

*Charleston through the Eighteenth
Century:
Archaeology at the Heyward-
Washington House Stable*



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Chapter I

Introduction

Introduction

The Heyward Washington house at 87 Church Street is located in the oldest part of the city of Charleston. The brick double house was built by Thomas Heyward in 1772 and visited by President George Washington in 1791 (figure 1). It was saved from certain destruction by The Charleston Museum and the Society for the Preservation of Old Dwellings in 1929 (Bland 1999:73). Since that time it has been operated by The Charleston Museum and open to the public. The Charleston Museum considers the house integral to its general mission to preserve and interpret the social and natural history of Charleston and the lowcountry.

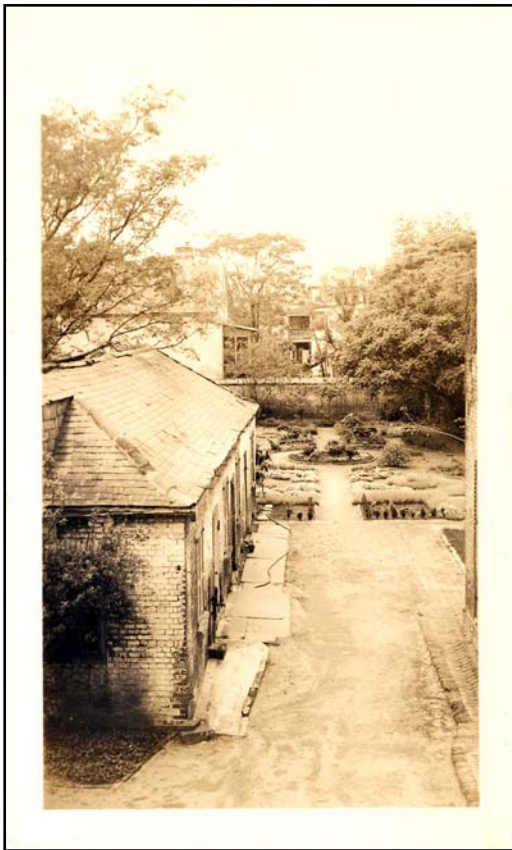


Figure 1: The Heyward house, c. 1880

Archaeological research serves the Museum as a source of both objects and interpretations of regional social history. Archaeological research at the Heyward Washington house has provided architectural details on the work yard, the outbuildings, and the main house. Archaeology has also revealed the dwellings and activity areas of previous site residents. Archaeologists have unearthed thousands of artifacts used and discarded by the Heyward family, their resident slaves, and the property occupants both before and after the Heywards.

Several individuals and organizations worked with the Museum and the Preservation Society to save the Heyward-Washington house in 1929. The Society for the Cincinnati of South Carolina donated \$2500 toward the purchase of the building. As a result of this arrangement, the Heyward house has served as headquarters for the Society since 1930. The Society has occupied various spaces through the decades, and most recently proposed to renovate the carriage/stable building for this purpose. The restoration work was performed by T.W. Graham Restorations and coordinated by architect Glenn Keyes. The innovative project included construction of a new interior, including a wood floor, with minimal impact to the brick walls and building exterior.

The historic stable featured bare brick walls and a dirt floor; an interior brick chimney from the late 19th century and new roof and doors were the only post-colonial features (figure 2). Realizing that the renovation would impact, and render inaccessible, undisturbed archaeological resources, The Charleston Museum conducted archaeological testing prior to renovation and required archaeological monitoring during construction.



Archaeological excavations were conducted for four weeks in July 2002. Monitoring of construction, particularly excavation of service lines, continued through the first half of 2003.

The Heyward-Washington house is one of the few properties within the boundary of the 1711 walled city to be studied archaeologically. The early 18th century deposits at the Heyward site are particularly dense and well-preserved. Elaine Herold's excavations recovered numerous artifacts from the 1730s that have not been recovered elsewhere in the city and revealed many features associated with a 1730s smithy. The 1991 project revealed that the area beside the stable contained intact archaeological deposits. It was anticipated that the soil beneath the stable contained more of these early deposits, including additional evidence of John Milner's gunsmithing operation. The 2002 project also afforded an opportunity to examine and record intact stratigraphy that could relate to the deposits excavated by Herold.

Figure 2: The stable and restored garden, c. 1940s.

The excavations revealed intact stratigraphy, particularly zones associated with the 1730s, the 1740 fire, and the 1740s. Recovery of a sizeable cultural assemblage from

these tightly-dated zones provides an opportunity to examine the early colonial period in detail. These proveniences also produced a sizeable faunal assemblage, one directly comparable to the animal remains recovered from the city market (the Beef Market/City Hall site) in 2004. To this end, Museum funds designated for archaeological research (the Brickyard fund) were used to study the faunal remains recovered during the 1991 and 2002 projects. More modest analyses of soil morphology, pollen, and parasites were conducted, as well.

Previous Research

The Heyward Washington house is the location of the first extensive archaeological excavation in Charleston. The project conducted by Dr. Elaine Herold from 1973 through 1977 produced an unparalleled array of material culture, and the report preparation by Dr. Herold is still in progress. The areas excavated by Dr. Herold include the main house cellar, the area around and beneath the kitchen building, the privy, most of the yard area between the kitchen and the front of the stable, the driveway beside the main house, and the small area between the front of the house and the sidewalk. Figure 3 shows the location of Herold's excavation. Prior to Dr. Herold's work, Museum Curator Albert Sanders excavated the eastern portion of the privy and retrieved materials from pipeline excavation in 1971.

Herold conducted her excavations in five foot squares, and they were excavated in natural levels, whenever possible. The materials were hand excavated and screened through ½ inch wire mesh. Field notes, maps, and photographs were kept, and over 500 cubic feet of artifacts were collected. All of the materials were catalogued, and a preliminary report has been produced (Herold 1978). The preliminary report summarizes the history of ownership of the property and discusses some of the larger features and artifacts recovered at the site. Herold is still writing the final report for this largely volunteer project, and is in possession of field notes and photographs. Some laboratory notes, catalogue cards, and composite maps remain at the Museum, and are utilized to present an overview of data pertinent to the present study.

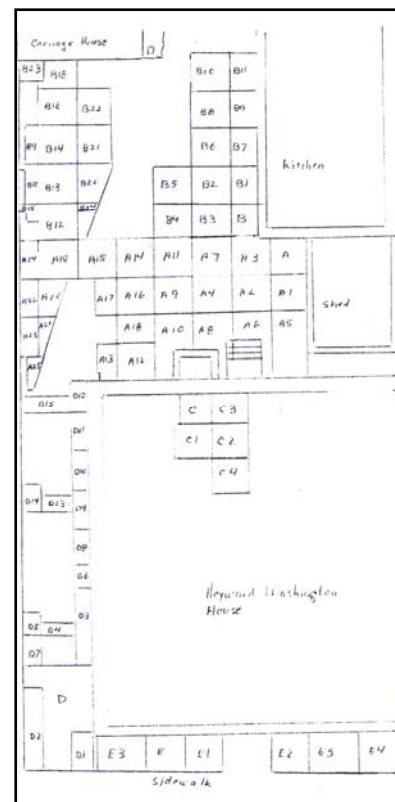


Figure 3: location of 1970s units

A small portion of the faunal remains from Herold's work was analyzed by Bruce Manzano, then a graduate student at the University of Tennessee, under the direction of Dr. Paul Parmalee (Manzano 1982). Mr. Manzano analyzed the faunal remains from the

privy pit (excavated in 9 levels) associated with the Heyward occupation, and from feature 166, a large pit deposited in the 1730s.

In 1991, the Museum engaged architect Glenn Keyes and restoration contractor Richard Marks to improve the drainage in the area between the kitchen, the stable, and the rear of the main house. Over the years, accretion of soil in the central path of the work yard caused rainwater to drain toward the north wall of the stable building, rotting the doors and sills. Remedies included re-grading the area and restoration of the early 19th century brick drain, located at the northeast corner of the stable. Test excavations along the north face of the stable were conducted by Zierden and Anthony and reported by Zierden (1993). The three units exposed the early 19th century drain and associated yard paving, the construction pit for the brick well located beneath the foundation of the stable, and the base of the stable foundation. The largest unit also revealed a detailed stratigraphic profile with eight superimposed zone deposits. These same deposits were encountered during the present project.

Role of the Present Project

The present project provided an opportunity to excavate a previously untested portion of the Heyward yard, and to recover stratigraphic and artifactual data relevant to the data recovery project conducted by Dr. Herold. The 1991 project suggested that undisturbed stratigraphy, from the 1730s through the 1930s, was present in the area of the stable building. Investigation of portions of the site adjacent to the yard area excavated by Herold could contribute to a clearer interpretation of the wealth of features encountered there. To this end, examination of the notes and collections from the outside yard, particularly the features pre-dating the Heyward occupation, were part of the laboratory analysis for the present project. Though the notes and documents from Herold's excavations are not complete, discussion and tentative interpretation of the available data are included in this report.

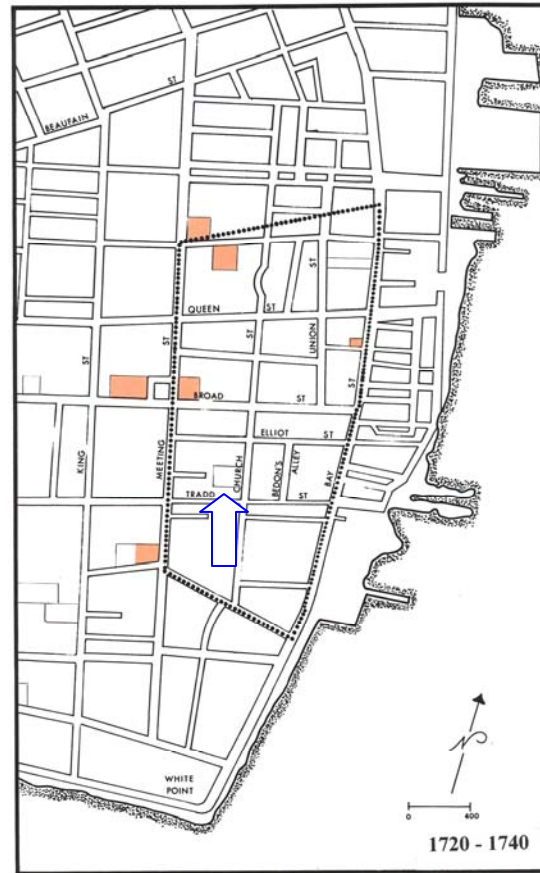
Based on both archaeological and documentary information, the deposits at the Heyward house may be grouped into four temporal assemblages:

1. The occupation of John Milner Sr. from 1730 until the fire (1730-1740).
2. The occupation by Milner and his son, from the 1740 fire until construction of the stable building by John Milner Jr. in 1750 (1740-1750).
3. The occupation of Milner Jr. from 1750, the Thomas Heyward family from 1772 to 1792, followed by that of the Grimke family from 1794 to 1824 (1750-1820).
4. The use of the property as a multi-family dwelling and business from 1824 until purchase by the Museum in 1929 (principally late 19th century).

Since the excavations of 1973 and 1991, archaeological research in Charleston has advanced on several fronts. For several years, Herold's project was the only extensive excavation conducted within the boundary of the early 18th century walled city. Further, it was the only large assemblage of features and artifacts from the first half of the 18th century. Two large projects conducted in the past decade provide an opportunity to

examine the early colonial period in greater detail. In 1997, New South Associates under the direction of J.W. Joseph excavated the block between Meeting and King streets, on the north side of Broad Street (Hamby and Joseph 2004). This site was located just outside the gate and ravelin of the city wall, and was occupied as early as 1720. Large block excavations provided insight on land use and material culture throughout the colonial period. In 2004, The Charleston Museum had the opportunity to excavate the colonial market, occupied as early as 1692, in the basement of City Hall (Zierden and Reitz 2005). This project revealed well-defined strata from the 1690s through the 1790s, and large quantities of animal bone, providing data on subsistence strategies in the colonial city (figure 4).

Figure 4: Sites in Charleston with closed contexts dating 1720-1740. The Heyward site is indicated by the arrow.



Research Issues

Archaeological research and protection are part of the general management plan for all of the Museum's properties. All excavations, whether they are designed for research or, as in the present case, to mitigate the effects of renovations, are guided by a series of research questions for the city (Rosengarten et al. 1987; Zierden and Calhoun 1984). Archaeological projects on Museum properties and on historic museum properties in the lowcountry, whether large or small, have three concurrent goals:

- 1) to provide direct evidence about site features and their evolution.
- 2) to contribute information to public interpretation of the house and grounds as relevant to the social history of Charleston.
- 3) to contribute data to ongoing studies of the urban landscape, including the social meaning encoded in its features and layout, animal use and provisioning in the city, and the material remains of its residents.

The Heyward property has been continuously occupied from 1730 to the present, and the entire range of occupation is reflected in the archaeological record, though the data vary in detail. Four occupation periods are defined for the site, and each will be

explored separately. The earliest period, that of gunsmith John Milner (1730-1740s), is reflected in the deepest zone deposit within the stable, as well as a range of features excavated by Elaine Herold. These were re-analyzed in some detail for the present project. Artifact assemblages, features, and maps are used to interpret this period. Data for the second period, the occupation by John Milner Jr., includes the extant kitchen and stable building, zone deposits excavated in the stable, and additional features from Herold's project.

The Heyward occupation is represented in the standing structures, the interior furnishings, and in a large proportion of the archaeological materials recovered by Dr. Herold. Herold discussed these finds in detail in the 1978 report, and so the data were not reexamined during the present project. The 2002 excavations yielded only a modest assemblage associated with the late 18th century. These are discussed relative to larger artifact assemblage.

The Heyward house was used as multi-family dwelling and business through the 19th century, and this period is also reflected in the archaeological record. Like the late 18th century assemblage, the stable deposits contained relatively few postbellum deposits. Herold's data were not re-analyzed for this project.

Interpretations of the Heyward data, relative to other sites in Charleston, are presented in three chapters. Interpretation begins with site-specific issues. Following site-specific analysis, the Heyward data will be explored in a larger, citywide context. The Heyward house is one of eight large townhouses and one of more than twenty-five Charleston sites to be investigated in the past two decades, by The Charleston Museum and other agencies. Research issues proposed two decades ago include site formation processes, subsistence strategies, socioeconomic status, rural-urban differences, spatial patterning, gender and ethnic identification, and the urban landscape (Zierden and Calhoun 1984). Topics were considered on a project-by-project basis, depending on the relevance of the site to that issue. In ensuing years, many of these topics have been revised and combined, and new issues from the fields of historical archaeology, art history, history, folklore, historical architecture, and zooarchaeology have been incorporated into Charleston research. The approach is hopefully more sophisticated and less linear than the research of the previous decade.

Chapter V considers the physical aspects of the archaeological record at the Heyward site. Charleston archaeological studies begin with analysis of the processes responsible for creation of the archaeological record. Building interpretation is considered next, as the excavations uncovered a number of details relating to the architecture and use of the stable building. From these site-specific issues, the buildings and living spaces of the compound constructed and used by the Heyward family are examined in comparison to other city properties to explore the urban environment of the late 18th and early 19th centuries

The material remains are discussed in Chapter VI. The artifacts from the separate temporal assemblages are proposed as a research base, in comparison to other

urban assemblages. The artifacts of the late 18th century – the possessions of the Heyward family – are discussed in relation to the issue of material status and the consumer revolution.

Chapter VII explores the presence and use of animals on the urban site. Analysis of the faunal remains recovered from Heyward is presented first. This is followed by a broader consideration of animal use in the city, and draws on data from the Charleston market and two-dozen other sites.

Site formation processes: Investigation of the processes responsible for creation and alteration of the archaeological site is a basic component of ongoing Charleston archaeology. In order to most fully interpret an archaeological site, it is first necessary to understand the physical and cultural processes responsible for the formation of that data base (Schiffer 1977, 1983). An archaeological site consists of a natural setting altered by the humans who occupied that site. Artifacts are introduced into the ground through a variety of methods, including discard, loss, destruction, and abandonment. Once in the ground, the artifacts –and their soil matrix – can be redistributed or they can be removed. Occasionally these activities are recorded in the documentary record and the two sources of data can be compared. Specifically of interest are those activities that introduce materials into the ground and reorganize them after deposit. Urban sites, which are densely occupied, are often a complex combination of such events.

Construction and Evolution of the Stable: The stable building is well preserved, but certain features are poorly understood. Excavation inside the stable in 2002, and outside in 1991, revealed details of the construction and use of the building. Interpretation of the evidence includes changes to the building in the 19th century.

The urban landscape: This ongoing study encompasses a number of topics, including terrain alteration, architectural developments, health and sanitation, and changing ideology. The study is based on the principal of a cultural landscape, the modification of land according to a set of cultural plans, embodying often-inseparable technological, social, and ideological dimension. Creation of the urban landscape encompasses deliberate as well as accidental actions, where the deliberate actions were guided by aesthetics and the accidental by the circumstances of ordinary urban life (Handsman 1977). Archaeological research on urban life focuses on buildings and the spaces between them, such as gardens, streets, and public domain (Harrington 1989; Leone 1984; Deetz 1990; Herman 2005).

The extensive excavations of the Judicial Center site provided data useful in expanding our understanding of the changing urban landscape. J.W. Joseph was able to document a previously unknown layout for urban lots in the early city, and their evolution through the 18th century to the footprint commonly recognized as the typical Charleston single house layout (Hamby and Joseph 2004). Elaine Herold's excavations revealed a similarly remarkable body of data on early 18th century lot use and changes to this by mid-century (Herold 1978). While Herold's preliminary report focused on recovered artifacts, the notes on file at The Charleston Museum provide additional data;

included in the records are maps of the features, and interpreted date of deposition based on recovered artifacts. A list of ceramics recovered by feature supports the proposed dates of deposition. To the extent possible from the field and lab notes on hand, data from the 1970s project are incorporated into the present discussion on Charleston's evolving landscape.

Definition of Temporal Assemblages: The Judicial Center and City Hall projects, together with the new data from the Heyward site, provide the opportunity to examine colonial Charleston in detail (Hamby and Joseph 2004; Zierden and Reitz 2005). All sites exhibit well-defined strata, datable to a single decade, and numerous features associated with both domestic and commercial activities. Considered together, the three sites provide baseline data on the city's material culture as they relate to Charleston's development throughout the 18th century. The sites will be considered separately, and together, to propose general artifact profiles for various periods.

