethnic Connections Beginning in 1670*. The Reprint Company, Spartanburg, South Carolina

Hilliard, Sam B.
1972 *Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860*. Southern Illinois University Press, Carbondale.

1984 *Atlas of Antebellum Southern Agriculture*. Louisiana State University, Baton Rouge.

Horne, Catherine Wilson (editor)
1991 *Crossroads of Clay: The Southern Alkaline-Glazed Stoneware Tradition*. McKissick Museum, University of South Carolina, Columbia.

Hogue, S. Homes and Robert L. McCain
2006 Beef A Plenty: The Faunal Remains from Youghal Plantation. In *Youghal: Examination of an Eighteenth and Nineteenth Century Plantation, Christ Church Parish, Charleston County, South Carolina*, pp. 101-120. Research Series 65. Chicora Foundation, Inc., Columbia.

Horry, H.P.
1984 *A Colonial Plantation Cookbook*. Facsimile of 1770 Edition. University of South Carolina Press, Columbia.

Howard, Hugh
1989 *How Old Is This House?: A Skeleton Key to Dating and Identifying Three Centuries of American Houses*. Noonday Press, New York.

Hunt, Peter (editor)
1964 *The Shell Garden Book*. Phoenix House, London.

Hyams, Edward
1971 *Capability Brown and Humpry Repton*. Charles Scribner's Sons, New York.

Jedrzejewska, H.
1960 Old Mortars in Poland: A New Method of Investigation. *Studies in Conservation* 5(4):132-138.

Jones, Olive R.
1986 *Cylindrical English Wine and Beer Bottles, 1735-1850*. National Historic Parks and Sites Branch, Quebec.

Jones, Olive R. and Catherine Sullivan
1985 *The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass, and Closures*. National Historic Parks and Sites Branch, Parks Canada, Quebec.

Jones, Robert L. and A. H. Beavers
1963 Sponge and Spicules in Illinois Soils. *Soil Science Proceedings*: 438-440.

Jordan, Weymouth T.
1950 The Peruvian Guano Gospel in the Old South. *Agricultural History* 24:211-221.

Joyce, Dee Dee
1988 *Preliminary Report on the Archaeological Investigation of the Andre Michaux Site 38CH1022*. n.p., Charleston, South Carolina.

Kelso, William M.
1990 Landscape Archaeology at Thomas Jefferson's Monticello. In *Earth Patterns: Essays in Landscape Archaeology*, edited by William M. Kelso and Rachel Most, pp.7-22. University

Presses of Virginia, Charlottesville.

Kelso, William M. and Rachel Most (editors)
1990 *Earth Patterns: Essays in Landscape Archaeology*. University Press of Virginia, Charlottesville.

Kidd, Kenneth E. and Martha A. Kidd
1970 *A Classification System for Glass Beads for the Use of Field Archaeologists.* Occasional Papers 1.Canadian Historic Sites, Ottawa.

King, Boston
1798 Memoirs of the Life of Boston King, a Black Preacher, Written by Himself, During His Residence at Kingswood School [England]. *The Methodist Magazine* (London) 21:105-110, 157-161, 209-213, 261-265.

Kirk, Donald R.
1975 *Wild Edible Plants of Western North America*. Naturegraph Publishers, Happy Camp, California.

Klingberg, Frank J.
1941 *An Appraisal of the Negro in Colonial South Carolina*. Associated Publishers, Washington, D.C.

Koehler, Arthur
1917 *Guidebook for the Identification of Woods Used for Ties and Timber*. United States Department of Agriculture, Forest Service, Washington, D.C.

Lasdun, Susan
1992 *The English Park: Royal, Private & Public*. Vendome Press, New York.

Lesser, Charles H.
1995 *South Carolina Begins: The Records of a Proprietary Colony, 1663-1721*. S.C. Department of Archives and History, Columbia.

Lewis, Lynne G.
1978 *Drayton Hall: Preliminary Archaeological Investigation at a Low Country Plantation*. University Press of Virginia, Charlottesville.

Lloyd, Ward
1970 *Investing in Georgian Glass*. The Crescent Press, London.

Loeblich, A. R. and H. Tappan
1965 Foraminiferous Remains in Palynological Preparations. *Review of Micropaleontology* 8(2):61-63.

Long, Carolyn Morrow
2001 *Spiritual Merchants: Religion, Magic, and Commerce*. University of Tennessee Press, Knoxville.

Lounsbury, Carl R.
1994 *An Illustrated Glossary of Early Southern Architecture and Landscape*. Oxford University Press, New York.

Luscomb, Salley C.
1967 *The Collector's Encyclopedea of Buttons*. Bonanza Books, New York.

Martin, Alexander C.
1972 *Weeds*. Golden Press, Western Publishing Company, Inc., New York, New York.