Refinement and Consumerism: A focus of historical archaeology in general and urban studies in particular has been the delineation of socioeconomic status. Socioeconomic status refers to the relation of unequal distribution of goods in a market economy relative to economic and social differentiation (Spencer-Wood 1987:6). For nearly thirty years archaeologists working in Carolina have attempted to classify the artifacts they recover by function, or how they were used in the everyday life of their owners. Broad regularities, or patterns, in these proportions prescribe the average retinue of activities on British colonial sites (South 1977). Following standard quantification exercises, the relative proportion of a variety of artifact types will be examined, based on the work of King (1990, 1992) and many others in the mid-Atlantic region. Analysis of Charleston data using this methodology has provided additional details on proportions of consumer goods and their use by lowcountry residents (Zierden 2007). Materials from the pre-Heyward proveniences will be compared to temporally comparable data sets from the market site (Zierden and Reitz 2005) and from the adjacent Judicial Center project (Hamby and Joseph 2004). Materials from the post-1772 proveniences in the Heyward Washington stable will be compared to those from other elite townhouse sites to explore the issues of refinement and consumerism among Charleston's wealthy planter class. An underlying assumption of this latter study is that material culture served a sociotechnic function, and was used to define both the income level and the prestige level of its owners (Binford 1962; Deetz 1967, 1977; see also Carson et al. 1994).

Animal Use and the Urban Landscape: An often-overlooked aspect of the urban colonial landscape is the quantity and variety of domestic, commensal, and feral animals living in the city. Like the people who lived there, the activities of these animals shaped, and were shaped by, the urban landscape. Many aspects of the environment, from buildings to fences and walls, were designed to accommodate, and restrict, animals living in the city (Anderson 2004; Silver 1990; Walsh et al. 1997).

These resident animals were part of the larger efforts to provision the city. Included under the concept of provisioning are local production of food and fuel, importation of foods and fuels, transportation of goods to market, distribution to

consumers, and the social connections that facilitated economic exchange (Walsh et al. 1997; see also J. Anderson 1971; V. Anderson 2004; Taylor 1992). Analysis of the faunal remains recovered from the Heyward-Washington house and examination of these in relation to the greater Charleston faunal assemblage will contribute to research concerned with the production and consumption of foods in the colonial city. Though the results are not directly comparable, results of Bruce Manzano's analysis are considered, as well. Together, these studies provide a view of animals in the urban landscape, and changes in their usage from the period of initial settlement through Charleston's development as a commercial and social center of trans-Atlantic trade.

Chapter II Historical Development

(compiled in part from research by Dr. Elaine Herold, Ms. Sallie Doscher, and Ms. Jeanne Calhoun, all of The Charleston Museum at the time of their study)

The Settling of Charles Town

A group of English noblemen who found themselves on the profitable side of political upheaval in Britain received the Carolina colony as a reward. The earliest settlement was established in 1670, up the Ashley River at Albemarle point. The new settlers were led by veterans of the West Indian colonies, particularly Barbados. Oyster Point proved attractive to the colonists and, after some exploration, increasing numbers of them left Albemarle for the peninsula formed by the confluence of the Ashley and Cooper rivers. The leaders of the settlement not only recognized but sanctioned this trend.

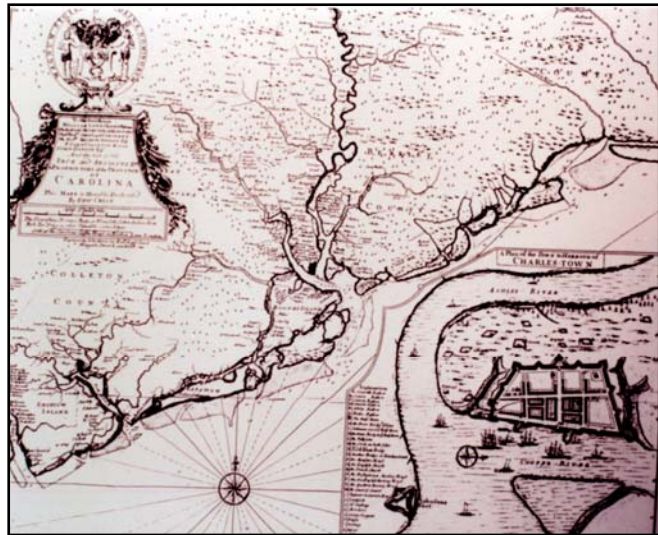


Figure 5: Charleston, c. 1711, by Edward Crisp

The area of relatively high bluffs and narrow marsh along the Cooper was best suited for shipping, and in 1680 the settlers founded a town bounded by present-day Water, East Bay, Cumberland, and Meeting streets. The early threats from the French and Spanish necessitated a fortified city, and the city walls were constructed by 1711. This planned city, known as the Grand Model, encompassed the high land from Oyster Point to Beaufain Street (Earle and Hoffman 1977). The town was laid out around a central square and divided by wide streets into deep, narrow lots, a plan characteristic of 17th century Irish towns colonized by the British (Reps 1965). While the new Charles Towne was a renaissance city in many ways, the surrounding town wall and steep roofs gave it a decidedly medieval atmosphere (Coclanis 1984). As the threat of invasion faded and prosperity rose, the city walls were dismantled; removal began in the 1720s and was completed by the 1740s (Poston 1997:49). The major fire of 1740 destroyed most of the early city, and the medieval-style architecture was replaced by more modern, Georgian structures.

The decade of the 1730s witnessed Charles Town's transformation from a small frontier community to an important mercantile center. When royal rule replaced an inefficient Proprietary government in 1729, following a revolt by the settlers, Charleston

entered the mainstream of the colonial economy. The development of outlying communities, following the Township Plan of 1730, brought an influx of products from the backcountry. Meanwhile, as rice became more profitable, lowcountry plantations rapidly expanded.

During this period, the merchants emerged as a distinct group; further, they began to invest their earnings in the local economy (Rogers 1980; Stumpf 1982). As the colony prospered, the merchants and planters emerged as the leaders of society; indeed, the two groups often overlapped, for planters engaged in mercantile endeavors, and merchants invested their earnings in land, becoming planters themselves.

Charleston's economic expansion in the 1730s was matched by physical expansion. By 1739 the city had grown well beyond the city walls and development was primarily to the west (Robert and Toms 1739; see figure 6 below). The city spread west to the banks of the Ashley River and south to the tip of the peninsula, though much of the peripheral area was only sparsely occupied.

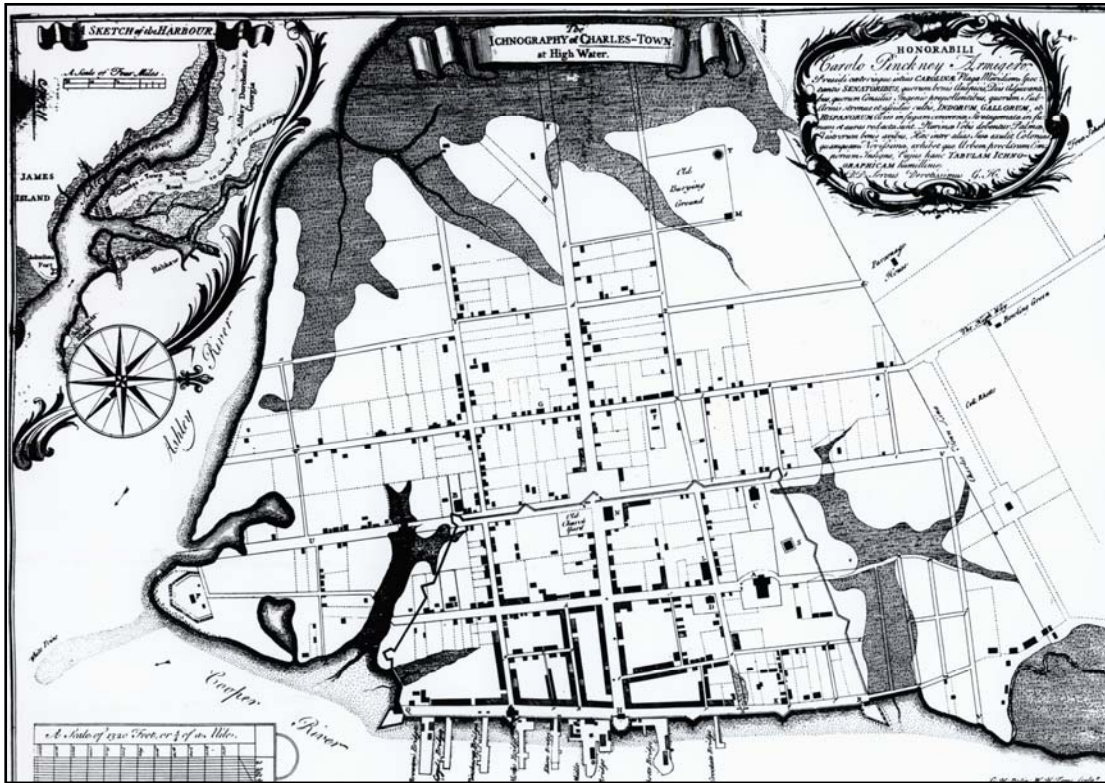


Figure 6: Charles Town in 1739, by Roberts and Toms.

As the 18th century advanced, Charles Town expanded in economic importance and in the relative affluence of its citizens. White per capita income was among the highest in the colonies (Weir 1983). As the planters and merchants gained in prosperity, they began to acquire goods more appropriate to their elevated station in life. By the mid-18th century, Charleston emerged as one of the largest and wealthiest cities in the

colonies (Weir 1983). Personal wealth poured into the colony from Europe in the form of furniture, silver, tableware, clothing and paintings. Imports were matched by a rise in local craftsmen, particularly cabinetmakers and silversmiths. They and their slaves produced this finery. This ascendancy of personal and collective wealth continued after the Revolution, peaking in the early 19th century (Rogers 1980:74; Green 1965).

Personal wealth was matched by a rise in imposing public and domestic architecture. Ironically, the devastating fire of 1740 cleared the way for construction of large structures in new styles. Public architecture on a grand scale is embodied in St. Michael's church, built in 1751, the State House on the opposite corner, and the Exchange building, built in 1769. On the domestic front, a number of large double houses were constructed during this period, in



some cases replacing earlier, more modest structures on the same lot. These changes are part of a general shift in architectural style that began in the third quarter of the 18th century (Herman 1989; Zierden and Herman 1990).

Figure 7: Public architecture of the colonial period. Left, the State House/Court House as it appeared in the 1790s. Right, the Exchange, built in 1769.

Development of the Heyward-Washington Property

The lot at 87 Church Street is within the bounds of the original city limits, termed the Grand Modell. The property, one half of lot 72, was granted to Joseph Ellicott in 1694. When Ellicott died that same year, he left his property to his son and two daughters. Current records do not reveal how the property left their hands. John Milner, a gunsmith, was in possession of the property in the 1730s. He was operating a gunsmithing business on this site by 1737, and living in a small wooden house with his wife and five children. In an advertisement for an adjoining property, Mr. “Miller’s” gunsmith is described as “the sign of the Pine Tree” (South Carolina Gazette, January 26,

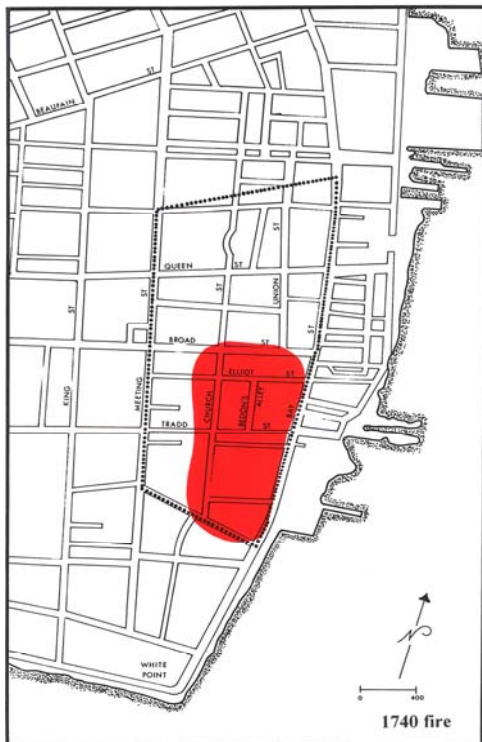


1740). The foundation of this house was encountered by Elaine Herold in 1975. The main house fronted the street along the south property line. It measured 24 feet in width and was 18 feet deep. Herold has suggested that Milner’s house may have looked like the Lining house at the northwest corner of King and Broad streets.

Figure 8: The John Lining house at the corner of King and Broad Streets, probably constructed before 1715 (Poston 1997:203).

Milner was a man of modest means, as were many of his neighbors in the 1730s. Herold identified several contemporary Church Street residents, many of them craftsmen like Milner. Neighbors include Abraham Knight, a tallow chandler and Mr. Cathcart, who advertised “rum, sugar, lime juice, earthenware, and glass decanters” for sale (SC Gazette, December 8, 1737). Other merchants and craftsmen advertising from Church Street at that time included a carpenter, a clock and watch repairman, an engraver from London, a milliner, and a woman who did needlework (Herold 1978).

Craftsmen were dispersed throughout the city during the 18th century, usually plying their trade on the same property that served as their residence; merchants, too, operated their stores on the first floor of their dwelling and lived in the ‘best’ rooms above (Herman 2005). Merchants tended to cluster along the waterfront and on three principal east-west streets leading across the city: Broad, Tradd, and Elliott streets. Craft enterprises, except for those deemed noxious, were dispersed throughout the city. Nearly 20% of the city’s craftsmen operated on Church Street in the 1730s through the 1760s (Calhoun et al. 1985).



Evidently, Milner’s house and outbuildings burned in the 1740 fire that devastated much of Charleston (Stoney 1976:133). John Milner submitted a claim to the British House for aid, reporting that he had lost much of his own property while salvaging arms for the government (Easterby 1951:479-486). Milner had cleaned and repaired arms for the Assembly since 1736; that year it was agreed that Major Robert Brewton should take steps to guard Milner’s house during holidays, to safeguard the public arms stored there (Easterby 1951:52).

Figure 9: Extent of the 1740 fire, in relation to the walled city.

Milner evidently resumed his business after the 1740 fire, for his son advertised that he continues his father’s business after his death in 1749. Herold located several features associated with the Milner’s smithing operation; it is not clear from the preliminary report whether they predate or postdate the 1740 fire. These include a barrel-lined well directly behind the house and a complex of furnace, forge, well, and other features associated with the smithing operation, all enclosed in a frame structure supported by posts. The structure may have been open on the north side.

At the time of his death, Milner owned eleven slaves, at least three of whom were skilled in the gunsmith business. In his will, he divided the slaves among heirs, but instructs them to sell two of the skilled men (table 1). After Milner's death, his son John Milner Jr. continued his father's business. According to the archaeological data recovered by Herold, the younger Milner built a brick single house as well as the present kitchen and stable building. The single house replaced the wood structure burned in the 1740 fire. The brick house was 18 feet wide and of unknown length. It abutted the present sidewalk and the north property line. Herold also found evidence of a paved work yard on the south and west sides of the single house. This paving extended to the area between the house and kitchen building and along the south side of the kitchen. Milner also constructed a well adjacent to the kitchen building and one integral to the foundation of the stable.

**Table 1: Will of John Milner, of Charles Town, Gunsmith
27 September 1749**

To loving sons John Jr. and Solomon all wearing apparel.
 To son John, my negro Fellow Prince a gunsmith and my mulatto Boy Slave Joe.
 Also my smiths pair of Bellows, an anvil and a vice.
 To Solomon, Negro slave Ladd Dandy and Negro boy Jack.
 To daughter Sarah, my Negro slave wench hester and my Negro slave Boy Isaac, the son of Celia;
 Also out of real estate the sum of 850 pounds, current money to be paid in 3 years , in
 meantime she be allowed out of rents and profits the sum of 70 pounds current money
 yearly.
 To daughter Mary, Negro slave wench Mariam and Negro slave Girl, the daughter of Celia, also 850
 pounds within 3 years.
 To daughter Martha, Negro slave wench Celia, also out of real estate 1000 pounds current money
 within 3 years, and in meantime she be allowed a sufficient maintenance.
 To wife Agathy, out of real estate, 500 pounds current money in 3 years.
 All real estate, subject to payments to 2 sons. Residue to be divided between 5 children.
 2 Negro men slaves, Prince a blacksmith and Jack a carpenter to be sold and money divided between
 5 children.

(Will proved 13 October 1749)

(WPA Project, Wills, vol. 6, p. 200)

The Revolutionary Era

In the first half of the 18th century, South Carolina had prospered under English rule; the demand for colonial commodities provided a favorable balance of trade. After the Seven Years War in 1763, relations worsened. Financial woes caused Britain to demand a greater share from the colonies. To secure collection of these monies, Parliament sought to tighten the administration of the Navigation Acts. Royal placemen arrived in Carolina to take over the lucrative and important positions that had previously been filled by some of the most respected men in the colonial community (Rogers 1980:41; Calhoun 1986). The government also sought to impose several direct and indirect taxes upon the American colonists. Soon, however, the people of the colonies

found a rallying cry in the idea of "no taxation without representation". It was agreed that Parliament had the power to legislate for the American colonies; it was not agreed that the body also had the power to tax them. The struggle that began in an effort to alleviate Britain's national debt evolved into a political quarrel predicated upon principals implied in the Magna Carta (Calhoun 1986). On July 4, 1776 the American colonists proclaimed their independence from the British empire.

The first attempt to conquer South Carolina came in 1776 when the Royal Navy attacked Fort Sullivan, later Fort Moultrie. After a second unsuccessful attack in 1779, military operations ceased. British troops languished on nearby sea islands, as the onset of warm weather made the lowcountry unhealthy and oppressive.

The British forces returned to the attack in 1780. General Clinton moved part of his forces overland from Savannah to Charleston; the majority came by sea to the southern end of Johns Island and then over to James Island. By February 14, the British main force had occupied James Island and began to deploy towards the city. General Clinton launched his attack from the landward side, down from the neck of the peninsula, as well as by sea. American General Lincoln, badly outnumbered and outmaneuvered, was forced to surrender the city on May 12, 1780. The British occupation of Charleston was to last until December 14, 1782 (Borick 2003).

The loss of Charleston was considered by many Americans to be their greatest defeat of the Revolution. Not only was a major seaport in possession of the enemy, but nearly 6,000 troops, seven generals, and the Lieutenant Governor of the state (Christopher Gadsden) had been taken prisoner. The British saw this as a psychological, as well as military, victory; it was expected that the dashed hopes of the patriots would lead to political reconciliation. The loss of Charleston, however, produced a "directly contrary effect" (Calhoun 1986).

Under the articles agreed upon by Lt. Governor Gadsden and British Commander-in-Chief Cornwallis, it was stated:

1. all public property would go to the victor,
2. Continentals would remain prisoners until exchanged,
3. members of the militia could return to their homes as paroled prisoners and would not be disturbed in the possession of their property unless they broke their parole,
4. all townspeople, whether they had borne arms or not, would be treated as militia prisoners on parole.