Martin, Alexander C. and William D. Barkley
1961 *Seed Identification Manual*. University of California Press, Berkeley.

Mathew, William M. (editor)
1992 *Agriculture, Geology, and Society in Antebellum South Carolina: The Private Diary of Edmund Ruffin, 1843*. University of Georgia Press, Athens.

McDonald, Roderick A.
1993 *The Economy and Material Culture of Slaves: Goods and Chattels on the Sugar Plantations of Jamaica and Louisiana.* Louisiana State University Press, Baton Rouge.

McEwan, Bonnie G. and John H. Hann
2000 Reconstructing a Spanish Mission: San Luis de Talimali. *OAH Magazine of History* 14.

McGee, Harold
1984 *On Food and Cooking*. Charles Scribner's Sons, New York, New York.

McKearin, George L. and Helen McKearin
1972 *American Glass*. Crown Publishers, New York.

McNally, Paul
1982 Table Glass in Canada, 1700-1850. *Parks Canada History and Archaeology* 60.

Medsger, Oliver Perry
1966 *Edible Wild Plants*. MacMillan Publishing Company, Inc., Racine, Wisconsin.

Melchor, Marilyn S.
2002 Aesthetic Appeal. *Colonial Williamsburg*. Spring. Electronic document, http://www.history.org / Foundation / journal / spring 03/appeal.cfm, accessed July 14, 2006.

Merrens, H. Roy (editor)
1977 *The Colonial South Carolina Scene – Contemporary Views, 1697-1774.* University of South Carolina Press, Columbia.

Merrens, H. Roy and George D. Terry
1984 Dying in Paradise: Malaria, Mortality, and the Perceptual Environment in Colonial South Carolina. *Journal of Southern History* 50:533-550.

Middleton, Margaret Simons
1953 *Jeremiah Theus: Colonial Artist of Charles Town*. University of South Carolina Press, Columbia.

Miller, E.N.
1971 *Soil Survey of Charleston County.* U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C.

Miller, George
1980 Classification and Economic Scaling of 19th Century Ceramics. *Historical Archaeology* 14:1-40.

1991a A Revised Set of CC Values for Classification and Economic Scaling of English Ceramics from 1787 to 1880. *Historical Archaeology* 25(1):1-25.

1991b Thoughts Towards a Users' Guide to Ceramic Assemblages. *Council for Northeast Historical Archaeology Newsletter* 18:2-5.

Miller, George and Robert Hunter
2002 How Creamware Got the Blues: The Origins of China Glaze and

Pearlware. In *Ceramics in America, 2001*, edited by Robert Hunter, pp. 135-161. University Press of New England, Hanover, Connecticut.

Miller, Naomi F. and Kathryn L. Gleason (editors)
1994a *The Archaeology of Garden and Field* University of Pennsylvania Press, Philadelphia.

1994b Fertilizer in the Identification and Analysis of Cultivated Soil. In *The Archaeology of Garden and Field*, edited by Naomi F. Miller and Kathryn L. Gleason, pp. 25-43. University of Pennsylvania Press, Philadelphia.

Mills, Robert
1972[1826]*Statistics of South Carolina*. Hurlbut and Lloyd, Charleston, South Carolina. 1972 facsimile ed. The Reprint Company, Spartanburg, South Carolina.

Mitchell, Faith
1999 *Hoodoo Medicine: Gullah Herbal Remedies*. Summerhouse Press, Columbia.

Montgomery, F.H.
1977 *Seeds and Fruits of Eastern Canada and Northeastern United States*. University of Toronto Press, Toronto.

Morton, Julia F.
1974 *Folk Remedies of the Low Country*. E.A. Seeman, Miami.

Mosser, Monique and Georges Teyssot (editors)
1991 *The Architecture of Western Gardens: A Design History from the Renaissance to the Present Day*. MIT Press, Cambridge, Massachusetts.

Muenscher, Walter Conrad
1980 *Weeds*. 2nd ed. Comstock, Ithaca, New York.

Munz, Philip A.
1974 *A Flora of Southern California and Supplement*. University of California, Berkeley, California.

Nelson, Lee H.
1968 *Nail Chronology as an Aid to Dating Old Buildings*. Technical Leaflet 48. American Association for State and Local History, Nashville.

Newman, Eric
1976 American Circulation of English and Bungtown Halfpence. In *Studies on Money in Early America*, edited by Eric Newman and Richard Doty, pp. 134-172. American Numismatic Society, New York.

Niering, William A. and Nancy C. Olmstead
1979 *The Audubon Society Field Guide to North American Wildflowers, Eastern Region*. Alfred A. Knopf, Inc., New York, New York.

Noël Hume, Ivor
1969 *Glass in Colonial Williamsburg's Archaeological Collections*. Archaeological Series 1. Colonial Williamsburg Foundation, Williamsburg, Virginia.

1978 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf, New York.

Norman-Wilcox, Gregor
1965 Pottery and Porcelain. In *The Concise Encyclopedia of American Antiques*, edited by Helen

Comstock, p.132-161. Hawthorn, New York.

O'Conner, Terry
2000 *The Archaeology of Animal Bones*. Texas A&M University Press, University Station, Texas.

Oldenburger-Ebbers, Carla S.
1992 Garden Design in The Netherlands in the Seventeenth Century. In *The Architecture of Western Gardens: A Design History from the Renaissance to the Present Day*, edited by Monique Mosser and Georges Teyssot, pp. 163-165. MIT Press, Cambridge, Massachusetts.

Olsen, Stanley John
1968 Fish, Amphibian, and Reptile Remains from Archaeological Sites. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University 56 (2).

Olsen, Sterling R. and Maurice Fried
1959 Soil Phosphorus and Fertility. In *Soil: The Yearbook of Agriculture*, edited by Alfred Stefferud, pp. 94-100. U.S. Department of Agriculture, Government Printing Office, Washington, D.C.

Oswald, Adrian
n.d. *The Archaeology and Economic History of English Clay Tobacco Pipes*. Museum of London, London.

Panshin, A.J. and Carl de Zeeuw
1970 *Textbook of Wood Technology*, vol. 1. McGraw Hill, New York.

Peirce, Donald C.
1988 *English Ceramics: The Frances and Emory Cocke Collection*. High Museum of Art, Atlanta.

Peterson, Lee A.
1977 *Edible Wild Plants*. Collier Books, New York, New York.

Phillips, Roger and Martyn Rix
1993 *The Random House Book of Vegetables*. Random House, Inc., New York, New York.

Pinckney, Roger
1998 *Blue Roots: African-American Folk Magic of the Gullah People*. Llewellyn Publications, St. Paul, Minnesota.

Polhemus, Richard
1972 Excavation at Newington Plantation (38DR15). *Institute of Archaeology and Anthropology Notebook* 4:85-86.

Popper, Virginia S.
1988 Selecting Quantitative Measurements in Paleoethnobotany. In *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*, edited by Christine A. Hastorf and Virginia S. Popper, pp. 53-71. University of Chicago Press, Chicago.

Porcher, Francis Peyre
1863 *Resources of the Southern Fields and Forests*. Evans & Cogswell, Charleston, South Carolina.

Poyas, Elizabeth A.
1860 *Our Forefathers*: Their Homes and Their Churches. Walker,

Evans & Company, Charleston, South Carolina.

Price, Cynthia
1979 *19th Century Ceramics in the Eastern Ozark Boarder Region*. Monograph Series 1. Center of Archaeological Research, Southwest Missouri University, Springfield.

Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell
1968 *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press, Chapel Hill.

Reese, D.M.
1847 *An Encyclopaedia of Domestic Economy*. Harper and Brothers, New York.

Reitz, E.J.
1982 Application of Allometry to Zooarchaeology. Paper presented at the 39th Annual Meeting of the Southeastern Archaeological Conference, Memphis, Tennessee.

1986 Urban/Rural Contrasts in Vertebrate Fauna from the Southern Atlantic Coastal Plain. *Historical Archaeology* 20:47-58.

1988 Comparison of Zooarchaeological Evidence from Annapolis and Charleston. Paper presented at the 21st Annual Meeting of the Society for Historical Archaeology, Reno, Nevada.

1995 Pork on the Coastal Plain: Nutrition or Symbol? In *The Symbolic Role of Animals in Archaeology*, edited by K. Ryan and P.J. Crabtree pp.77-89. MASCA Research Papers in Science and Archaeology, Philadelphia.

Reitz, E.J. and D. Cordier
1983 Use of Allometry in Zooarchaeological Analysis. In *Animals and Archaeology:2. Shell Middens, Fishes, and Birds*, edited by Grigson and Glutton-Brock, pp. 237-252. BAR International Series 183, London.

Reitz, E.J. and M. Scarry
1985 *Reconstructing Historic Subsistence with an Example from 16th Century Spanish Florida.* Special Publication Series 183. Society for Historical Archaeology, Rockville, Maryland.

Reitz, E.J. and D.C. Weinand
1995 Vertebrate Fauna from the Nathaniel Russell House. In *Initial Archaeological Testing: The Nathaniel Russell House.* Archaeological Contributions 24. The Charleston Museum, Charleston, South Carolina.

Reitz, E.J. and E.S. Wing
1999 *Zooarchaeology.* Cambridge University Press, New York.

Reitz, E.J. and M.A. Zierden
1991 Cattle Bones and Status from Charleston, South Carolina. In *Beamers, Bobwhites, and Blue-points: Tributes to the Career of Paul Parmelee.* Edited by J.R. Purdue, W.E. Klippel, and B.W. Styles, pp 395-407. Illinois State Museum, Springfield, Illinois.