The British conveniently ignored these stipulations. During their occupation, many Carolinians suffered sequestration of their property, the quartering of troops in their homes, imprisonment in the 'dungeon' of the Exchange, internment on warships in the harbor, and exile. They were also plundered of 'enormous wealth'. Systematic and official looting is estimated to have resulted in a loss of goods and slaves totaling 300,000 pounds sterling. Commissioners of captures were in charge of the booty and assigned it

by rule; the share of a major general was about 4,000 guineas. Many soldiers looted solely for their own benefit, virtually guaranteed of immunity from prosecution. Slaves were a highly lucrative commodity and thousands of them were taken by the British and sold in the West Indies. Thousands more who had hastened to join the British sickened and died (Wallace 1961:294).

The Heyward Property before and after the Revolution.

Milner was forced to sell the property in 1768 due to heavy debts. Col. Daniel Heyward purchased the property from the provost marshal in 1770. Col. Daniel Heyward was born in 1720 on James Island. He was the fourth generation of the family to be born there, and the first to leave the island (Doscher 1977). Daniel Heyward and his first wife, Mary, had three children. Thomas, the oldest, was born in 1746, followed by Daniel (1750) and William (1753). After Mary's death in 1761, Daniel married Jane Elizabeth Gignilliat and the couple had three children; James (1764), Nathaniel (1766), and Maria (1767). Col Daniel Heyward moved to Granville County and established Old House plantation, which became the heart of the family estate and the beginning of the Heyward rice-planting dynasty. By 1771, Daniel Heyward was known as "the greatest planter in this province" (Doscher 1977). That year, the newly widowed Col. Heyward married his third wife, Elizabeth Simons, she at 24 and he at 51. She was responsible for the care of the three young children from his previous marriage; by this time Thomas Jr. was 25. Col. Heyward sold the property at 87 Church Street to his son, Thomas the same year, and a year later purchased a town house on Meeting Street, south of present-day Hibernian Hall (RMCO B4:59-61).

Though Daniel Heyward owned a number of urban properties, he considered his plantation lands "home". In a letter to son Thomas in 1777, Col. Heyward indicated "we have been regaleing ourselves in town for a month and now begin to think of returning home". At the time of his death in 1777 at The Euhaws plantation, Daniel Heyward owned 16,000 acres of plantation lands, a house and three lots in Beaufort, and a house and lot in Charleston. Portions of his rice lands remained in the family until the early 20th century. Among his many enterprises was creation of a cotton manufactory. In 1777, the manufactory produced 6,000 yards of cotton fabric. Fellow planter Ralph Izard wrote, "Mr. Heyward has as many people (slaves) as any gentleman in the State and makes cotton enough to clothe them all". The South Carolina Gazette praised his manufactory as "an effective method of lessening the present exorbitant price of cloth", resulting from the non-importation agreements and the Revolution. Evidently, Daniel Heyward's death in 1777 ended this ambitious project (Doscher 1978).

In December 1770, Thomas Heyward returned to Charleston from London, where he studied law at the Middle Temple. He acquired the Church Street property from his father in 1771, and construction of the present house began shortly thereafter. The three-story brick double house was 42 feet wide and 48 feet deep. Heyward evidently razed Milner's single house to make room for the new structure and kept the existing kitchen

and stable. The documented date of house construction was supported by recovery of a coin dated 1772 in the bottom layer of the cellar stair well by Herold.

Construction of Judge Heyward's new house was evidently notable, as an advertisement by bookbinder James Taylor in 1773 lists his location as across from Thomas Heyward's (SC Gazette October 15, 1772). Other advertisements of the period suggest that the Church Street area was still part of the City's business district, though the types of businesses, and likely their clientele, had changed. In addition to Mr. Taylor, the bookbinder and stationer, there was a milliner, a doctor, and a confectioner who made fancy cakes and decorations (SC Gazette October 1, 1778, December 14, 1777; May 19, 1775). The store of Parker and Hutchins sold draperies, jugs, seeds, fire grates and fenders. Mr. Pike's Assembly room was the scene of dancing and fencing classes (SC Gazette April 3, 1772); later the property was the location of the St. Cecelia Society meetings. Mr. Valk's property was also used for auctions; real estate, slaves, furniture, and wines were sold in the assembly room (SC Gazette February 21, 1774). A new theatre was located at the corner of St. Michael's Alley (Herold 1978).

Heyward was prominent in South Carolina society, and is nationally known as a signer of the Declaration of Independence. He was admitted to the South Carolina Bar in 1771, and soon distinguished himself in the case of Haley vs. Delancey. His career and, likely, his political views, were shaped by his mentor, James Parson; Parson was a devoted supporter of the American cause. Thomas Heyward served on the Council of Safety and various Revolutionary committees, helped draft the state constitution of 1776, and was elected to the Continental Congress. As a lieutenant in the Charles Town Artillery, he saw military action at Beaufort and Savannah, and was wounded at the battle of Port Royal. Following the siege of Charleston on May 12, 1780, Thomas was paroled as a prisoner of war and held under house arrest. On August 27, he and 28 fellow Charlestonians were taken to the Exchange building and boarded on the *Sandwich*, under orders from Lord Cornwallis. On September 5, the *Sandwich* sailed for St. Augustine, Florida. While many of the patriots were held at the Castillo, a group of Charlestonians (including Thomas Heyward, John Neufville, William Massey, Edward Rutledge, Hugh Rutledge, Alexander Moultrie, Joseph Parker, and Thomas Grimball) were housed in the town. They "rented a stone house and large orange garden on the northwest corner of the Parade, belonging to Mr. Forbes" (Manucy and Johnson 1942). During the siege of Charleston and the British occupation of 1780-1783, the British confiscated property belonging to the patriots. Thomas Heyward lost many slaves from his White Hall Plantation

Thomas Heyward married "an accomplished young lady" and sister of a fellow law student, Miss Elizabeth Matthews in 1773. They moved into the Church Street house and furnished it in the latest wares. Furniture purchased from cabinetmaker Thomas Elfe included a "chamber table, double chest of drawers, and mahogany desk." During the War, Mrs. Heyward remained at the Church Street property with her sister-in-law, Lois Matthews (Mrs. George Abbot) Hall; her husband was also imprisoned in St. Augustine. Betsy Heyward had one child with her when the city fell in 1780, son Daniel, age 6. While at the house, Lois Hall gave birth to her 9th child.

On the first anniversary of the occupation, the British ordered all Charleston houses illuminated in celebration. Mrs. Heyward refused, and the house was pelted with brick bats and garbage. In the ensuing hysteria, Mrs. Hall, already weak from childbirth, died. Three months later, the imprisoned Charlestonians were exchanged and sent to Philadelphia. Betsy Heyward, her son Daniel, and 16-year-old Elizabeth Hall sailed for Philadelphia to join the family. While still in Philadelphia, Betsy Heyward died in childbirth, and baby Thomas died shortly thereafter.

The British evacuated Charleston in December 1782. After the Revolution, Heyward returned to Charleston, where he served as associate judge and an alderman in the new City government. The list of his service and affiliations is lengthy. In addition to political service, Heyward was a vestryman for St. Michael's Episcopal church, a founding member of the Charleston Library Society, and thus The Charleston Museum, and the St. Cecilia Society. In 1791 he was named a Trustee for the College of Charleston.

Like his father, Thomas Heyward embraced the life of a planter, and eventually left his career in law and public service to live in the country. The same year that he purchased the Church Street property from his father, he bought 710 acres in Colleton Country and 500 acres in Granville. White Hall plantation was the family seat. During the Revolution, Heyward provided provisions from his plantation, "4 bushels rice, 1 hog, 1 sheep, 4 calves" to the Euhaw Volunteers. His brother Nathaniel managed his plantations during his absences; nonetheless, much of his plantation estates were ruined by the war.

Thomas Heyward was elected the first president of the Agricultural Society when it was formed in 1785. In his inaugural address as president, Thomas Heyward suggested the members must "turn their attentions to the cultivation and improvement of their fields", they should restore them to their pre-war appearance, and increase productivity by experimenting with new methods of cultivation and crop rotation. Like many of his compatriots, he found it necessary to modernize as well as restore; historians have suggested that this post-war restoration was the impetus for the shift from inland swamp to tidal rice production (Rogers 1990). That same year, Heyward purchased four additional tracts in Granville County. The 1790 Federal Census listed Thos. Heyward, 44 in Beaufort District. Also in residence were son Daniel, 6, baby Thomas, 1, and Mrs. Heyward, 21. The census also listed 175 slaves. Heyward's total land holdings listed that year was 12, 057 acres. By comparison, the Beaufort District listed 585 slaveholders; only 20 owned between 100 and 200 people.

In 1786, Heyward married for a second time; his new wife was Suzanna Elizabeth Savage. She bore three children, Thomas (1789), James (1792), and Elizabeth (1794). In 1789, Heyward resigned his judgeship, and the family evidently spent a large part of each year on their plantation. Heyward's aunt, Rebecca Jameson, lived in the Church Street house and operated a boarding school for girls. The 1790 census lists 12 girls and 17 slaves in residence.

It was during Mrs. Jameson’s tenure that the house was rented to the City to serve as headquarters for President George Washington’s visit during his 1791 tour. In order to avoid offending the many citizens who offered lodging, President Washington deliberately chose an unoccupied abode for his lodgings. Mrs. Jameson, an astute business woman, evidently would not accept less than L60 for her trouble. President Washington noted in his diary that his “very good” lodgings were the furnished house of a gentleman “at present residing in the country, but occupied by a person placed there on purpose to accommodate me”. President Washington later visited the Heywards at White Hall Plantation (Lipscomb 1993).



Figure 10: Charleston in 1788

Heyward offered the house for sale in 1792, describing it as having “12 rooms with a fireplace in each, a cellar and loft; a kitchen for cooking and washing with a cellar below and five rooms for servants above; a carriage house and stables, all of brick surrounded by brick walls” (South Carolina Gazette, May 16, 1792). The house was rented to Robert Smith at the time of the advertisement; in 1794 Heyward sold the property to John F. Grimke.

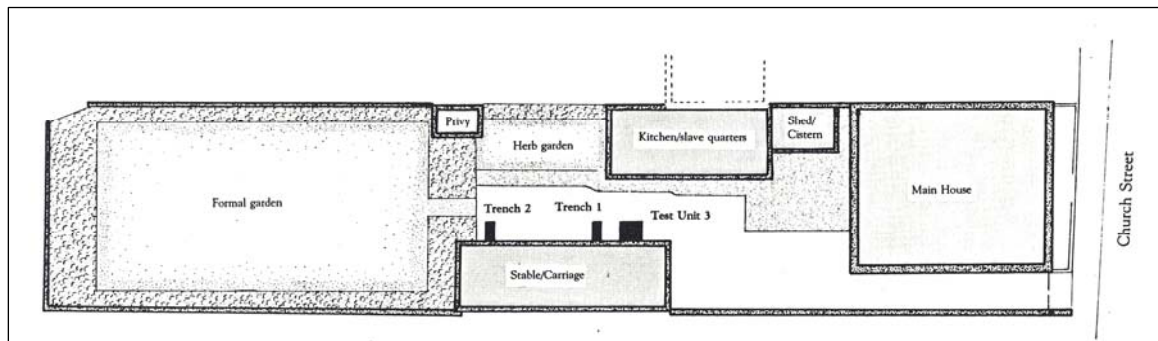


Figure 11: Features of Thomas Heyward’s lot

Thereafter, the Heywards evidently rented a townhouse for their time in the city; in 1796 they rented 18 Church Street. The 1800 census lists the Heyward family and 12 slaves in residence in the Charleston district. In 1803 he purchased no. 18 Meeting from his half-brother Nathaniel. The house was returned to Nathaniel after his death in 1809. Thomas Heyward died at White Hall plantation, “the last survivor of the Delegates of this State, who signed the Declaration of Independence” (South Carolina Gazette, April 22, 1809). He was buried next to his father in the family cemetery at Old House Plantation (Trinkley and Hacker 2000:17)

At the time of his death in 1809, Thomas Heyward was embroiled in a lawsuit with family members. When his father died in 1777, Thomas Heyward was named trustee of Daniel’s estate and guardian for his minor children. Four lawsuits were brought by these siblings and their spouses between 1796 and 1806, alleging mismanagement of the estate. Despite Thomas’ argument that he used profits from the estate to provide for the siblings and to improve the land, the Court sided with the plaintiffs. In order to pay the fees, Thomas Heyward mortgaged 18 Meeting. After his death in 1809, Mrs. Heyward continued to work to resolve the debt. In a final agreement in 1823, Mrs. Heyward and her brother-in-law Nathaniel agreed to a settlement of \$15,000 for a debt of \$29,940. To satisfy this debt, Elizabeth Heyward mortgaged 115 slaves to Nathaniel.

Nathaniel Heyward (1766-1851) became one of the largest rice planters of his day. In 1788, he married Henrietta Manigault, and they were the parents of nine children. The Bluff plantation was the seat of his estate, which included 17 plantations, most of which were on the Combahee River. These included 5,000 acres of improved land and 30,000 acres of unimproved land. These were worked by 1331 slaves (Linder 1995). Nathaniel Heyward was one of the first to experiment with tidal rice production, and he is often credited with its introduction. His and brother James’ “use of water” was greeted with skepticism by neighbors, but their rice production per acre more than doubled (Clifton 1978).

The Church Street property has changed little since the 1792 description was published. Elaine Herold researched subsequent changes to the cellars of the kitchen and main house. The entrance to the cellar of the kitchen, which faced the rear of the main house, was sealed by the cisterns and sheds which infilled the area in the antebellum period. She suggests the dirt-floored cellar, used for storage of foodstuffs, was abandoned due to flooding. The cellar to the main house also saw numerous alterations. Archaeological evidence suggests the cellar entrance was covered by a porch that ran the length of the rear of the house. Date of construction for this porch is uncertain. Likewise, joist pockets in the façade and photographs from the early 20th century suggest the kitchen building at one time featured a porch or shed (see figure 14).

Agricultural Prosperity

It was rice, introduced in 1695 from Madagascar, that made Carolinians wealthy (Heyward 1937). It would require many years of experimenting, and many shiploads of enslaved Africans from that continent's rice growing region, before rice proved profitable. By the 1730s, the technique of inland rice production had developed to a point where rice became the most popular staple. The plantation economy expanded, bringing with it a financial stability (Rogers 1980, chapt. 3; Calhoun et al. 1982).

Between the 1690s and 1720 lowcountry planters experimented with different strains of rice and different cultivation methods. Much like other crops, rice was first planted in open upland fields and without irrigation. Kovacik and Winberry (1987) report that it was later discovered that growing it under flood conditions improved yields considerably, and planters then reclaimed swamps. African bondsmen cleared them of trees and stumps and built systems of dams, gates, ditches and canals to flood and drain fields at different times in the plant's growth cycle (Berlin 1998; Wood 1974; Smith 2002; Agha 2004). Remnants of these banks and ditches still transect many lowcountry swamps. Production of rice jumped from 8,000 barrels in 1715 to more than 40,000 by the 1730s. Inland swamp cultivation remained the major production technique through the colonial period, contributing to expanded settlement along the coast and the increased importation of slaves.

Indigo flourished on the high land where rice did not. But, like rice, it was a demanding crop, and fetid water was a characteristic. The plant needed little tending in the field. But processing indigo was more arduous than processing rice. When the leaves were harvested, slaves carried them to a series of great vats or tubs, where they fermented while laborers kept up a continuous pumping, stirring, and beating. The rotting indigo "emitted a putrid odor and attracted clouds of flies that only slaves could be forced to tolerate" (Berlin 1998:148).

Suzanne Linder further notes that the putrid waters of indigo processing also attracted mosquitoes. Malaria was a frequent and often fatal illness in South Carolina, and though the connection of this disease to the mosquito was unknown, indigo vats were always placed far away from homes. A substantial investment was necessary for indigo production because of the vats. These were often of brick or wood, and well sealed. The technique of lining in-ground indigo vats with sand and pitch has been attributed to African slaves, and "they jealously guarded the secret so that the masters never discovered it. A slave who possessed this special skill was greatly valued" (Linder 1996:44).



Figure 12: tidal rice fields on the Edisto River (collections of The Charleston Museum)

The third major agricultural development of the 18th century was the development of tidal rice cultivation. Richard Porcher (1985; Porcher and Fick 2005:298-299) has noted that the earliest mention of tidal cultivation is 1738, but it was another half century before the shift was complete. Tidal rice culture utilizes the tidal changes on rivers to irrigate and drain fields in floodplain swamps, though this technique can only be utilized in those parts of the river above the incursion of salt water. The swamps were diked and ditched, and the flow of water regulated by simple, yet ingenious, trunks. Although the shift to tidal culture demanded a considerable amount of labor, particularly in the reclamation of tidal swamplands, planters reaped large returns on their investments. From the mid-1760s to 1780 the population of enslaved African Americans doubled from 52,000 to 100,000 (Kovacik and Winberry 1987:72-74). Planters utilized their older inland rice fields as well as new tidal ones.

In the lowcountry, as in much of the South, slavery became synonymous with labor. The dependence upon slave labor proved detrimental to the technological and industrial development of South Carolina. In a situation where labor-intensive methods were often preferred, there was a distinct disincentive to modernize the agricultural sector. Industry suffered the same handicap, with the result that the South in general lagged significantly behind other areas in manufacturing and agricultural innovation and results. The development of Charleston as an export center for raw materials - and as a social center - had created a stable urban economy, but offered few opportunities for expansion (Chaplin 1993; Pease and Pease 1985).

By the early 19th century, prime rice lands had become so expensive that the investment in land and slaves necessary to begin a successful plantation was almost prohibitive; most successful rice planters had 'old money'. The shift to tidal rice production was principally an innovation of the elite, as only those already in the planter

class could afford this expansion. The concentration of land in the hands of a few was matched by a concentration of human property (Chaplin 1993:234-239; see also Rogers 1990; Clifton 1978; Foner 1983; Kovacik and Winberry 1987; Dusinger 1996; Rosengarten 1986). Two-thirds of the valued property owned by planters was human (Edgar 1998:285). Edgar suggests that, despite the continued wealth of many, there were signs that the state's economic health was "illusory" (Edgar 1998:284). As a center of this economy, Charleston steadily lost ground to other southern cities (Edgar 1998:287).

In the early 19th century, cotton replaced indigo as a crop suitable to high ground along the coastal plain, and planters reaped large profits similar to those derived from tidal rice. The first post-revolutionary cotton exported from Charleston to Liverpool arrived in 1785. In the 1780s Kinsey Burden of St. Paul's Parish began to experiment with Sea Island cotton as a profitable staple (Edgar 1998:270; Porcher and Fick 2005).



Experimentation with seeds eventually resulted in the green seed (short staple) and the black seed (long staple or Sea Island) types suitable to Carolina. By 1798, Sea Island cotton was established on the islands, and short fiber cotton flourished in the middle of the state. The development of the cotton gin to remove seeds made the labor required to produce the crop manageable. The successful utilization of the cotton gin resulted in twenty years of post-war prosperity for Charleston.

Figure 13: working upland fields (collections of The Charleston Museum).

The boom years of cotton from 1795 to 1819 did not last. The national depression that began in 1819 brought the commercial expansion of Charleston to a halt. Few merchants survived the 1820s (Greb 1978:18, 27; Rosengarten 1986:85). Although the economy soon stabilized, the city had begun a steady economic decline. Cotton planters and the business community of Charleston discovered that dependence on cotton and its international market made the local economy vulnerable to fluctuations over which they had no control (Rosengarten 1986:85-86). They later faced debilitating competition from newer cotton-producing areas in the American southwest (Calhoun 1986).

The city, too, operated on slave labor. Most enslaved black people were field hands, laborers, servants, or porters, but on plantations and in the city, some served as coopers, blacksmiths, brick makers, millwrights, carpenters, seamstresses, barbers, fisherman, pastry cooks, and in many other skilled occupations. Owners routinely "hired out" their slave artisans. A few won their freedom by buying it; masters manumitted others, especially house servants, in recognition of special services, or in response to sometimes familial affection. The emerging class referred to as "free persons of color" congregated in Charleston. All social and ethnic classes lived side-by-side in the 18th and 19th century city. Most pronounced was the side-by-side existence of the white planter families and their black bondsmen, in relatively crowded conditions and

sometimes under the same roof. With such close contact among people of various social strata, upper class people instead distinguished themselves through a complex system of symbolic dress and posture (Rosengarten 1986:27; Wade 1964; Greene and Hutchins 2004)).

Vague fears of retaliation by the enslaved majority reached a fevered pitch in 1822 with the discovery of the Denmark Vesey affair. Reportedly, Denmark Vesey masterminded a slave revolt to overthrow white authority and establish black control over the city. Born either in Africa or the West Indies, Vesey was brought to Charleston in the service of a sea captain. Purchasing his freedom with winnings from a lottery, he worked for more than twenty years as a carpenter in the city. Several witnesses testified that between six and nine thousand slaves had been recruited to the cause, some from as far away as Santee River plantations. Most of those accused, however, were from Charleston and its environs (Killens 1970; Rosengarten et al. 1987:63). One immediate consequence of the aborted uprising was the sentencing of 35 of the 131 accused to death. More long range consequences was a persecution of free persons of color, an expanded police department, and increasing restrictions on the manumission of slaves and various other "privileges" such as education and religion.

The Civil War

The prosperity of Charleston and the lowcountry was waning in the second quarter of the 19th century, as other ports such as New Orleans and New York usurped the position of Charleston. The expanding railroad system during these years largely bypassed the city. Moreover, City leaders stopped the rail lines at the city limit, leaving an expensive gap between the wharves and the rail terminal; this arose largely because of prohibitions on steam engines in the city and competition among wharf owners and porters (Rosengarten et al. 1987). But it was the Civil War and the aftermath that caused the economic demise of the lowcountry plantation system. Cotton prices rebounded after the onset of the war, but the Union blockade meant that crops could not reach European markets (Rosengarten 1986:86).

For several months following the firing on Fort Sumter, soldiers freshly mustered into Confederate camps around the city found it "hard to realize we are engaged in warfare." The light-hearted mood did not last. After the fall of Port Royal and Beaufort in November 1861, refugees from coastal islands crowded into Charleston. The city was blockaded and placed under siege, and repeated bombardments threatened the southern end of the peninsula (Burton 1970). Charlestonians moved to the upper wards, or to the piedmont or mountains. Although the damage caused by these shells was limited, the impact of the War on the city was nonetheless profound. Charleston's economy, debilitated by the War, remained stagnant through the remainder of the 19th century. The lower city, particularly the district burned in the 1861 fire, stayed in ruins for decades.

The War had created a new order of things. Former male slaves became citizens and voters; they joined freedwomen as taxpayers, and could make their own decisions

about where to live and work. One impact of emancipation was to give Charleston a black majority once again, through in-migration of rural freedmen. Contrary to the hysteria of many white planters, the motives of the black migration were deliberate and purposeful. Especially on very large plantations, workers tended to stay where they were until after harvest, so the massive movement of people didn't begin until the fall of 1865 (Williamson 1965). Many people who came to Charleston were looking for work or lost family members, or returning to the city from wherever their masters had taken them for safekeeping.

The emancipation of the enslaved laborers spelled the end of profitable rice production in South Carolina. The freedmen were forced by economic circumstance to work for low wages, but they refused to do the most dangerous and miserable tasks - the maintenance and digging of ditches and banks, which involved winter work in cold water. The lowcountry was still producing a significant portion of the nation's rice crop in the 1880s, but not so by the next decade. A mechanized system of rice production was successful in Arkansas and Louisiana, but the system did not work in the lowcountry. A series of severe hurricanes were the last blow. These destroyed the already fragile rice dikes up and down the coast. Hurricanes struck between Savannah and North Carolina in 1893, 1894, 1899, 1906, 1910 and 1911. The 1893 storm alone killed over 1,000 people. The last Santee River plantation to produce rice was David Doar's Harietta, in 1908 (Doar 1970; Dusinger 1996).

All over the city, white Charlestonians patched their houses, moved back in, and made do. Refurbishing, rebuilding, and new appointments would wait decades. Many took in boarders and other strangers. Others, like the widow of Governor R.F.W. Allston, turned their homes into businesses; Mrs. Allston returned to the Nathaniel Russell house on Meeting Street and opened a girl's school (Zierden 1996). Charleston had entered the 19th century at the forefront of civic competition, but ended the century far behind its rivals. This lack of progress rose from a fixation on cotton and rice agriculture in the antebellum period, followed by economic collapse and social reorganization. The phosphate boom of the 1870s provided only temporary relief to the city's economic stagnation (Shick and Doyle 1985). Natural disasters in the postbellum period, notably the earthquake of 1886 and a series of hurricanes in the 1890s, struck devastating blows. By the early 20th century the newly formed Board of Health was demanding civic improvements, but lack of funds stalled these efforts for years.

Many of the grand houses of the 18th and 19th centuries suffered from neglect, if not abuse, during this period. Ironically, many old buildings avoided razing because of Charleston's lack of economic progress. Nonetheless, it was misuse and neglect of such structures as the Heyward-Washington house and the Joseph Manigault house, saved by Sue Frost, that resulted in the birth of historic preservation in Charleston in the 1930s.

Church Street in the 19th Century

The Church Street property was purchased by John F. Grimke in 1794. He and his large family lived in the house until 1803 and rented it until 1824. John Grimke was a social equal to Thomas Heyward. He studied law in England and returned to Charleston in 1775. He served with the Revolutionary forces and was in the South Carolina State House of Representatives. He married Mary (Polly) Smith and together they had twelve children. Six were born during their tenure at the Church Street house, including Sarah Grimke, who would become a leading abolitionist (Lerner 1967). Sarah and her youngest sister, Angelina, eventually moved to Philadelphia, and became Quakers, educators, and writers. They campaigned for abolition of slavery and for social reform. They became early activists in the women's rights movement.

As young women, the sisters resisted their father's strong-willed advocacy of slavery and subordination of women. Angelina wished to become an attorney, but was forbidden from such study. Sarah became involved in the Quaker movement in 1818, when she took her father to Philadelphia for medical care. She returned to Charleston for a time after his death, and in 1829 convinced Angelina to convert to the Quaker faith and join her in Philadelphia. They continued their teaching and activism through the Civil War years.

John Grimke died intestate in 1818, and in 1835 the Master in Equity sold the property to Margaret Munroe, who had operated a boarding house here since 1820. The house apparently served as a multi-family dwelling throughout the 19th century. Herold suggests it was during Mrs. Munroe's tenure that the back porch was removed, the entry to the kitchen cellar closed, and the cistern and storage sheds added between the kitchen and main house. A small entrance to the kitchen cellar was added to the south side, and a storm drain was added to the yard. This brick drain ran from the stable, down the driveway, to the street.

Mrs. Munroe left the property in trust to her grandchildren, and by 1864 a single granddaughter, Elizabeth Jane Trott, was in possession of the property. Elizabeth Trott Cooke and her husband, Thompson H. Cooke, sold the property to Elizabeth Wehrhan in 1879. In 1883, Elizabeth Wehrhan Forstman sold the property to the baker, Henry Fuseler.

The Fuseler family used the property as a bakery and residence. They radically altered the first floor of the house to create a storefront for the bakery. They also built bake ovens behind the kitchen. The 1902 Sanborn map shows a number of additional sheds between and behind the kitchen and stable, covering much of what is now the garden area.



Figure 14: the pantry and cistern, added between the kitchen and main house in the 19th century.

Fuseler died in 1925, during a period of economic stagnation in Charleston. A great number of Charleston's old buildings were in disrepair, and single-family townhouses served as boarding houses or had been altered for businesses. While decay and neglect posed the greatest threat to Charleston's architecture it was the sale and removal of interior woodwork that moved some of Charleston's citizens to action (Bland 1999; Weyeneth 2000). Fuseler left his widow and heirs power to sell his real estate. When it became known that a "purchaser of old woodwork" planned to buy the paneling and ship it away, The Charleston Museum and the Society for the Preservation of Old Dwellings united, and took an option on the property in 1929.



Figure 15: the kitchen building with whitewashed first floor exterior.

The Heyward house, the first historic structure to be opened to the public, received a great deal of attention. Steps were immediately taken to remove the bakery storefront and restore the front entrance of the house. In 1931, Emma Richardson initiated restoration of the rear yard as a garden. At this time, the yard beyond the stable and privy was covered with concrete and broken brick. There was no specific documentation for the Heyward garden, but tradition, a few references in 19th century deeds, and the configuration of site features suggested that one existed. Facing a lack of site-specific data, Ms. Richardson designed a garden and selected plants typical of the late 18th century. The

Garden Club of Charleston has maintained this late 18th century garden ever since. The Charleston Museum has continued to operate the historic house as a public facility, and has gradually researched, restored, and maintained the house, outbuildings, and garden.

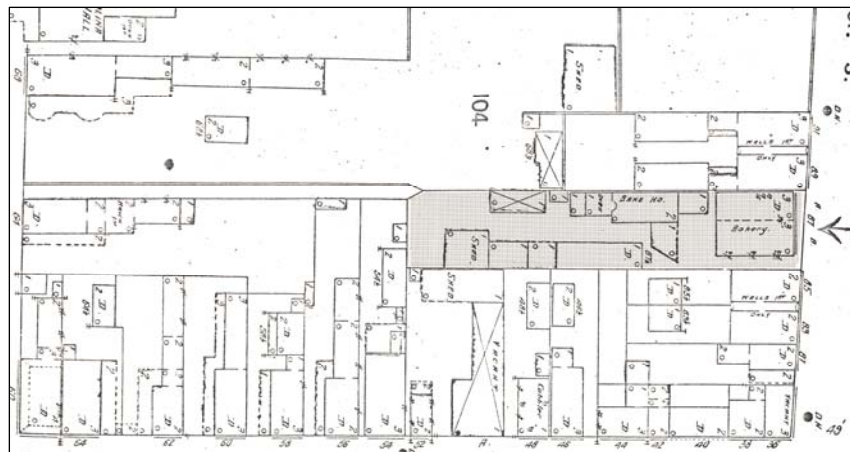


Figure 16: 1902 Sanborn map of the Heyward site.

Chapter III Fieldwork

Fieldwork

Because of the contained nature of the area to be studied, there was no attempt to establish, or re-establish, an overall site grid. The grid system for the 1974 excavation is unknown, and the 1991 project used a trench-unit method to establish individual test units in specific locations.

Units were located relative to the inside northeast corner of the stable building, and were given consecutive unit designations. Nails were placed at 5' intervals along the north wall of the stable building, and units were triangulated from these points. Each unit was located relative to the northeast corner. Five of the seven units were located against the north wall of the unit, and were placed to span the length of the building and thus provide a broad view of the deposition sequence across this portion of the site.

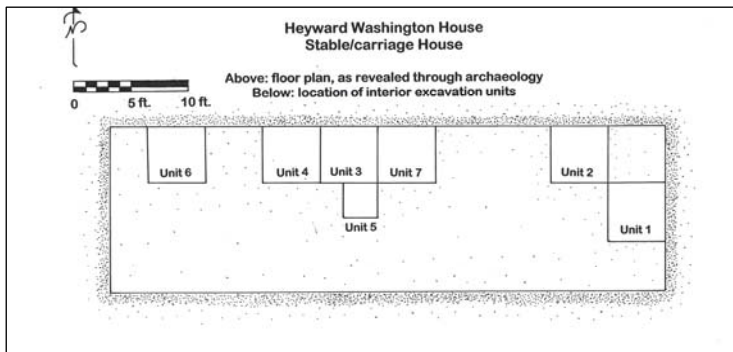


Figure 17: The Heyward stable and location of excavation units

Figure 18: managing backdirt and screening in a confined space.



Vertical control was maintained by establishing a series of datum points adjacent to the interior brick footer. The elevations of each of the four points were then measured with the transit, relative to the datum point used in 1991. This was the southeast corner of the top step of the rear door. Measurements inside the units were then made using folding rules and line levels below the datum points. Selected features and bottoms of units were also measured directly with the transit, as they were accessible.

Excavation was conducted by hand, using shovels and trowels. All materials were dry-screened through 1/4 inch mesh. All excavations, screening, and other field tasks were

accomplished inside the confines of the stable building. Management of back dirt piles was therefore a major consideration. Soil was sometimes screened adjacent to units, and at other times a convenient distance away. In several cases, piles of back dirt had to be moved for traffic flow, security of the excavated units, and convenience of work.

All materials were bagged and tagged separately, according to provenience. Cultural, faunal, and ferrous artifacts were bagged together, and later separated in the lab during the washing process. Charcoal was bagged separately, wherever appropriate. Soil samples and flotation samples were collected from each organically-rich provenience, and architectural samples were retained wherever appropriate.

Narrative notes were recorded on an ongoing basis, and were augmented by feature forms, excavation unit forms, photographic logs, and field specimen logs. All features were mapped and photographed prior to excavation, and two soil profiles were mapped for each unit. All features and profiles were photographed in black-and-white and color prior to excavation. Due to the lack of light in the building, Tmax 400 and Ektachrome 400 were used for many of the photographs. Other deposits were carefully photographed with Kodachrome 200, for archival stability.

Description of Excavated Proveniences

During the four-week project, over 380 cubic feet of soil (159 square feet) was excavated from 7 separate units. One hundred fifty seven discrete proveniences were designated and 37 new features defined. As is the case with most urban sites, the stratigraphy at the site was quite complex, but here the superimposed layers were clearly visible, and it was possible to correlate zones and proveniences between spatially discrete units. Likewise, the series of zones (particularly zones 3 through 6) were similar to those encountered outside of the stable building in 1991. The general stratigraphy of the site will be described below, and expanded in the description of subsequent units.

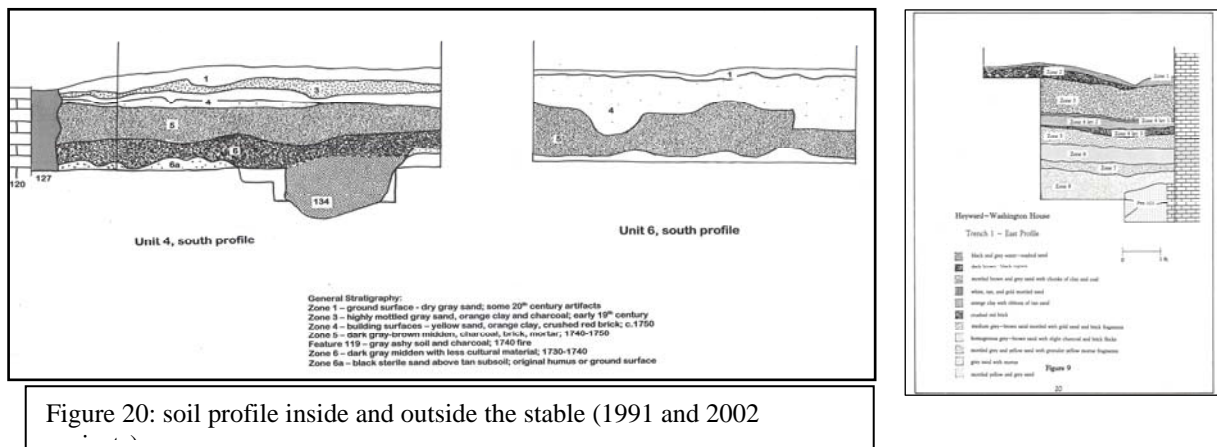


Figure 19: Unit 1, showing typical stratigraphy of the Heyward

The soils in the stable building consisted of a very shallow, dry zone 1, containing some modern artifacts. The next zone was a highly mottled gray sand mixed with orange clay,

designated zone 3 to correspond with the same deposit outside the stable. This contained mostly 18th century materials with some early 19th century artifacts. Zone 4 was a thin deposit of building surfaces, beginning with yellow sterile sand, followed by orange clay, and then crushed red brick. In some places, the three deposits were excavated as separate levels, while in other units the deposits were excavated together if they were mixed in the ground or too thin to be separated. All of these appear to be a building preparation surface for the stable, and date to c. 1750.

Below this was a deep midden layer, designated zone 5, containing animal bone and cultural materials from 1740 to 1750. The midden also contained charcoal, brick, and mortar, as well as flecks of orange clay. This deposit averaged .5' in depth and was excavated in two or three levels in each unit. This was followed in the front units by a layer of grey ashy soil and charcoal, designated feature 119, believed to be residue from the 1740 fire. Beneath this was a dark grey soil, similar to zone 5 but lacking the concentration of cultural materials and level of mixing found in the above zone. This was designated zone 6, and contained artifacts from c. 1730 to 1740. In the rear units, the interface of zones 5 and 6 was lacking the layer of ash, but still distinct. A thin layer of very dark humic soil was preserved in varying degrees at the base of zone 6, and interpreted as an original ground surface, or humus, for the site. This dark soil was variously excavated as a bottom level of zone 6, or as zone 6a. The humus deposit was followed by a leached zone, and yellow/orange sterile subsoil. The stratigraphy, then, reflects the occupation of the site from the earliest owner (John Milner in 1730) through construction of the building in 1750, with minimal disturbance to these earlier layers. Moreover, very little impact to the archaeological record occurred after construction and occupation of the stable building. Variations in the site formation process were noted in the center of the building, and these soils are described in the discussion of Unit 3.



Unit 1

Unit 1 was located adjacent to the front (or eastern) double door of the stable building. The unit was thus 5' south of the northeast corner of the building interior. The stratigraphy described above defined the unit. Zone 1 was quite shallow, about .2' in depth, and contained some modern material. The soil was very dry and powdery, and visibility in this zone was limited. The underlying soils were excavated as zone 1 level 2, due to lack of definability, but

were subsequently designated zone 3.



Figure 21: location of unit 1 and features intruding into zones 3-4 in unit 1.