Reitz, E.J., I.R. Quitmyer, H.S. Hale, S.J. Scudder, and E.S. Wing
1987 Application of Allometry to Zooarchaeology. *American Antiquity* 52:304-317.

Reynolds, Fiona (editor)
2001 *Rooted in History: Studies in Garden Conservation*. The National Trust, London.

Rhoades, Robert E.
1993 The Golden Grain: Corn. *National Geographic Magazine* 183(6):92-117.

Reitemeier, R.F.
1960 Soil Potassium and Fertility. In *Soil: The Yearbook of Agriculture*, edited by Alfred Stefferud, pp. 101-106. U.S. Department of Agriculture, Government Printing Office, Washington, D.C.

Richardson, Emma B.
1943 *Charleston Garden Plats*. Leaflet No. 19. The Charleston Museum, Charleston, South Carolina.

Rogers, George C., Jr.
1984 Gardens and Landscapes in Eighteenth-Century South Carolina. In *British and American Gardens in the Eighteenth Century*, edited by Robert P. Maccubbin and Peter Martin, pp. 148-158. Colonial Williamsburg Foundation, Williamsburg, Virginia.

Rogers, George C., Jr., David R. Chesnutt, Peggy J. Clark, editors
1976 *The Papers of Henry Laurens*. Vol. 5. University of South Carolina Press, Columbia.

Rosengarten, Theodore
1987 *Tombee: Portrait of a Cotton Planter*. McGraw-Hill, New York.

Rouse, J.E.
1973 *World Cattle III: Cattle of North America*. University of Oklahoma Press, Norman.

Rovner, Irwin
1990 Fine-Tuning Floral History with Plant Opal Phytolith Analysis. In *Earth Patterns: Essays in Landscape Archaeology*, edited by William M. Kelso and Rachel Most, pp.297-308. University Presses of Virginia, Charlottesville.

Salley, A.S., Jr. and R. Nicholas Olsberg
1973 *Warrants for Lands in South Carolina, 1672-1711*. University of South Carolina Press, Columbia.

Salwen, Bert and Sarah T. Bridges
1977 Cultural Differences and the Interpretation of Archaeological Evidence, Problems with Dates. *Research and Transactions of the New York Archaeological Association* 17(1):165-173.

Sarudy, Barbara Wells
1998 *Gardens and Gardening in Chesapeake 1700-1805*. John Hopkins University Press, Baltimore.

Savannah Unit, Georgia Writers' Project
1940 *Drums and Shadows: Survival Studies Among the Georgia Coastal Negroes*. University of Georgia Press, Athens.

Schoenwetter, James
1990 A Method for the Application of Pollen Analysis in Landscape Archaeology. In *Earth Patterns: Essays in Landscape Archaeology*, edited by William M. Kelso and Rachel Most, pp.277-296. University Presses of Virginia, Charlottesville.

Schopmeyer, C.S., editor
1974 *Seeds of Woody Plants in the United States*. Agricultural Handbook 450. U.S. Department of Agriculture, Forest Service, Washington, D.C.

Scott, S.L.
1981 Economic and Organizational Aspects of Deer Procurement in the Late Prehistoric Period. Paper presented at the 38th Annual Southeastern Conference, Asheville.

Scurry, James D.
1980 *An Archaeological Reconnaissance of the Eagle Creek and Chandler Bridge Creek Channelization Project, Dorchester County, South Carolina.* S.C. Institute of Archaeology and Anthropology, Columbia.

Seabrook, Whitemarsh B.
1848 *An Essay on the Agricultural Capabilities of South Carolina*. John G. Bowman, Columbia.

Searfoss, Glenn
1995 *Skulls and Bones*.. Stackpole Books, Mechanicsburg, Pennsylvania

Shaffer, E.T. H.
1939 *Carolina Gardens*. University of North Carolina Press, Chapel Hill.

Sheridan, Richard B.
1985 *Doctors and Slaves: A Medical and Demographic History of Slavery in the British West Indies, 1680-1834*. Cambridge University Press, Cambridge.

Silver, Timothy
1990 *A New Face on the Countryside: Indians, Colonists, and Slaves in South Atlantic Forests, 1500-1800.* Cambridge University Press, New York.

Simpson, G.O., A. Roe, and R. Lewontin
1960 *Quantitative Zoology*. Harcourt, Brace and Co., New York.

Smart, Tristine Lee and Ellen S. Hoffman
1988 Environmental Interpretation of Archaeological Charcoal. In *Current Ethnobotany: Analytical Methods and Cultural Interpretation of Archaeological Plant Remains*, edited by Christine A. Hastorf and Popper, pp. 167-205. University of Chicago Press, Chicago.