Several features intruded into the underlying zones at the base of zone 3. Features 109 and 110 were located along the north wall of the unit, while feature 111 was located along the south wall. All three were small, rectangular deposits with straight sides and rounded bottoms, about 1.2 feet deep. Each contained dark, friable soil, much looser than surrounding zone deposits, possibly suggesting a backfilled post stain in surrounding hole, though these were not clearly defined. Each of the features was excavated in three levels, as excavation of surrounding zones proceeded. Structural or internal posts are a possible interpretation of the three features.

Also intruding into zone 4 was feature 112, a builder's trench for the east wall of the building. The edges of this feature were wide and irregular at the top of zone 4, but narrowed and became better defined as excavation proceeded. Feature 112 was excavated in 5 separate levels. This feature was a highly mottled grey-brown sand, orange clay, and yellow sand. A final feature was defined at this level. Feature 115 consisted of two whole brick laid side-to-side, with a small pit filled with dark friable soil beneath it. The bricks initiated in zone 3, while the underlying dark soil was defined in zone 5. An area of disturbance in the zone 4 soils were defined and excavated as feature 117, but this feature had no real definition.

The zone 4 deposits in Unit 1 were well defined, but very shallow, and so were excavated as a single level. The underlying zone 5 was relatively shallow here, only .3' thick, and was a dark grey-brown sand, 10yr4/3. The subsequent ash deposit, feature 119, was quite distinct here, and nearly .5' thick. Though the overall color was the same as zone 5, the ash was readily distinguished in natural light by its somewhat cloying nature and charcoal inclusions. The underlying zone 6 was darker, 10yr4/1, and more compact and homogenous than the overlying deposits. The dark humic layer at the bottom of zone 6 was minimal in Unit 1, and was present in planview in only a few small locations and not amenable to separate excavation. The profile revealed this zone much disturbed by bioturbation. Sterile subsoil was encountered 2.0' below surface.

Unit 2

Unit 2 exhibited stratigraphy that corresponded with that in Unit 1. Zones 1 and 3 (here still defined as zone 1 level 2) were excavated as a single provenience in this unit, due to dryness and poor visibility. Like Unit 1, several features initiated at the base of Zone 3. Feature 113 was a small square post-type stain, in the eastern profile, similar to features 109-111 in Unit 1. It was fairly well-defined and was 1.1' deep. The builders trench for the north wall of the stable was also well-defined, and was designated feature 114. This feature was excavated in four successive levels in this unit. The western profile of Unit 2 was particularly clear, and demonstrated that feature 114 initiated at the base of zone 3 and intruded into the prepared construction surface of zone 4. Zone 4 was thick and well defined in the southern half of the unit, but less so in the northern half. Levels 1 and 2, the yellow sand and the orange clay, were excavated as a single provenience, while level 3, the lens of crushed brick, was excavated separately.

An additional deposit was noted at the base of zone 4. This was a rounded 'mound' of mottled grey sand and orange clay in the northeast quadrant of the unit. This initiated beneath zone 4 and feature 114, and was clearly a later deposit than the underlying zone 5. It was distinguished from the surrounding zone 5 by the clay inclusions and by the hard-packed nature of the soil, in comparison to zone 5.



two levels. The upper level was difficult to discern, but proved to be a substantial postmold in posthole. The posthole consisted of orange clay, while the postmold here consisted of zone 5 soil 'slumped' into the feature. The soils excavated as the second level were different; here the posthole continued as mostly sterile orange soil, while the postmold fill was a dark grey sand filled with roughly crushed oyster shell. The second level was 1.1' deep, with an additional .4' in the upper level. Sterile subsoil was excavated along the western profile of Unit 2 to better expose feature 118.

Zone 5 was more substantial in Unit 2, nearly .5' deep. The underlying feature 119, the ash layer, was less substantial, but was denser in the southern portion of the unit. Zone 6 was dark and homogenous, and was .4' thick. The underlying humic layer here was more substantial, and was excavated as zone 7. An additional substantial feature initiated at the base of zone 5, and intruded into feature 119, zone 6, and the defined zone 7. This was designated feature 118, and was excavated in

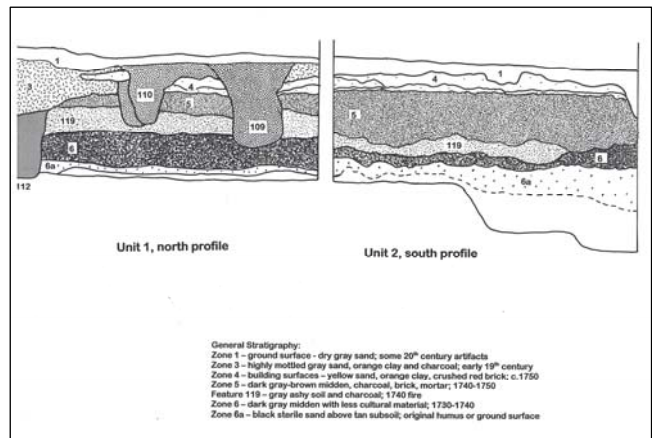


Figure22: photo and drawing of soil profile, Unit 2

This excavation of subsoil also better exposed the lower levels of feature 114 around the well located beneath the stable foundation. In the eastern portion of the unit, feature 114 initiated .3' below the ground surface and terminated 1.8' below surface. The portion around the brick well shaft continued much deeper, and appeared to be a single excavation. Because the construction trench for the well received a 1991 designation as feature 107, the levels of builders trench that continued below this point were excavated as levels of feature 107, rather than levels of feature 114. Feature 107 was defined at the top of sterile subsoil as a 'bow' of grey and yellow swirled sand.

The excavated levels of feature 107, which continued to a depth of 4.8 below surface, appeared to contain fill identical in content and condition to that excavated in feature 114 (grey sand mottled with orange clay and yellow sand), rather than one distinguishable by water-swirling or other variations in fill. The excavated soils, then, suggest the filling of feature 107 and feature 114 was a single event. This stands in contrast to the traditional interpretation that the well beneath the stable building foundation pre-dated construction of the building. One possible interpretation is that the upper portions of the well were rebuilt of brick at the time of construction of the stable house. Very ephemeral outlines in the sterile subsoil were tentatively interpreted as a separate, earlier builders trench for the well, but this remains unsubstantiated.

Unit 4

Unit 4 was located along the northern wall of the stable building, with the northern edge 30' to 35' west of the northeast corner of the building. The unit thus exposed the northern foundation of the building. After exposure of the brick foundation (feature 121) in Unit 3, at the base of zone 3 level 1, excavation of unit 4 included the western 1.35' of unit 3 (see discussion of unit 3 below). Zone 1 was very dry, and relatively hard-packed and shallow. The clay-mottled soils of zone 3 below were much deeper and more complex. Here the dark grey-brown soil mottled with clay defined as zone 3 contained areas of a mottled grey sand, designated feature 126. The lenses of feature 126 were thickest along the western edge of the unit, but present both below and above layers of zone 3. The zone 3 soils in this unit also contained a dense deposit of materials, including a number of clear glass beads.

A number of features, in addition to feature 126, initiated at the base of the first level of zone 3. Features 124 and 125 were squarish stains along the north wall that intruded into lower levels of zone 3. These were each about .8' in depth, and were excavated in two levels, as excavation of surrounding zones proceeded. A third post feature, in the southwest corner, was defined later, at the top of zone 5. This was designated feature 130 and was distinguished by a loose fill in the center. Feature 114, the builders trench for the stable, and feature 121, the builders trench for the internal wall, were also defined at this level, and excavated to a depth of .6' before excavation of the lower levels of zone 3 continued.

The zone 3 deposits were relatively deep in this unit, and appear to have disturbed and included the yellow sand and orange clay of zone 4, accounting for the high clay content in the

defined zone 3 soils. Excavation of two additional levels of zone 3 revealed an ephemeral lense of the red crushed brick defined as zone 4 level 3 elsewhere. This separated easily from the underlying zone 5. Features 114 and 121 were re-defined at the top of zone 5, and it became clear that feature 121 was the later event, intruding into feature 114. Excavation of these two features continued in levels to the base of the bricks in feature 121 (2.01' below datum) and to the top of sterile subsoil for feature 114. The base of feature 114 was not excavated in unit 4.

Zone 5 averaged .6' in depth and was excavated in two levels. As in the front units, zone 5 was distinguished from the underlying zone 6 by the quantity of inclusions in the soil, including bone, charcoal, brick and mortar, and artifacts. Both soils were a dark grey-brown (10yr4/3). Zone 6 was also excavated in two level, and contained a moderate amount of cultural materials, including an unusual glass bottle seal featuring a heraldic emblem, rather than the traditional name and date. The dark humus was present in a fairly intact state at the base of zone 6, and was excavated separately as zone 6a.

A large, amorphous feature was defined at the base of zone 6, intruding into sterile subsoil. The edges were difficult to define at the top, but the deposit continued for a foot and contained cultural materials. Upon completion of excavation, it appeared that feature 134 may have been two small pit, their tops disturbed by the overlying zone 6. Excavation of unit 4 was completed at this point.

Unit 6

Unit 6 was the westernmost test pit, extending along the north wall between 40 and 45 feet from the northeast corner. Stratigraphy here matched that of unit 4. Zone 1 and the underlying mottled grey soils (defined as feature 126 in Unit 4) were dry and very compact in this unit. Because the grey mottled soils were mixed throughout the unit, the underlying zone 3 deposits were excavated in three levels; both levels 1 and 2 contain some of the feature 126 soils.



Figure 23: Unit 6 profile.

An area of mottled soil adjacent to the north wall appeared to be the top of feature 114, the builders trench for the stable, but here it was wider and poorly defined, particularly in the center of the unit. An amorphous, loosely packed area was defined and excavated as feature 135, but it was relatively shallow. The amorphous soils excavated as level 1 of feature 114 may actually be the mixed zone 3 discussed above. These features plus the three defined levels of zone 3 were .8' deep.

very little evidence of zone 4 deposits in this unit. Some ephemeral areas of the red crushed brick were present, but these were too sparse for separate excavation. Zone 5 was clearly evident at the base of the zone 3 deposits, however. Feature 114

was also clearly defined for the first time at this level. Two additional features intruded into zone 5 from above, and were defined at this point. Feature 136 was a roughly rectangular area in the center of the unit, about 1.4' in diameter, full of loose, reddish soil (possibly containing some finely crushed brick). Feature 137 was a small rectangular stain in the southwest corner of the unit. Both were excavated prior to removal of zone 5.

Excavation then focused on the second level of feature 114. Here, a soft, amorphous area remained in the center of the feature, and this was excavated separately as feature 135. Feature 114 was then excavated to the base of the foundation. Zone 5 was excavated in two levels, and was deeper here, and less distinct from the underlying zone 6. Examination of the soil profile after unit completion revealed that zone 6 was definable only in the northern half of the unit, and that the southern half contained zone 5 soils to sterile subsoil. Zone 6 was defined and excavated in two levels, but it was noted in the field that the first level should likely be included with feature 5. Likewise, there was no distinguishable level of original humus present in zone 6. Sterile subsoil was encountered 1.9' below ground surface.

Three features were defined at the base of zone 6. These were all filled with dark grey-brown soil similar to the zone 6 fill. Feature 139 was a small round area in the southwest corner. It was too small to determine function. Feature 140 was an oval pit located in the center of the unit. It exhibited sloping sides and a rounded bottom, and appeared to be a trash pit similar to feature 134 in Unit 4. Feature 141 was an amorphous area in the northwest corner. It had an undulating bottom and poorly-defined sides, and may be a tree stain.

Unit 3

Three units located in the center of the building exhibited stratigraphy that varied from that found throughout the rest of the building, and just outside the building in the 1991 project. Definition of this new stratigraphy occurred with the excavation of Unit 3, located along the north wall of the building between 25 and 30 feet from the northeast corner. Here, zone 1 was relatively shallow and easy to define. Excavation of zone 1 revealed a small area of brick paving, adjacent to the central door in the north wall. This area was clearly a later addition to the building, and included only a small portion of brick, consisting mostly of half-bricks laid in an irregular, running bond pattern. This area of paving, designated feature 120, measured a little more than 2' by 2' and was left in place during the excavation of the remainder of the unit. The mottled clay soils defined as zone 3 were designated next, and excavation of the first level of zone 3 revealed the interior brick wall designated feature 121. It also became clear that the mottled soils of zone 3 were present only on the western side of feature 121.

From this point, only the soils on the eastern side of feature 121 were excavated as unit 3, and so the area excavated measured 3' by 5'. There were no zone 3 soils present in this area. Instead, zone 1 was followed by a dense rubble and refuse layer, distinguished by a heavy concentration of coal, followed by a concentration of white mortar. Because they did not appear to be a site-wide zone, this was designated feature 122. Feature 122 contained refuse dating to the late 19th century, including whitewares, shoe grommets, and clear glass marbles, as well as a

concentration of animal bone. The midden of feature 122 was excavated in three levels. The underlying white mortar layer, somewhat distinct from the coal layer above, was excavated as 'feature 122 zone 2'.

Beneath this was the dark grey-brown sand previously defined as zone 5, but it was clear from initial excavation that this soil contained later artifacts than the other deposits of zone 5. Whereas the previously described deposits of zone 5 dated from 1740 to c. 1750, the zone 5 soils in Unit 3 contained creamware and an occasional sherd of pearlware. Further, the zone was



relatively deep and there was no evidence of zone 6. It appears that the dark soils in this portion of the building were disturbed and filled after the c. 1750 building was in use; this will be discussed further in the interpretations. To distinguish this deposit from the undisturbed zone, this was designated zone 5A. Zone 5A was .7 to .9 feet deep, and sterile subsoil was encountered directly beneath it.

Figure 24: feature 121 and zone 5a in Unit 3

Three features were noted intruding into sterile soil. The first was a second builders trench for feature 121, designated feature 127, this time on the eastern side of the wall and initiating at the base of zone 5a. The gently sloping feature contained dark midden soil over a sloping band of mottled soil. Mortar trimmings were the principal artifacts encountered. A second feature (feature 129) was a small oval pit with straight sides and a flat bottom, 1.0' deep. A later discovery was a small, round stain .6' deep, with straight sides and flat bottom. This was partially excavated. The final feature in the unit was an oval area in the southeast corner of the unit, designated feature 128. This was first discovered as an area of mottled yellow and orange sand with an outer 'ring' of yellow and dark grey-brown mottled sand. Excavation of the portion contained in unit 3 suggested the feature was quite deep and that it was filled in sequence, with the outer area of dark mottled soil preceding the yellow soil in the center. Excavation continued to 3.0' below surface, and the feature continued beyond this point. Artifacts were sparse, but they suggested an earlier feature. For this reason, we decided to expand our excavations around Unit 3 to expose more of feature 128.

Unit 5

Unit 5 was a 3' by 3' unit adjacent to the southeast corner of unit 3. It was excavated to expose more of the presumed western half of feature 128. Stratigraphy in Unit 5 was identical to

that in Unit 3. Zone 1 was followed by feature 122 and then zone 5A. The zone 5A deposit in this unit was particularly rich in cultural and faunal materials. Zone 5A was excavated in a single level. This exposed sterile subsoil, feature 127, and feature 128. Excavation of feature 127 was fairly straightforward, with the feature retaining the definition suggested in unit 3. The dark soil was removed first, leaving the mottled 'collar'. Excavation then focused on feature 128, which also retained the definition first noted in unit 3. A first level included both the mottled band and the sterile center, as well as some pockets of residual zone 5a. The edges of the two features then became very confusing, and so the remainder of feature 127 and a second level of feature 128 were removed. This exposed a series of burned features, containing large chunks of charcoal and burned red sand. These were designated feature 131, 132, and 133, but upon excavation they proved to be burned tree roots.

Then a second level of feature 128 was removed, down to the level of previous excavation in unit 3, about 3.0' below surface. This exposed a large circular feature, with a sterile center and a mottled outer ring. The size and configuration strongly suggested a well, possibly lined with barrels or wood sheathing. Measurements of the exposed feature suggested a well shaft and construction pit of 5 to 6 feet in diameter. The sterile soil in the center contained no artifacts, while the mottled outer ring contained a few bone and ceramic fragments from the early 18th century.

We then decided to excavated a third adjacent unit, to the east, to expose the northern half of the feature (thereby exposing nearly three quarters). This would also serve the purpose of continuing the testing at regular intervals along the northern wall of the stable. Unit 7 was a 5 by 5 foot square, adjacent to the eastern wall of Unit 3, located 20 to 25 feet east of the northeast corner of the stable.

The ground surface of Unit 7 was particularly uneven, and was much higher along the stable wall, in the northern half of the unit, than in the center of the building. The unit exhibited the stratigraphy found in Units 3 and 5. Moreover, probing during the layout of Unit 7 revealed an internal wall (companion to feature 121) running north/south, 1.6' east of the eastern wall of Unit 7. These two walls defined a central room, and divided the stable interior into three sections. The middle section was interpreted as a tack room, and evidently featured an excavated basement or crawl space, accounting for the lack of intact zones 5 and 6, and the addition of late 18th to late 19th century debris.

The uneven ground surface was evidently the result of accumulation of recent soils, as the zone 1 deposit in this unit was relatively thick and full of material, particularly window glass and flower pot fragments. This was followed by feature 122, which was also dense and deep. Three levels of feature 122 were excavated. Compared to unit 3, there was less distinction between the upper levels dominated by coal and the lower levels dominated by mortar. The fill contained some 18th century material mixed with materials from the second half of the 19th century.

Zone 5A was also deep and dense here, and was excavated in four levels. The lowest level was removed to ensure that the interface of feature 128 and zone 5a was free of any later

materials. Several other features were noted at the base of zone 5A, further complicating interpretation of this interface. As expected, the northern half of feature 128 was contained in Unit 7, featuring the sterile sand fill in the center and a surrounding ring of highly mottled brown, grey, and yellow soil. The northern portion of the unit contained two additional features. Feature 142 was a squarish stain of dark grey sand, full of large brick fragments. This occupied the northeast quadrant of the unit. Feature 143 was a poorly defined oval area of dark grey sand overlying feature 128 and intruding into sterile in the northwestern portion of the unit. For visibility and access, the southern portion of the brick paving in unit 3 (feature 120) was removed, and the baulk beneath it excavated by zones. This exposed a third feature intruding into sterile soil, a small square post designated feature 145.

Excavation of feature 128 then commenced by levels. In anticipation of a separate depositional history, the well shaft fill (sterile sand) received a separate feature designation, as feature 144. When the appearance of the soils warranted, the two features were excavated



separately. Three arbitrary levels of feature 128 and 144 completed excavation of the features to the level previously reached in units 3 and 5 (3' below surface, 4.7' below datum). At this point, the sterile fill of feature 144 was distinct from the surrounding feature 128, and each exhibited vertical sides.

Figure 25: feature 128/144 in profile

Beginning with level 4, only the northern half of the feature was excavated (the portions contained in units 3 and 7, but not unit 5). This allowed a continuous east/west profile, and allowed greater access to the feature for excavation. Excavation then continued by arbitrary levels, about .75' deep. In level 5 (between 5.4 and 6.0' bd) the sterile fill of feature 144 retreated, replaced by a dark mottled soil. A crisp dark line was still visible between feature 128 and feature 144, however. At the base of level 6 (6.86' b.d.) the interior fill was not as organic, and was a grey water-washed sand. A small iron barrel stave was present in the feature at this point.

The water table was encountered at 7.8' below datum, and excavation of feature 128 was halted at this point. From here, the northern half of feature 144 was excavated below the water table, and sterile sand was encountered 2.6' deeper. The bottom of the feature was encountered

9.0' below the ground surface (10.6' below datum). The depth of the feature, as well as the similarity of soil and soil content between the two features in the lower levels, suggest that the well was never completed and used. It appears that water-washed sands rapidly filled the bottom levels of the shaft, and that the pit was not open long enough to receive deposits of refuse. The sterile nature of the upper levels of shaft fill indicates that the feature was filled completely at the time of construction of the stable. This will be discussed later in the interpretive section.

When sterile sand was reached in the feature 144 sample, excavation was halted. The profile was photographed and mapped, and then the rusted barrel stave was removed. Moments later, the sand profile began cracking and a large fissure opened between the southeast corner of unit 7 and the southeast corner of unit 5. We then hastened to backfill the block of units before this portion was lost, and we were successful in retaining the baulk. The fissure continued to separate and it is possible that this will introduce later materials into lower levels levels of soil in this area. Future excavators should make note of this location.

Construction Monitoring

Ground disturbance on the stable interior was minimal during building restoration. The interior flooring was suspended on piers, and excavation for these was minimal. Artifacts encountered during construction were retained by the crew from T.W. Graham Restorations, and delivered to the author. All of the recovered materials date to the late 19th century, indicating that disturbance of colonial deposits in the stable was minimal. The raised floor appears to be a sound solution to preservation of the remaining archaeological deposits.



The greatest archaeological impact was from the installation of service lines, from Church Street to the stable. This entailed excavation of a trench from the rear of the Heyward main house to the stable. This route was carefully chosen to avoid impact to above-ground, as well as below-ground features. Workers excavated a trench one foot wide and three feet deep along the southern wall of the house to the corner, and then straight to the front of the carriage house. The trench was placed to accommodate the necessities of the construction, but also to minimize impact to the archaeological record. According to Elaine Herold's records, the majority of this area was previously excavated. Only the easternmost 15' was unexcavated.

Figure 26: excavation of the service trench

As expected, the great majority of the trench was through backfill from the 1970s project, and the soil contained no artifacts. The only unexcavated area was a 12' strip from the southwest corner of the house. Here a number of early 18th century artifacts were retrieved. The southern profile was mapped and photographed. An intact brick foundation was encountered in the trench, 6.5' north of the main house. Further exposure of the brick foundation revealed that it was the terminus of the 1840s brick drain encountered during Herold's project. It intersects with the earlier drain that runs from the northeast corner of the stable to Church Street along the

drive. The trench location was moved around to avoid the drain, as the earlier portion is still in use.

Table 2
List of Features

Feature #	Unit	Description	Point of initiation,assoc.
109	1	rounded square post	base zone 1
110	1	rounded square post	base zone 1
111	1	post	base zone 1
112	1	square post	base zone 3
114	2, 3, 4, 6, 7	builders trench to stable building	base zone 3
115	1	area of soil along front wall	top fea 112
116	2	mound of mottled clay and sand	base zone 4
117	2	rectangular post	base zone 4
118	2	postmold in post hole	base zone 5
119	1,2	ash layer 1740 fire	under zone 5
120	3	area of brick paving	base zone 1
121	3	interior brick wall	base zone 3
122	3,5	lime/midden inside feature 121	base zone 3
123		same as 122	
124	4	square post	base zone 1/3
125	4	square post	base zone 1/3
126	4	area of mottled soil	base zone 1/3
127	3	builders trench to feature 121	base zone 5a
128	3	well construction pit	base zone 5a
129	3	large pit	base zone 5a
130	4	post	base zone 3/4
131	5	linear area of burned sand/charcoal	base zone 5a
132	5	oval area, gray sand and charcoal	base zone 5a
133	5	dark stain, possible post	base zone 5a
134	4	oval stain, possible post	base zone 6
135	6	oval stain	base zone 1
136	6	square area of reddish soil	base zone 3/4
137	6	square post	base zone 3/4
138	6	square post	base zone 1
139	6	oval stain	base zone 6
140	6	oval trash pit	base zone 6
141	6	oval pit	base zone 6
142	7	square area of building rubble	base zone 5a
143	7	amorphous area	base zone 5a

144	3/7	well shaft; associated with fea 128	base zone 5a
145	3/7	square area of mottle soil	base zone 5a

Table 3
Heyward – Washington Stable Proveniences: temporal divisions

Zone 6/7; 1730-1740

FS 67	Unit 2, zone 6
FS 66	Unit 1, zone 6
FS 70	Unit 2, zone 7
FS 73	Unit 1, zone 6 level 2
FS 118	Unit 4, zone 6
FS 126	Unit 4, zone 6 level 2
FS 127	Unit 4, zone 6a
FS 157	Unit 6, zone 6 level 1
FS 160	Unit 6, zone 6 level 2
FS 165	Unit 6, feature 139
FS 166	Unit 6, feature 140
FS 167	Unit 6, feature 141
FS 131	Unit 4, feature 134
FS 174	Unit 3, feature 145

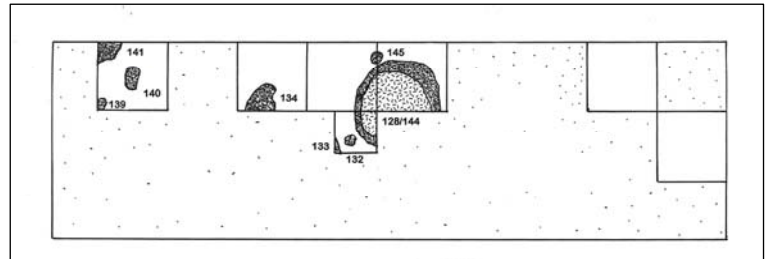
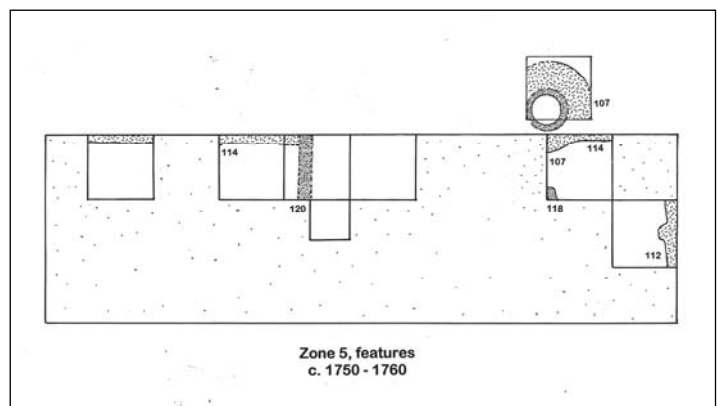


Figure 27: Features associated with zone 6

FS 103	Unit 3, feature 128
FS 130	Unit 5, feature 128
FS 168	feature 128, level 1
FS 169	feature 144 lev 1
FS 171	feature 144 lev 2
FS 173	feature 128/144 lev 3
FS 175	cleaning
FS 176	Feature 128/144 lev 4
FS 177	Feature 128/144 lev 5
FS 178	Feature 144 lev 5
FS 179	Feature 128 lev 6
FS 180	Feature 144 lev 6
FS 181	Feature 144 lev 7
FS 182	Feature 144 core
FS 183	Feature 142, Unit 7

Zone 5/Feature 119 1740-1750

FS 50	Unit 1, zone 5
FS 48	Unit 2, zone 5
FS 53	Unit 2, zone 5 level 2
FS 57	Unit 1, zone 5 level 2
FS 58	Unit 1, zone 5 level 3
FS 109	Unit 4, zone 5 level 1
FS 113	Unit 4, zone 5 level 2
FS 152	Unit 6, zone 5
FS 154	Unit 6, zone 5 level 2
FS 60	Unit 2, feature 119
FS 64	Unit 1, feature 119
FS 91	Unit 3, zone 5 level 3



FS 114	Unit 5, zone 5
FS 32	Unit 2, feature 114 lev 1
FS 44	Unit 2, feature 114 lev 2
FS 55	Unit 2, feature 114 lev 3
FS 65	Unit 1, feature 114 lev 1
FS 68	Unit 1, feature 114 lev 4
FS 99	Unit 4, feature 114 lev 1
FS 108	Unit 4, feature 114/121
FS 115	Unit 4, feature 114 lev 2
FS 120	Unit 4, feature 114 lev 3
FS 151	Unit 6, feature 114 lev 2
FS 158	Unit 6, feature 114 lev 3
FS 116	Unit 4, feature 121 lev 2
FS 121	Unit 4, feature 121 lev 3
FS 80	Unit 2, feature 107 lev 2
FS 83	Unit 2, feature 107 lev 3
FS 88	Unit 2, feature 107 lev 4
FS 90	Unit 2, feature 107 lev 5
FS 59	Unit 2, feature 118
FS 72	Unit 2, feature 118

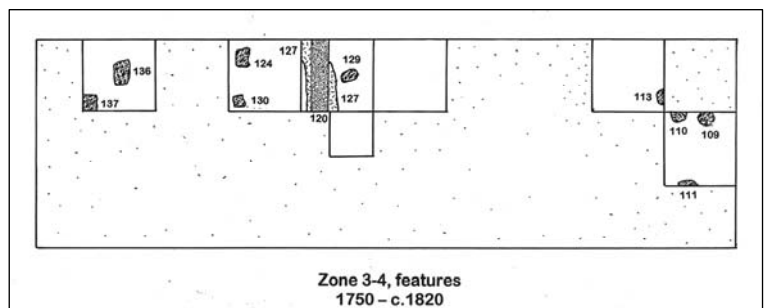
Figure 28: features associated with zone 5

Zones 3 and 4 1750-c.1820

FS 31	Unit 1, zone 4
FS 35	Unit 2, zone 4 lev 2
FS 36	Unit 2, zone 4 lev 3
FS 37	Unit 1, zone 4
FS 85	Unit 4, zone 3
FS 100	Unit 4, zone 3 lev 2
FS 105	Unit 4/3, zone 3 lev 3/zone 4
FS 107	Unit 4, top zone 4 lev 3
FS 132	Unit 6, zone 3 lev 1
FS 136	Unit 6, zone 3 lev 2
FS 143	Unit 6, zone 3 lev 3

FS 30	Unit 1, feature 109
FS 29	Unit 1, feature 110
FS 34	Unit 1, feature 112
FS 42	Unit 1, feature 112 lev 2
FS 49	Unit 1, feature 111
FS 51	Unit 1, feature 109 lev 2
FS 52	Unit 1, feature 110 lev 2
FS 54	Unit 2, feature 113 lev 2
FS 45	Unit 1, feature 112 lev 3
FS 69	Unit 1, feature 112 lev 4

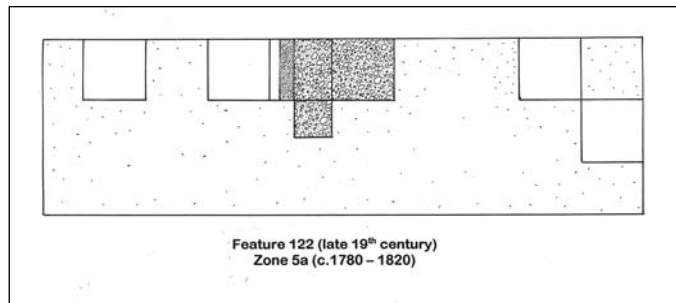
FS 87	Unit 3, zone 5A
FS 148	Unit 7, zone 5A\
FS 150	Unit 7, zone 5A lev 2
FS 153	Unit 7, zone 5A lev 3
FS 155	Unit 7, zone 5A lev 4
FS 156	Unit 7, zone 5A lev 5
FS 161	Unit 3 baulk, zone 5A



FS 96 Unit 4, feature 124
 FS 97 Unit 4, feature 125
 FS 98 Unit 4, feature 126
 FS 94 Unit 3, feature 127
 FS 102 Unit 3, feature 129
 FS 111 Unit 4, feature 130
 FS 135 Unit 6, feature 131
 FS 112 Unit 5, feature 123
 FS 147 Unit 6, feature 136
 FS 149 Unit 6, feature 137

FS 74 Unit 3, zone 3
 FS 62 Feature 110 level 3, Unit 1
 FS 38 Feature 116 level 1, Unit 2
 FS 46 Feature 116, west half, Unit 2
 FS 56 Feature 117, Unit 1
 FS 63 Feature 117 level 2, Unit 1
 FS 163 Feature 128/zone 5A, Unit 1
 FS 119 Feature 127, Unit 3
 FS 48 Feature 111/zone 5, Unit 1

Figure 29: features from zones 3-4



Zone 1 (late 19th Century)

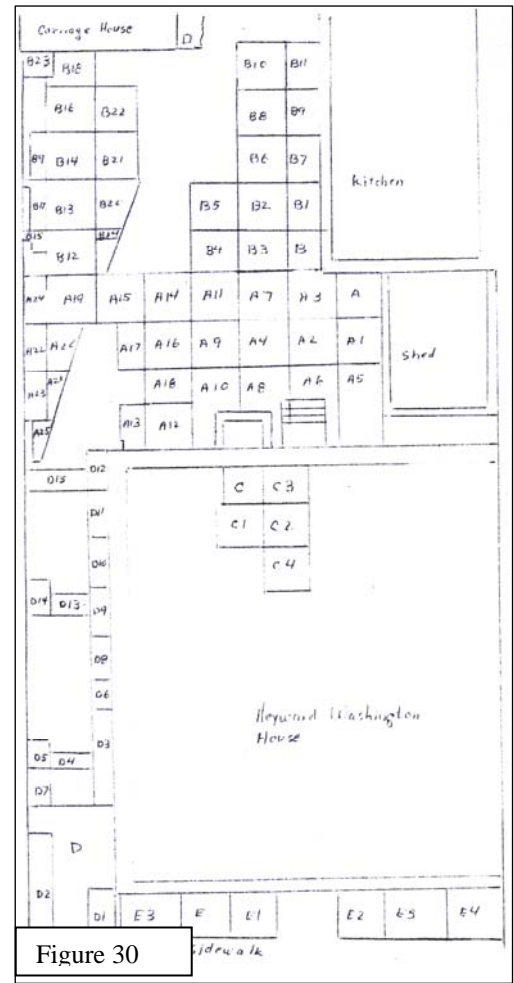
FS 26 Unit 1, zone 1
 FS 27 Unit 1, zone 1 lev 2
 FS 28 Unit 2, zone 1 lev 1
 FS 33 Unit 2, zone 1 lev 2
 FS 71 Unit 3, zone 1
 FS 81 Unit 4, zone 1
 FS 110 Unit 5, zone 1
 FS 129 Unit 6, zone 1
 FS 141 Unit 7, zone 1
 FS 78 Unit 3, feature 122 lev 1
 FS 84 Unit 3, feature 122 lev 2
 FS 86 Unit 3, feature 122 zone 2
 FS 142 Unit 7, feature 122 lev 1
 FS 144 Unit 7, feature 122 lev 2
 FS 146 Unit 7, feature 122 lev 3
 FS 159 Unit 3 baulk, feature 122

FS 104 Unit 4, feature 121
 FS 41 Unit 1, feature 115

Features from the 1970s Project

Elaine Herold's excavations of the 1970s included the entire yard area between the rear of the main house, the kitchen, and the front of the stable. Her excavations were divided into 5' squares, and their location and arrangement are shown in figure 29. Unit placement was adjusted to fit various extant features in the yard. The seemingly open spaces are, in fact, the location of the 19th century brick drain that still functions. Its point of initiation was exposed during the 1991 project. Herold also excavated units in the drive, beneath the main house, and along the Church Street frontage of the property to expose features associated with the Milner occupations. Her excavations exposed an unparalleled assemblage of early 18th century features, preserved as a result of the disastrous fire of 1740.

As discussed above, excavations in the stable continued exposure of this assemblage, as the units in the front of the building, in particular, are located adjacent to Herold's. The stable excavations produced additional evidence of the 1730s occupation, and the extent of the ash layer from the 1740 fire. The stable project confirmed Herold's suggestion that the Milner occupation was clustered immediately behind his house—and behind the Heyward house. The ash layer, designated feature 119, was dense in units 1 and 2 in the front of the stable, and very thin in the western portion of the project. Likewise, the dense concentration of features recorded by Herold was not present in the stable.



In her preliminary report (1978), Herold summarizes the Milner era features exposed in the yard. Besides the house that fronted on Church Street and an associated well, his work yard included “the base of a brick structure that appears to be some type of furnace, a forge, another well, and other architectural features. All of this was once covered by a frame structure supported by posts”. Herold also provided a general map of the early 18th century features in her report. A more detailed feature map was discovered among the records at The Charleston Museum, along with a list of ceramics recovered in each feature. These documents permit a more thorough examination of the Milner occupation. Though not complete, the ceramics listed support the dates of deposition proposed by Dr. Herold.

Features associated with the 1730s smithy of John Milner are shown in figure 30 below. This map includes units and features from the 1991 and 2002 projects, which clearly demonstrate the physical limits of the occupation. Within the limits of the yard area are several significant

features. A large brick forge (feature 136) was evidently truncated by the early 19th century drain; a rounded portion appears on the south side of the drain, while a rectangular area is north of the drain. A three-sided structure to the north (feature 37) was also present. A barrel-lined well was located adjacent to the brick furnace (feature 131). The furnace and the well were enclosed by a three-sided structure, open to the north. This building was represented by a series of earthfast post stains, best preserved along the southern, or back, side of the shed. These include features 145, 147, 148, 151, 156, 157, 159, and 150. Another large well (feature 65), with a square shaft, was located west of the furnace, adjacent to the entrance of the shed (and in front of the present entrance to the kitchen); this feature, in particular, produced a large artifact assemblage.