Smith, E. Ann
1981 Glassware from a Reputed 1745 Siege Debris Context at the Fortress of Louisbourg. *Parks Canada History and Archaeology* 55:75-255.

Smith, James Payne, Jr.
1977 *Vascular Plant Families*. Mad River Press, Inc., Eureka, California.

Smith, Shelley E.
1999 *The Plantations of Colonial South Carolina: Transmission and Transformation in Provincial Culture*. Unpublished Ph.D. dissertation, University Microfilms, Ann Arbor.

Smith, Henry A.M.
1905 The Town of Dorchester, in South Carolina - A Sketch of its History. *South Carolina Historical and Genealogical Magazine* 6(2):62-95.

1988a *Cities and Towns of Early South Carolina.* The Reprint Company, Spartanburg, South Carolina.

1988b *Rivers and Regions of Early South Carolina.* The Reprint Company, Spartanburg, South Carolina.

South, Stanley
1964 Analysis of the Buttons from Brunswick Town and Fort Fisher. *The Florida Anthropologist* 17(2):113-133.
1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.

Stewart, John and James Moore
1982 Chemical Techniques of Historic Mortar Analysis. *APT Bulletin* 14(1):11-16.

Stickler, Justin C.
2004 *Plant Utilization at Fort Mitchel (1RU102), 1813-1840:An Archaeobotanical Analysis*. Unpublished M.A. Thesis, Department of Anthropology, Florida State University, Tallahassee.

Stine, Linda France, Melanie A. Cabak, and Mark D. Groover
1995 Blue Beads as African-American Cultural Symbols. *Historical Archaeology* 30:49-75.

Sweeney, Kevin M.
1994 High-Style Vernacular: Life-styles of the Colonial Elite. In *Of Consuming Interests: The Style of Life in the Eighteenth Century*, edited by Cary Carson, Ronald Hoffman, and Peter J. Albert, pp. 1-58. University Press of Virginia, Charlottesville.

Taylor, Christopher
1983 *The Archaeology of Gardens*. Shire Publications, Aylesbury, England.

Taylor, Dale
1997 *Everyday Life in Colonial America*. Writer's Digest Books, Cincinnati.

Taylor, Patrick
1991 *Period Gardens: New Life for Historic Landscapes*. National Trust, London.

Thomas, D.H.
1971 On Distinguishing Natural from Cultural Bone in Archaeological Sites. *American Antiquity* 36:366-371.

Tomanova, Eliska
1986 *The Wild Flowers Book*. Galley Press, England.

Towne, C.W. and E.N. Wentworth
1950 *Pigs: From Cave to Cornbelt*. University of Oklahoma Press, Norman.

1955 *Cattle and Man*. University of Oklahoma Press, Norman.

Trinkley, Michael, editor
1990 *The Second Phase of Archaeological Survey on Spring Island, Beaufort County, South Carolina: Investigation of Prehistoric and Historic Settlement Patterns on an Isolated Sea Island*. Research Series 20. Chicora Foundation, Inc., Columbia.

1993 *Archaeological and Historical Examination of Three Eighteenth and Nineteenth Century Rice Plantations on the Waccamaw Neck*. Research Series 31. Chicora Foundation, Inc., Columbia.

Trinkley, Michael and Debi Hacker
1999 *Roupelmond: An Eighteenth and Nineteenth Century Interior St. Helena Parish Plantation, Beaufort County, South Carolina*. Research Series 53. Chicora Foundation, Inc., Columbia.

Trinkley, Michael and Kerri S. Barile
2003 Colono Ware Smoothing Stones. In *Archaeology at an Eighteenth Century Slave Settlement in Goose Creek, South Carolina*, edited by Michael Trinkley, Debi Hacker, and Nicole Southerland, pp. 129-131, Research Series 57. Chicora Foundation, Inc., Columbia.

Trinkley, Michael and Nicole Southerland
2004 *Cultural Resources Survey of Tranquil Hill Plantation, Dorchester County, South Carolina*. Research Contribution 407. Chicora Foundation, Inc., Columbia.

Trinkley, Michael, Debi Hacker, and Natalie Adams
1995 *Broom Hall Plantation: "A Good One and in a Pleasant Neighborhood"*. Research Series 44. Chicora Foundation, Inc., Columbia.

Trinkley, Michael, Debi Hacker, and Nicole Southerland
2003 *Archaeology At An Eighteenth Century Slave Settlement in Goose Creek, South Carolina*. Research Series 57. Chicora Foundation, Inc., Columbia.

Trinkley, Michael, Natalie Adams, and Debi Hacker
1992 *Landscape and Garden Archaeology at Crowfield Plantation: A Preliminary Examination*. Research Series 32. Chicora Foundation, Inc., Columbia.