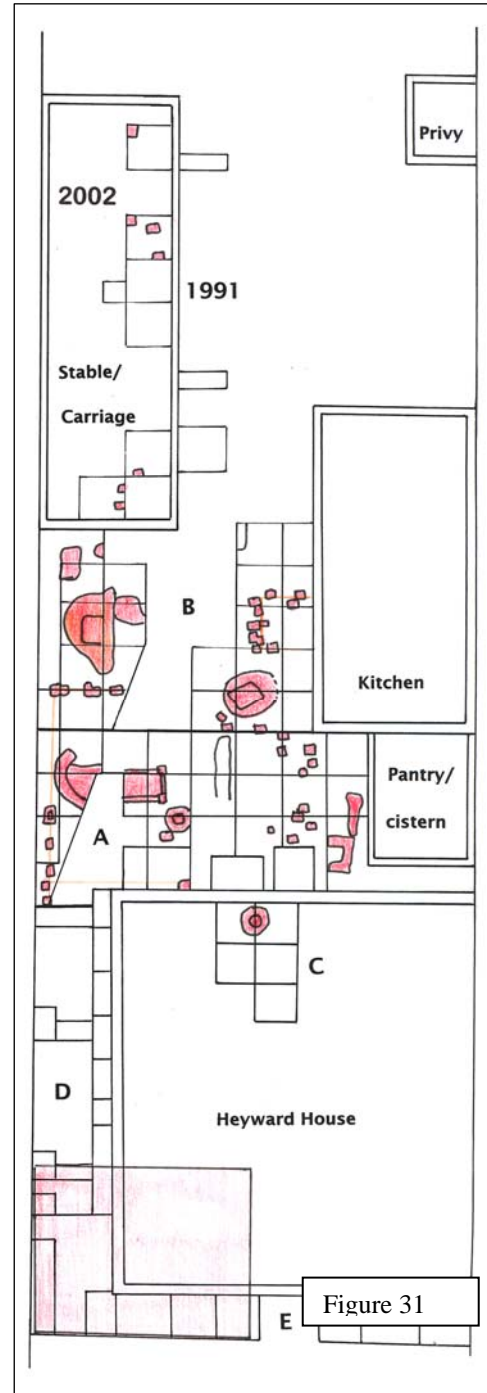
A second, smaller structure west of feature 65 was indicated by a series of earthfast posts, similar to those enclosing the furnace. The northern side of this structure was evidently truncated by construction of the kitchen. Features associated with this structure include 72, 73, 74, 75, 101, 104, and 144.

Located outside the shed that enclosed the furnace, and directly in front of the stable building, were two large pits filled with refuse. These are feature 166 and 183, respectively. Many of the early ceramics discussed in the following chapter were retrieved from feature 166.

In addition to the features shown in figure 30, the general ground surface of the Milner work yard was covered with iron fragments, and portions of door locks, gun parts, and other metal artifacts, all likely lost to the 1740 fire. Unfortunately, soil chemistry at the Heyward site was particularly corrosive, and almost all of the metal artifacts were extremely degraded.

Features associated with the second Milner occupation were less extensive than the 1730s complex. In addition to the brick single house and the kitchen and stable buildings discussed previously, a substantial well was discovered. This feature (feature 26) was located right outside the door to the kitchen, and is still extant beneath the wooden entry platform.

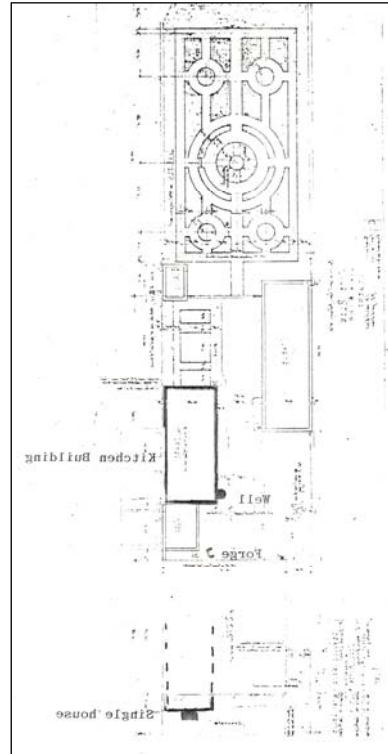
A large refuse pit (feature 178) was located in front of the stable, intruding into the northern edge of feature 166. There was also some evidence for re-use of the furnace and forge (features 37



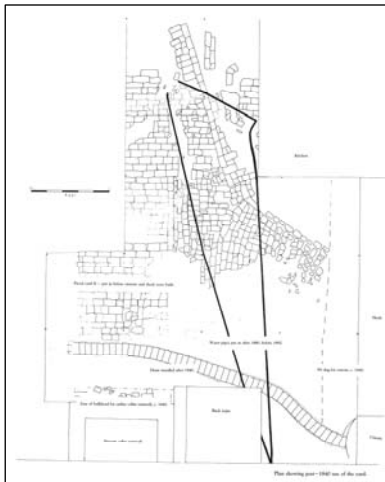
and 136) by the younger Milner. A number of small pits and post stains were scattered throughout the yard, but none were patterned enough to suggest a structure. Herold also reports that at least some of the yard was paved in brick during this period.



Figure 32: photo of feature 26 during excavation and location of features associated with John Milner Jr.



The yard area likewise contained few soil features associated with the late 18th century occupations of Thomas Heyward or the various 19th century inhabitants, as much of the work yard area was paved during that time. Herold's map of features dating to the 1840 shows only a paved area and the brick drains discussed earlier. Evidently, refuse from these periods was deposited in sheet midden, or in other areas of the site. 19th century refuse, in particular, was retrieved from the cellar of the kitchen, in deposits similar to feature 122 in the stable.



The summary presented here is based on available notes and documents, as well as the interpretations presented by Herold in 1978. The findings are incorporated into the interpretations found in Chapters V through VII.

Figure 33: portion of the work yard in the 1840s.

Chapter IV

Material Culture

Laboratory Methods

Upon completion of the fieldwork, all materials were returned to The Charleston Museum where they were sorted and inventoried. All bagged cultural materials were sorted by the field provenience number (FS#) and inventoried. Each artifact in each provenience was then washed in warm water with a soft brush and re-bagged when dry. Washing and sorting commenced immediately after the field project, and was conducted by trained laboratory technicians, students from the College of Charleston, and experienced volunteers.

Special study samples were segregated by provenience number, and stored separately. Soil samples were separated first; all diagnostic soil samples were stored in double plastic bags for permanent curation, and will be retained as part of the permanent collection. Portions of selected samples were dried and re-bagged for special analysis. Others were selected for special study, including pollen analysis and soil chemistry analysis. Both studies are presented in this report.

Faunal materials were bagged with cultural items in the field, but separated from other materials during washing in the laboratory. They were bagged separately and weighed by provenience. They were then shipped to the Zooarchaeology Laboratory, University of Georgia for analysis. Funds were sufficient to analyze the entire 2002 assemblage. Upon completion of the zooarchaeological study, the faunal samples were returned to The Charleston Museum for permanent curation. The zooarchaeological study is included in this report.

Conservation procedures included reconstruction of ceramic and glass vessels, where possible, and stabilization of metal artifacts. Metal artifacts, particularly ferrous items, do not fare well in the salty soils of the Carolina coastal plain. The particular soil chemistry of certain urban proveniences likewise result in damage to non-ferrous metals. The majority of the iron fragments and nails recovered from the Heyward site were degraded beyond repair and were not stabilized. Diagnostic ferrous materials were separated after analysis and stabilized in baths of distilled water. The diagnostic ferrous artifacts and all non-ferrous metal items were selected for further treatment through electrolytic reduction.

The ferrous items were placed in electrolysis in a weak sodium carbonate solution with a current of six amperes. Upon completion of electrolysis, ranging from a few weeks to a few months, they were placed in successive baths of distilled water to remove chlorides and air-dried in a stable environment. Finally, the artifacts were coated with a solution of tannic acid and phosphoric acid, and dipped in microcrystalline wax to protect the surfaces. Non-ferrous artifacts were also placed in electrolytic reduction, in a more concentrated sodium carbonate solution with a current of 12 amperes. Electrolytic

reduction of these artifacts was usually accomplished in one to two days. They were then placed in distilled water baths to remove surface chlorides, dried in ethanol, and gently polished before being coated with Inralac to protect the surfaces.

Archaeological materials from the Heyward Washington house are part of the permanent collections of The Charleston Museum. The materials received the accession number 2002.083, and catalogued by provenience. All excavated materials are curated in The Charleston Museum's storage facility according to standard museum policy. Artifacts are packed by provenience in standard low-acid boxes, labeled, and stored in a climate-controlled environment. Those artifacts suitable for individual study or exhibition are stored in easily accessible drawers in fireproof metal storage cabinets in the same storage facility. Field records and photographs are curated in the Museum's archive and in the archaeology laboratory.

Analysis

The first step in the analysis of cultural materials was the identification of the artifacts. The museum's type collection, Noel Hume (1969), Stone (1974), Ferguson (1992), Deagan (1987, 2002), and Miller et al (2000) were the primary sources used. Ceramics references included Austin (1994), Beaudry et al. (1983), Cushion (1976), Gaimster (1997), Sussman (1997). Issues of the journal *Ceramics in America* (2002-2007) as well as a range of web sites were also utilized. Those of particular relevance include the Florida Museum of Natural History (www.flmnh.ufl.edu), the Maryland Archaeological Conservation Laboratory (www.jefpat.org) the Digital Archaeological Archive of Comparative Slavery (www.daacs.org) maintained at Monticello, and others (www.apva.org, www.usouthal.edu; www.stmarys.ca; www.chesapeakearchaeology.org). These and other references were consulted for specific artifact types. Lorrain (1968), Kechum (1975), and Switzer (1974) were used to identify bottle glass. Epstein (1968) and Luscomb (1967), as well as South (1964) were used for button identification, and Fontana and Greenleaf (1962) and Sutton and Arkush (1996) were consulted for nails. Nails were identified by manufacture type, head type, and size, where possible. Architectural rubble – brick, mortar, plaster – was weighed by provenience and discarded in the field. Several samples of architectural material were retained for further study.

For basic descriptive purposes, the artifacts from each of the temporal assemblages were sorted into functional categories, based on South's (1977) model for the Carolina Artifact Pattern. South's methodology has been widely adopted by historical archaeologists, allowing for direct intersite comparison; all of the Charleston data have been organized in this manner. For nearly twenty years, archaeologists have attempted to classify the artifacts they recover by function, or how they were used in the everyday life of their owners. Broad regularities, or patterns, in these proportions prescribe the average range of daily activities on British colonial sites. In Charleston, this methodology is used as an organizing tool, for direct intersite comparison.

Following this exercise, the relative proportions artifacts in South's eight functional classes were compared for the Heyward assemblage through time, and with other sites with the same temporal range. The relative proportions of a variety of artifact types were also examined, based on the work of King (1990, 1992) and others in the mid-Atlantic region. The cumulative body of comparative data for Charleston (Zierden 1993, 1994) has provided detail on proportions of consumer goods and how they were used by Charleston residents.

Since 1991, the material culture of Charleston has been subdivided temporally for sites occupied throughout the city's 300 year history. These temporal subdivisions are based on specific site events as well as general trends in Charleston's development. Charleston proveniences and their materials have generally been separated into three temporal subdivisions: 1670-1750, 1750 to 1830, and 1830 to 1900. The early period corresponds to Charleston's role as a frontier outpost and emerging port city. The second marks Charleston's years as a leading seaport and center of wealth, and the third corresponds with Charleston's economic decline and stagnation. These periods also correspond to changes in ceramic and glass technology. The early period is that of relatively scarce and expensive material items; the second corresponds to the rise of the British pottery industry and the development of refined earthenwares, and the third to a decline in new ceramic types and the ascendancy of mass-produced glassware.

These temporal divisions are more or less comparable for a number of Charleston sites. Development of baseline data for this analysis began with excavations at the Heyward stable in 1991 (Zierden 1993). At that point, five to six assemblages were available for each of the three temporal periods. In each case the majority of the samples were from elite townhouse sites, but at least two were from other types: middle-class residential, mixed residential/commercial, or public.

Two recent excavations – the Beef Market as well as the Heyward Washington house – have produced intact soil layers containing large artifact assemblages that could be clearly associated with documented site history. This has permitted definition of shorter temporal assemblages. At the Beef Market, it was possible to isolate proveniences associated with three documented periods of market operation, 1690 to 1739, 1739 to 1760, and 1760 to 1796. These dates are clearly dated in the documents and were readily identifiable in the ground. Similar circumstances exist for the Heyward Washington house assemblage. The occupations of John Milner from 1730 until the fire of 1740; his reuse of the property with his son from 1740-1749; construction of new facilities by John Milner Jr. in 1749, and construction of the double house by new owner Thomas Heyward in 1772.

This is particularly significant for the pre-1740 assemblage, as the great fire of that year is viewed as a watershed in redevelopment of the city and acquisition of a new range of material items. Likewise, the following period, 1740 to 1760, is often smothered by the explosion of material items available in the last quarter of the 18th century and discarded in quantity on sites with a long occupational history. The tighter temporal

assemblages from the two sites provide an opportunity to refine our definition of artifact assemblages that characterize these decades of the 18th century.

The four temporal assemblages for the Heyward Washington site are as follows: first is the assemblage of gunsmith John Milner, from construction of his house and shop in 1730 until its destruction in the 1740 fire. Zone 6 is associated with this occupation, as is the underlying humus, designated zone 6a or zone 7. The barrel lined well (feature 128/144) was also excavated and filled during this time. A few smaller features (features 139, 140, 141, 134, 145, and 142 are associated with the 1730s deposit.

The destructive fire of 1740 and the Milners' reoccupation of the property for the next decade are reflected in the layer of ash (feature 119) and the overlying zone 5. Also included in this assemblage are the construction trenches for the stable and the associated brick well (feature 114, feature 121, and feature 107). These trenches contain a range of artifacts deposited during the Milners' tenure and redeposited into the filled trenches.

A larger group of proveniences are more difficult to date precisely, and are associated with occupation of the property from the time of construction of the stable by John Milner Jr. in 1750 through its use by Milner, the Heywards, and the Grimkes. This covers the period 1750 through 1820, which is comparable to the general Charleston assemblage of 1760 to 1830. Included in the late colonial/federal assemblage are zones 3 and 4, a wide range of post stains and miscellaneous features initiating at these levels, and the rich midden deposits in the central room of the building, designated zone 5a. A complete listing of proveniences by time period can be found in Table 3.

Finally, a small group of proveniences contained artifacts from the second half of the 19th century; most of these are associated with use of the property and the building by the Fuesler bakery until Museum acquisition of the property in 1929. These include the general zone 1 deposits and the midden deposit in the central portion of the building, designated feature 122.

Artifacts from each of the temporal assemblages for the Heyward site are summarized separately. Where appropriate, reference is made to similar materials or more complete specimens retrieved by Elaine Herold. Comparison of the various assemblages to the Market assemblage and to the general Charleston assemblage follows the four descriptive sections.

1730-1740: John Milner, gunsmith

The 1730s assemblage was relatively small, consisting of 994 artifacts from 29 proveniences. The majority of these are from the zone 6 deposits. White saltglazed stoneware, developed in 1740, provided the Terminus Post quem for the assemblage; the ceramic assemblage produced a mean ceramic date of 1726.7.

The Kitchen Group: As is typical of most British colonial sites, artifacts related to Kitchen activities dominated the assemblage. The overall proportion of these, 48% of the total assemblage, was lower than the mean proposed for the Carolina Artifact Pattern and for assemblages from the later 18th century. A relative paucity of kitchen materials has been related to a short or ‘new’ occupation (South’s ‘frontier’ pattern; 1977:146); it may also be related to an overall smaller number of possessions, or lower economic status of the occupant. Kitchen materials are divided between ceramics and glass materials. The ceramic assemblage, used to date the various proveniences, contained materials typical of early 18th century sites, here and elsewhere in the British colonial world. The deposits also yielded a number of poorly understood wares, recovered in sufficient numbers to refine our understanding of their use in early Charleston. The date ranges shown for each ceramic type are based on Noel Hume (1969), South (1977:210-121), and Miller et al. (2000), as well as the recovery of wares in tightly dated archaeological contexts.

Oriental porcelain is considered the most expensive, and most desirable, ceramic recovered in archaeological contexts. Porcelain was produced in China and exported in great quantities. Porcelain is a common component of mid to late 18th century domestic sites in Charleston, but is less common in early 18th century components. Only four fragments were recovered from zone 6 proveniences, for 2% of the ceramics.

The most common European ceramic found in early 18th century contexts is the tin enameled coarse earthenware known as delft. Delft is a common tableware of the 17th and early 18th centuries, and it persists in limited use through the late 18th century. British delft features a soft yellow to buff-colored earthenware paste and an opaque, sometimes chalky-textured glaze consisting of tin oxide in a lead glaze. The glaze can be white, but often exhibits a light ‘robin’s egg’ blue background color. Individual vessels may be undecorated, or feature hand-painted decoration in blue or a range of colors, the latter classified as polychrome. Early 18th century delft was available in a variety of forms. Delft formed a significant component of the 1730s assemblage; 49 sherds comprised 25% of the total ceramics. The majority of these were undecorated (n=39). Smaller numbers were hand-painted in blue (7) or polychrome (2) designs.



Figure 34: examples of delftware

Tin enameled earthenwares were produced elsewhere in Europe in the 18th century. French ceramics are known collectively as faience, while those from Spain and her colonies are known as majolica. Though Britain’s mercantile policies called for trade only with the mother country, a small but significant number of wares from other nations are recovered in Charleston; these increase in frequency as the 18th century progresses. A single fragment of Spanish majolica was recovered.

The second common ceramic of the early 18th century is the body of wares known collectively as combed-and-trailed slipwares. Ivor Noel Hume attributes most of these to factories in Staffordshire and Bristol, but British archaeologist David Barker suggested Buckley or Liverpool as a source for much of the slipware imported to Charleston (personal communication, 1991). Most of these wares feature a buff to yellow body with small dark inclusions. They are decorated with combed lines in iron oxide or manganese under a clear to pale yellow glaze. The simplest were trails of brown glaze over the buff body, sometimes combed into elaborate designs. Other variations occur with light trailed stripes over a black slip, or with “skillfully marbled blend of white, dark, and light-brown slips”; Noel Hume (1969:136) declines to date these variants with accuracy, but suggests that importation of these wares ended with the Revolution.

Slipwares are recovered in large numbers on Charleston sites. They average 10% for the 1720-1760 period in Charleston, and are 10.4% of the Heyward 1730s ceramics (n=20). The large flatware pieces – shallow bowls of all sizes and shapes – were press-molded feature an unglazed exterior and rim reminiscent of piecrust (Barker 1999:228).



Figure 35: examples of Staffordshire slipwares

The interior features slips and spriggles of white, dark, and brown clay, often combed or swirled in elaborate designs. The hollow wares – most often drinking pots or cups of various sizes, but also pitchers and candlesticks – are thinner, glazed on both sides, and most often feature a series of brown clay dots with combed trailings on the exterior. Both vessel forms were present in the Heyward assemblage.

Utilitarian lead-glazed earthenwares were a significant component of the early assemblage. Common forms include cream pans and butter pots; cooking vessels are also represented (Beaudry et al. 1983). Though smaller vessels, such as cups and bowls, are present, the majority of the fragments are from larger vessels. Unlike the tablewares of the 18th century, whose production was increasingly centralized and standardized, the range of utilitarian ceramics remained fairly static. Traditional coarseware forms were still manufactured in modest potteries throughout the country (Barker 1999:226).