Twiss, Page C.
1987 Grass-Opal Phytoliths as Climatic Indicators of the Great Plains Pleistocene. In *Quaternary Environments of Kansas*, edited by W. C. Johnson, pp. 179-188. 5 ed. Kansas Geological Survey Guidebook Series.

Uglow, Jenny
2004 *A Little History of British Gardening*. Chatto and Windus, London.

U.S. Department of Agriculture
1971 *Common Weeds of the United States.* Dover Publications, New York.

Vose, Ruth Hurst
1975 *The Antique Collector's Guides: Glass*. Crescent Books, New York.

Walton, Peter
1976 *Creamware and Other English Pottery at Temple Newsam House, Leeds: A Catalogue of the Leeds Collection*. Manningham Press, Bradford, England.

Warren, Phelps
1970 *Irish Glass: The Age of Exuberance*. Faber and Faber, London.

Weinand, D.C. and E.J. Reitz
1996 Further Studies of Vertebrate Fauna for the Nathaniel Russell House, Charleston, South Carolina. In *Big House/Back Lot: An Archaeological Study of the Nathaniel Russell House*, edited by M. Zierden, pp. 232-251. Archaeological Contributions 25. The Charleston Museum, Charleston, South Carolina.

Wheaton, Thomas R.
1989 *Drayton Hall Archaeological Testing of the Orangerie*. New South Associates, Stone Mountain, Georgia.

Wheaton, Thomas R., Amy Friedlander, and Patrick H. Garrow
1983 *Yaughan and Curriboo Plantations: Studies in Afro-American Archaeology*. Soil Systems, Inc., Marietta, Georgia.

Welch, P.D.
1991 *Moundville's Economy*. University of Alabama Press, Tuscaloosa.

Wells, Tom
1998 Nail Chronology: The Use of Technologically Derived Features. *Historical Archaeology* 32(2):78-99.

Whitaker, J.O.
1997 *National Audubon Society Field Guide to North American Mammals*. Alfred A. Knopf, New York.

Wilkie, Laura A.
1994 Magic and Empowerment on the Plantation: An Archaeological Consideration of African-American World View. *Southeastern Archaeology* 14:136-157.

Wine Journal
2006 Chateau Gruaud Larose. Electronic document, http://www.wine-journal.com/gruaud.html, accessed July 13, 2006.

Wing, E.S. and A.B. Brown
1979 *Paleonutrition: Method and Theory in Prehistoric Foodways.* Academic Press, New York.

Woodbridge, Kenneth
1986 The Nomenclature of Style in Garden History. In *British and American Gardens in the Eighteenth Century*, edited by Robert P. Maccubbin and Peter Martin, pp. 19-25. Colonial Williamsburg Foundation, Williamsburg, Virginia.

Yarnell, Richard A.
1974 Plant Food and Cultivation of the Salts Cavers. In *Archaeology of the Mammoth Cave Area*, edited by P.J. Watson, pp. 113-122. Academic Press, New York.

Yentsch, Anne E. and Judson M. Kratzer
1994 Techniques for Excavating and Analyzing Buried Eighteenth-Century Garden Landscapes. In *The Archaeology of Garden and Field*, edited by Naomi F. Miller and Kathryn L. Gleason, pp. 168-201. University of Pennsylvania Press, Philadelphia.

Zierden, Martha
2001 *Excavations at 14 Legare Street, Charleston, South Carolina*. Archaeological Contributions

28. The Charleston Museum, Charleston, South Carolina.

Zierden, Martha, Jeanne Calhoun, and Debi Hacker-Norton

1987 *Archdale Hall: Investigations of a Lowcountry Plantation*. Archaeological Contribution 10. The Charleston Museum, Charleston, South Carolina.

Zierden, Martha, Lesley M. Drucker, and Jeanne Calhoun

1986 *Home Upriver: Rural Life on Daniel's Island, Berkeley County, South Carolina*. Carolina Archaeological Services and The Charleston Museum, Columbia.

Zomlefer, Wendy B.

1994 *Guide to Flowering Plants Families*. The University of North Carolina Press, Chapel Hill and London.

APPENDIX A. FAUNAL TABLES

Slave Area Tables

Feature 4-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	1	5.67	0.1254	63.80
Unidentified Large Mammal-Burned	-	-	3	3.02	0.0711	36.20
Total	-	-	4	4	0.1965	100.00

Feature 5 (East)-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	1	100.00	1	81.35	1.378	89.30
Unidentified Large Mammal	-	-	6	6.91	0.1498	9.70
Unidentified Mammal	-	-	22	0.56	0.0156	1.00
Total	1	100.00	29	88.82	1.5434	100.00

Feature 5 (West)-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	1	0.02	0.0008	2.20
Unidentified Large Mammal-Burned	-	-	5	1.39	0.0354	97.80
Total	0	-	6	1.41	0.0362	100.00

Feature 6-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	1	100.00	1	0.3	0.0089	100.00
Total	1	100.00	1	0.3	0.0089	100.00

Feature 7 (East)-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Deer, *Odocoileus virginianus*	1	100.00	1	3.68	0.085	26.50
Unidentified Large Mammal	-	-	15	11.46	0.2361	73.50
Miscellaneous Unidentified	-	-	15	0.12	-	-
Total	1	100.00	31	15.26	0.3211	100.00

Feature 7 (West)-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	13	1.55	0.039	39.70
Unidentified Large Mammal-Burned	-	-	9	2.4	0.0578	58.80
Unidentified Small Mammal	-	-	1	0.04	0.0015	1.50
Total	-	-	23	3.99	0.0983	100.00

Feature 8-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	1	100.00	6	22.9	0.4403	50.90
Unidentified Large Mammal	-	-	58	12.14	0.2478	28.70
Unidentified Large Mammal-Burned	-	-	32	8.31	0.1768	20.40
Total	1	100.00	96	43.35	0.8649	100.00

Feature 9-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	8	1.46	0.037	12.80
Unidentified Large Mammal-Burned	-	-	10	12.36	0.2528	87.20
Total	-	-	18	13.82	0.2898	100.00

Post Hole #4-Slave Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	1	100.00	2	0.39	0.0113	100.00
Total	1	100.00	2	0.39	0.0113	100.00

Slave Area-Basic Units

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	1	50.00	24	197.93	3.0674	51.00
Pig, *Sus scrofa*	1	50.00	8	85.61	1.4427	24.00
Unidentified Large Mammal	-	-	53	59.19	1.0411	17.30
Unidentified Large Mammal-Burned	-	-	24	21.32	0.4128	6.90
Unidentified Mammal	-	-	117	2.09	0.0511	0.80
Total	2	100.00	226	366.14	6.0151	100.00

House Servants Area Tables

Feature 1 (Level1)-House Servants

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	2	15.32	0.3067	100.00
Total	-	-	2	15.32	0.3067	100.00

Feature 1 (Level 2)-House Servants

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	1	50.00	4	10.96	0.2269	22.50
Unidentified Large Mammal	-	-	8	22.83	0.4391	43.50
Unidentified Large Mammal-Burned	-	-	5	3.39	0.0789	7.80
Skate/Shark, *Rajidae* spp.	1	50.00	2	2.27	0.2548	25.20
Unidentified Fish	-	-	2	0.28	0.0103	1.00
Miscellaneous Unidentified	-	-	13	1.05	-	-
Total	2	100.00	34	40.78	1.01	100.00

Post Hole #1-House Servants

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	18	16.85	0.3341	100
Total	-	-	18	16.85	0.3341	100

House Servants-Basic Units Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	3	23.08	49	835.81	11.2153	39.31
Horse, *Equus caballus*	1	7.69	2	65.53	1.1343	3.98
Pig, *Sus scrofa*	1	7.69	34	73.95	1.2646	4.43
Deer, *Odocoileus virginianus*	2	15.38	12	358.55	5.2361	18.35
Opossum, *Didelphis virginiana*	1	7.69	1	1.96	0.0482	0.17
Grey Squirrel, *Sciurus sciurus*	1	7.69	1	0.45	0.01282	0.04
Unidentified Large Mammal	-	-	391	477.2	6.7725	23.74
Unidentified Large Mammal-Burned	-	-	159	122.44	1.9909	6.98
Unidentified Mammal	-	-	106	8.64	0.1831	0.64
Unidentified Mammal-Burned	-	-	4	1.05	0.0275	0.10
Mammal Subtotals	9		759	1945.58	27.88532	
Turkey, *Melagris gallapavo*	1	7.69	1	1.88	0.0363	0.13
Chicken, *Gallus gallus*	1	7.69	2	0.5	0.0109	0.04
Unidentified Bird	-	-	11	7.84	0.133	0.47
Unidentified Bird-Burned	-	-	1	0.31	0.007	0.02
Bird Subtotals	2		15	10.53	0.1872	
Box Turtle, *Terrapene carolina*	1	7.69	1	0.92	0.0299	0.10
Unidentified Turtle	-	-	4	1.05	0.0327	0.11
Unidentified Turtle-Burned			1	0.55	0.0212	0.07
Reptile Subtotals	1		6	2.52	0.0838	
Skate/Shark, *Rajidae* spp.	1	7.69	2	3.57	0.3761	1.32
Fish Subtotals	1		2	3.57	0.3761	
Miscellaneous Unidentified	-	-	502	8.86	-	-
Miscellaneous Unidentified-Burned	-	-	5	0.6	-	-
Totals	13	99.98	1289	1971.66	28.5324	100.00

Main House Area Tables

Feature 10-Main House

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Eastern Cottontail, *Sylvilagus floridanus*	1	25.00	1	0.01	0.0004	0.60
Unidentified Large Mammal	-	-	1	2.02	0.0495	73.10
Unidentified Mammal	-	-	2	0.1	0.0033	4.90
Skate/Shark, *Rajidae* spp.	1	25.00	1	0.04	0.0079	11.70
Bass, *Micropterus* spp.	1	25.00	15	0.05	0.0023	3.40
Drum, *Scianidae* spp.	1	25.00	1	0.04	0.0036	5.30
Unidentified Fish	-	-	1	0.01	0.0007	1.00
Miscellaneous Unidentified	-	-	18	0.13	-	-
Total	4	100.00	40	2.4	0.0677	100.00

Feature 11-Main House

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	1	100.00	1	12.32	0.252	57.30
Unidentified Large Mammal	-	-	15	8.42	0.1789	40.60
Unidentified Mammal	-	-	11	0.32	0.0094	2.10
Total	1	100.00	27	21.06	0.4403	100.00

Post Hole #2-Main House

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Unidentified Large Mammal	-	-	4	3.49	0.081	88.30
Unidentified Mammal	-	-	1	0.37	0.0107	11.70
Total	-	-	5	3.86	0.0917	100.00

Main House-Basic Units Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Cow, *Bos taurus*	4	16.00	140	1428.79	18.1713	40.21
Cow, Bos taurus-Burned	-	-	1	16.65	0.3305	0.73
Pig, *Sus scrofa*	4	16.00	90	194.91	3.0253	6.69
Deer, *Odocoileus virginianus*	2	8.00	19	160.48	2.5398	5.62
Eastern Cottontail, *Sylvilagus floridanus*	1	4.00	4	3.07	0.0854	0.19
Grey Squirrel, *Sciurus sciurus*	1	4.00	2	0.94	0.0249	0.06
Rattus sp.	1	4.00	2	0.36	0.0105	0.02
Unidentified Large Mammal	-	-	798	1403.93	17.8865	39.58
Unidentified Large Mammal-Burned	-	-	44	47.35	0.8466	1.87
Unidentified Small Mammal	-	-	12	4.07	0.093	0.21
Unidentified Mammal	-	-	62	8.63	0.183	0.40
Mammal Subtotals	13		1174	3269.18	43.1968	
Turkey, *Melagris gallapavo*	1	4.00	5	3.69	0.067	0.15
Chicken, *Gallus gallus*	1	4.00	8	5.04	0.089	0.20
Chicken, Gallus gallus-Burned	-	-	1	0.13	0.0032	0.007
Duck, *Anantidae* spp.	1	4.00	3	2.56	0.048	0.12
Unidentified Bird	-	-	74	28.55	0.4311	0.95
Bird Subtotals	3		91	39.97	0.6383	
Box Turtle, *Terrapene carolina*	1	4.00	14	18.25	0.2213	0.49
River Cooter, *Chrysemys floridana*	1	4.00	18	40.1	0.3751	0.83
Unidentified Turtle	-	-	5	19.6	0.2322	0.51
Reptile Subtotals	2		37	77.95	0.8286	
Skate/Shark, *Rajidae* spp.	1	4.00	1	2.12	0.2402	0.53
Channel Catfish, *Ictalurus punctatus*	1	4.00	2	2.67	0.0507	0.11
Bass, *Micropterus* spp.	2	8.00	6	2.31	0.0552	0.12
Drum, *Scianidae* spp.	3	12.00	4	2.39	0.0741	0.16
Unidentified Fish	-	-	6	4,69	0.1036	0.23
Fish Subtotals	7		19	9.49	0.5238	
Miscellaneous Unidentified	-	-	309	27.01	-	-
Miscellaneous Unidentified-Burned	-	-	1	1.16	-	-
Totals	25	100.00	1631	3424.76	45.1875	99.99

Garden Area Tables

Feature 12-Garden Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	1	50.00	4	34.47	0.6362	61.60
Unidentified Large Mammal	-	-	15	16.18	0.3221	31.20
Unidentified Large Mammal-Burned	-	-	5	2.63	0.0628	6.10
Box Turtle, *Terrapene carolina*	1	50.00	1	0.21	0.0111	1.10
Miscellaneous Unidentified	-	-	1	0.98	-	-
Total	2	100.00	26	54.47	1.0322	100.00

Trench 7-Garden Area

Species	MNI #	%	# of Bones	Weight (Gm)	Biomass Kg	%
Pig, *Sus scrofa*	1	100.00	3	12.3	0.2517	64.00
Unidentified Large Mammal	-	-	6	6.5	0.1418	36.00
Miscellaneous Unidentified	-	-	16	0.12	-	-
Total	1	100.00	25	18.92	0.3935	100.00

Archaeological Investigations

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