Figure 36: lead glazed earthenware cookpot handle

The two earliest utilitarian ceramics recovered on Carolina sites were manufactured in the Devon region of England (Outlaw 2002). North Devon gravel-tempered ware consists of smooth pink and gray clay with quartz inclusions, hence its name. Vessels are thick, and rather large. The interior of the vessels is coated with a thick apple-green lead glaze. The 1730s Heyward assemblage includes five fragments of this ware, representing cream pans or pots, most often of gallon capacity. North Devon Sgraffito slipware feature the same clay body, minus the quartz temper, so the clay body is smooth. The interior of the vessel is then covered with a white slip, and often designs are scratched through the slip to expose portions of the brown body below. The slipped area is then covered with a yellowish lead glaze. The slip and glaze are found only on the vessel interior, and continue around the rim exterior. Three fragments were included in the 1730s assemblage. Jugs and pans are the most common forms.

The early assemblage included a number of lead-glazed earthenware vessels. There are few established types, and the majority reflects forms and finishes produced at regional potteries throughout Britain and, later, the American colonies. The majority of these are utilitarian vessels, and they include pots and pans. The most recognizable of these is Buckley, a thick earthenware with ridged sides and a thick black lead glaze. The paste consists of ribboned red and yellow clays. Buckley appears in North America after 1720, and persists until the Revolution (Noel Hume 1969; www.jefpat.org). The 1730s assemblage included a single fragment.

Other, unnamed earthenwares include those with brown, rust, or green lead glazes, most often with a red clay body. All of the wares included in this category are utilitarian. The 1730s assemblage included 26 fragments of lead glazed earthenwares, comprising 13.5% of the ceramics. Included in this assemblage are fragments of brown-glazed molasses jars that may be Barbadian in origin (Stoner 2006). Larger fragments of this ware were recovered in the 1970s excavation. A single fragment of utilitarian earthenware with a buff body and olive green glaze was recovered. This standard type has been recognized on colonial sites throughout the lowcountry, and has been identified as French (www.usouthal.edu). This ceramic, described as “Southern European ware” in earlier Charleston archaeological studies, is currently classified as French Green Glazed Coarse Earthenware (FGGCEW; Waselkov 1999; see figure 47).



Figure 37: possible Barbadian earthenware, particularly upper right.

Tankards and mugs are a common vessel form of the 18th century, and several were recognizable in the 1730s assemblage. The most distinct is a late 17th-early 18th century ware known as Manganese Mottled Ware, or Mottled Ware. The coarse earthenware is thick but otherwise similar in paste to English (Staffordshire) slipware. The vessels feature a brown streaky glaze with manganese or iron inclusions and bands of

narrow ribbing around the vessel. The runniness of the glaze results in a relatively thin glaze near the rim and a thick puddling on the interior base of the vessel. While earlier sources suggest the ware was manufactured between 1680 and 1720, Michael Stoner has recently identified this ware in 1670s contexts at Charles Town Landing (South and Stoner 2001). Other scholars working in the Chesapeake have likewise suggested a 1670s date of manufacture (www.jefpat.org). Seven fragments were recovered from 1730s contexts at Heyward.

Also present in significant numbers is a similar ware that features a solid, rather than a streaked, glaze. This ceramic was identified as Slip-Coated Ware by David Barker, Keeper, Stoke-on-Trent (see also Davey 1988). Slip-coated ware features paste and vessel forms similar to the Mottled Ware, and comes in two glaze varieties. The dark variety features a very dark brown, almost black lead glaze over the buff paste, while the light variety is brown. Formal attributes of recovered fragments suggest that tankards and other hollow wares were the most common forms. In Charleston, this ceramic has been recovered most frequently at the Beef Market, the Heyward-Washington house, and the Exchange building, all sites with significant deposits from the second quarter of the 18th century. Barker suggests slip coated ware was most common between 1720 and 1740. Three fragments were recovered from the 1730s deposits at Heyward.



Figure 38: slip coated ware

Stoneware vessels were a major component of the 1730s assemblage. Utilitarian stonewares manufactured in the Rhineland were recovered in significant numbers. Noel Hume and others (Barker 1999; Gaimster 1999, 1997) suggests that these wares were imported into England and later into the colonies in large numbers through the 17th and first half of the 18th centuries. After 1760, the Rhineland's virtual monopoly was broken by the saltglaze potters of Staffordshire. The type known to archaeologists as Westerwald is the most common on Charleston sites. Westerwald is gray-bodied and decorated in blue, sometimes purple on earlier examples. The blue decoration is often enclosed in incised or sprigged decorations; again, these are most elaborate on late 17th/early 18th century styles, and become less so by the end of the 18th century. Vessel forms for the early 18th century include jugs with bulbous bodies and reed necks, porringers, pots and mugs of various sizes. Later, chamber pots are the most common form. Six fragments of Westerwald were recovered from 1730s contexts.



Figure 39: Westerwald stoneware

The Rhineland potters also produced saltglazed stoneware in brown. Best known are the ‘bellarmine’ jugs with a bearded face (Gaimster 1997; Noel Hume 1969). These 17th century vessels are rare in Charleston, though they are recovered consistently from contexts dating to the first quarter of the 18th century. More common are undecorated bottles and jugs in a variety of sizes. These were imported through the first half of the 18th century. The 1730s deposits contained three fragments of brown saltglazed jugs.

Saltglazed stoneware was also produced in tableware forms by the second quarter of the 18th century. The earliest recognizable type is known as slip-dipped white saltglazed stoneware and feature a grey stoneware paste with a white or off-white stoneware glaze. The edges of the vessel are finished with a brown oxide slip, to prevent chipping around the rim. This tableware was developed by 1715. The 1730s deposits contained four fragments of this ware. Two fragments of the molded white saltglazed tableware, developed in 1740, were also recovered from 1730s contexts.

The final class of pottery, presumably used in the kitchen, was colono wares. Colono ware is a locally-made unglazed earthenware. It is recovered on all lowcountry sites from the early 18th century to the early 19th century. In Charleston it comprises about 6% of the ceramic assemblage, while on rural plantation sites it may be as much as 50%. Moreover, the proportion of these wares varies through the decades of the 18th century. Joseph (2002:218) has noted that the wares peak in popularity in the 1730s and 1740s. Colono wares comprise 28% of the 1730s assemblage.

Archaeologists have determined that much of this ware was likely made and used by African Americans (Ferguson 1992), though some of the ware is likely the result of interaction between African American plantation laborers and Native Americans, either slaves on the same plantation or neighbor groups (Anthony 2002). The most common forms are the globular jar and the shallow bowl. Some vessels copy European forms. The ware varies greatly in quality, ranging from thick, coarse sand tempered wares (classified by Anthony as Yaughan (Anthony 1986) to intermediately-thick burnished wares (Lesesne lustered) to fine, hard micaceous wares (River burnished). The latter type occasionally features painted designs in red or black. These wares have recently been firmly identified as the product of Catawba Indian potters (Schohn 2003), who often traveled the lowcountry making and selling pottery (Crane 1993; Ferguson 1992). The 1730s assemblage contained a majority of the Lesesne lustered variety and a sizeable amount of Yaughan. Only two sherds of River burnished ware was recovered.

Also present in small, but consistent, numbers in early 18th century contexts are fragments of pottery that are Native American in origin, likely from the historic period. These are generally distinguished by a grit-tempered paste, smoothed interior, and stamped exterior. Though native groups had nearly disappeared from the lowcountry by the middle of the 18th century, small groups were still present, and contact continued with larger tribes on the interior. Three fragments of stamped Native American pottery were recovered in the 1730s contexts.

Container glass comprised 45% of the kitchen group. Almost all of these artifacts were fragments of olive green bottles. Most were too small to record formal attributes, but among the fragments were those that exhibited the short, squat proportions that characterize British bottles from the 1690s through the 1730s. The most remarkable



Figure 40: bottle seal

artifact recovered was a green glass bottle seal. Unlike the typical seal, bearing the initials of the owner, this seal featured an elaborate coat of arms. This consists of a shield with a raised cross and four raised dots, surmounted by figure holding a sword and an unidentified item, possibly a book. Colleagues who report similar finds (Al Luckenbach, Cara Roviello) agree that the shield appears to be a family crest, rather than a guild or tavern emblem. Efforts to identify the crest were unsuccessful.

Smaller amounts of clear and aqua container glass, from smaller vessels, were also present. The aqua glass was also fragmentary, but was likely from the small pharmaceutical vials typical of the 18th century.

A relatively large amount of table glass was recovered. Most were too fragmentary to identify vessel style, but the assemblage included fragments of goblets and tumblers. One tumbler base was identifiable.

The Architecture Group: Architectural artifacts comprised 38% of the 1730s artifacts. The architectural materials include nails, window glass, and some hardware. As is usually the case with lowcountry sites, the nails were quite corroded; the majority were unidentifiable as to method of manufacture (n=140), though it is presumed from the date of deposition that all were hand wrought. Likewise, the eroded condition meant that it was not possible to determine length or size of the individual nails with any accuracy. As is standard laboratory procedure at the Museum, those with a head were counted as nails, while those without were counted as fragments (n=89).

Window glass was the next most common artifact. The quantity recovered suggests that the house, and possibly other structures, from the Milner era. All of the small fragments were the aqua-colored glass typical of the 18th century. Two fragments of scrap glass, featuring the finished edges of crown glass, cut away as scrap.

Other architectural artifacts included portions of door locks and a fragment of a delft tile.

The Arms Group: Arms materials comprised .6% of the 1730s assemblage; six items were recovered. These were two gunflints, two flint flakes from gunflint manufacture, and two lead shot.

Clothing, Personal, Furniture Groups: There were no items related to clothing, furniture, or personal possessions recovered from Zone 6 deposits. This is likely related to small sample size, but it may also reflect a relative paucity of material items during this period. Archaeological and documentary research suggests an increase in material possessions for people of the middle and upper classes in the 1740s-50s.

Tobacco Pipes: Tobacco pipes were a common artifact of British colonial sites. Following the introduction of American tobacco to Europe in the 1500s, tobacco smoking from clay pipes became very popular by the 1570s. The original pipes feature very small bowls and short stems, but by the end of the 17th century stems were much longer. During the 18th century, both long and short-stemmed pipes were popular, and were advertised as such (Noel Hume 1969:296). Bowl style and size may be used to date the pipe with some certainty; generally, bowl sizes increased dramatically after the middle of the 17th century.

Though it has been reported that the stems of tavern pipes were broken to produce a new edge for a change of customers, this has been roundly discounted (Noel Hume 1969:296; Waselkov 1999:30). Instead, tobacco pipes were fragile and extremely cheap, and thus they were easily broken, replaced, and discarded.



Figure 41: early 18th century tobacco pipe fragments

In his study of materials for the Carolina Artifact Pattern, Stanley South noted that pipes average 5% of the 18th century assemblage. They have been less common in Charleston, averaging 4% of the assemblages for the 1760-1820 period and only 1.5% of the 19th century assemblage. In Charleston, they are more common in the early 18th century, averaging 11% of the assemblage. Numerous fragments of pipe stems were recovered from the Heyward 1730s assemblage (n=111), comprising 12% of the assemblage.

Activities: Activities artifacts – those items reflecting a range of on-site activities other than food and shelter – were relatively scarce in the 1730s assemblage, despite the documented smithing activity at the site. Activities items comprised 1.6% of the assemblage, consisting of scraps from other activities, including strips of lead, brass, and iron. Slag was also recovered. The toy group included a clay marble. No other identifiable artifacts were retrieved.

1740 – 1760s: the 1740 fire and John Milner Jr.

The second assemblage consists of a zone of ash, reflecting the fire of 1740 that leveled the house and business of John Milner, plus an overlying midden zone that

accumulated in the decade between the fire and the death of John Milner. Other proveniences reflect his son's re-working of the property, including construction of a brick house and the existing outbuildings. The assemblage was much larger and more diverse than the previous deposits; in fact, the overlying midden zone was similar in color and texture to zone 6, and was distinguished by the increase in refuse and material items found throughout. Artifacts for the second assemblage totaled 2,564.

The Kitchen Group: Kitchen related items were more numerous in the 1740s period, and comprised a larger proportion of the overall artifact assemblage. Kitchen materials comprised 66% of the assemblage, and 57% of these items were ceramics.

The Chinese export porcelain of the 18th century features a fine whitish clay body made from a combination of kaolin clay and finely ground feldspathic rock (Noel Hume 1969:258) and a high gloss glaze that is bluish in tinge. Porcelain came in tea wares and table wares, with the small tea bowls increasingly common as the century progressed. Most were decorated with delicate hand painted designs in blue, under the glaze.

Chinese porcelain is considered a high status item in the late 17th century, but Oriental wares were increasingly common, and affordable for average citizens by the middle of the 18th century. In Charleston, porcelain is common throughout the century, though its frequency varies from site to site. Chinese export porcelain was more numerous in the post-1740 assemblage, and 56 fragments were recovered. The majority of these were the less expensive underglaze blue-on-white variety (Leath 1999). Vessels included tea wares as well as tablewares. Only two of the recovered fragments exhibited overglaze enamel decoration, typical of the finer oriental wares.



Figure 42: examples of overglazed porcelain

Delft tableware is still a significant component of the Milner household ceramics, though in smaller proportion, 15% of the ceramics. It decreases in relation to more durable ceramics, Chinese porcelain and the newer white saltglaze stoneware. Delftware from the 1740s includes undecorated fragments, as well as a range of tablewares decorated in blue and white hand painted designs. Also included in this assemblage are fragments of tin-enameled ware previously classified as “English maiolica”. These ceramics are characterized by chalky white tin enamel on the vessel interior with bold hand-painted decoration in blue. The vessel exterior is glazed in a thin tin enamel or lead glaze that is buff to tan in appearance. The most common vessels are small plates or saucers, characterized by a thick body and wide, flat foot ring. Maryland scholars suggest such wares were either English or Dutch, and were designed to minimize expenditure in tin enamel (www.jefpat.org). Other sources attribute these wares to Holland (www.flmnh.ufl.edu).

Tablewares of stoneware were also common in the 1740s assemblage. These include a few fragments of the early 18th century slip-dipped stoneware, developed in 1715 (n=9), and the newer molded white saltglazed vessels. The earlier ware was rapidly replaced in 1740 with a white-bodied ware produced in block molds. The resulting wares were uniform, durable, and attractive (Noel Hume 1969:115). Besides elaborately molded dinner plates, the vessels included tankards, tea wares of all types, and a variety of specialty vessels. This ware was fairly common in the 1740s assemblage, comprising 15% of the ceramics (n=58). White saltglazed stoneware vessels quickly replaced the more fragile delft vessels.



Figure 43: examples of saltglazed stoneware:
left: slip-dipped and scratch blue
Right: molded white saltglazed stoneware

Also recovered from 1740s proveniences were fragments of British brown stoneware (also known as Fulham; Noel Hume 1969:114; Brown et al. 1990:78). These wares were manufactured between 1690 and 1775; in Charleston this ware is most commonly used between 1740 and 1760, the period of the post-fire Milner occupation. The majority of the British brown stoneware fragments are tankards, and many are molded with detailed decorations. The Heyward examples feature bands of diamond-shaped impressions, narrow bands of ribbing, and elaborate extruded handles. Also present in the 1740s assemblage was the gray-bodied stoneware known as Nottingham. This ware features a rich lustrous brown glaze over a thick white slip, often with incised or molded designs similar to those found on British brown stoneware. Nottingham was manufactured from 1700 through the end of the 18th century.

The 1740s Milner assemblage also contains a number of table ceramics developed in the middle of the 18th century, though in small amounts. Astbury is the name given to a class of well-executed earthenwares, produced principally in teaware forms. First manufactured in 1725, Astbury features a delicate red clay body with a clear lead glaze. The vessel is often decorated with a band of white clay along the rim, or sprigged designs of white clay. The resulting vessels are thin and well-made. Agate ware features a body of ribboned red and yellow clays, covered with a clear lead glaze. This allows the mixed clay to be visible through the glaze, giving a marbled, or 'agate' appearance. Together, eight fragments of these mid-18th century tea wares were recovered. Also recovered was a single fragment of the first refined earthenware, also developed in 1740. Whieldon ware consists of a cream colored body with green glaze, or with swirled brown, green,

yellow, and purple glaze. It was, in many respects, precursor to the creamwares of the 1760s.

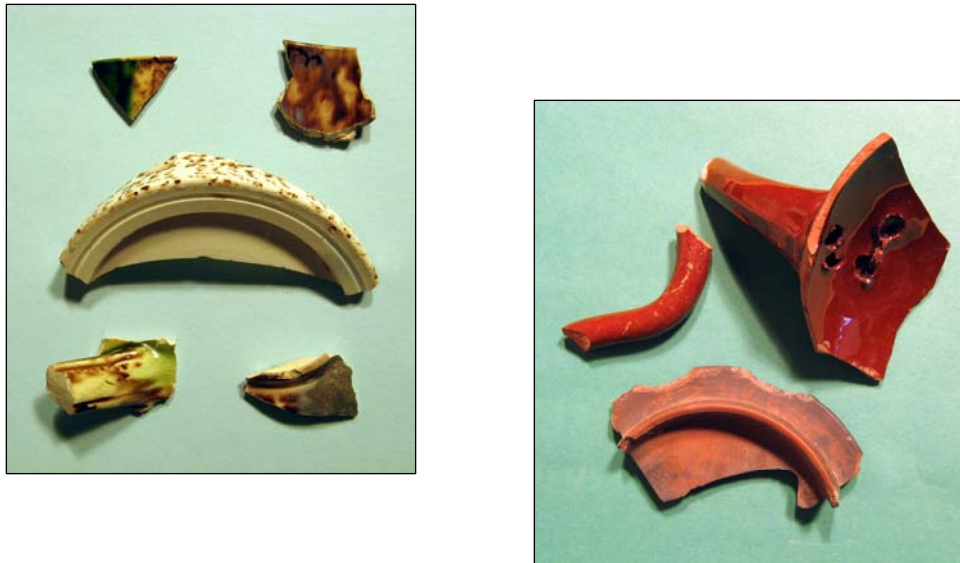


Figure 44: examples of Whieldon ware (left) and Astbury ware (right)

A large number of utilitarian vessels were present in the 1740s assemblage. Most numerous were vessels of combed and trailed Staffordshire slipware. These comprise 26% of the ceramic assemblage, and include 184 fragments. This frequency echoes the general trend for 18th century Charleston sites. While the hollow ware forms were most numerous, the larger open dishes and pans were also well present. In addition to the more common trailed designs, the 1740s assemblage includes examples of bat-molded decoration, typical of the second quarter of the 18th century. The assemblage also included a variety of the hollow ware forms noted in assemblages throughout Charleston. These vessels are identical in form and decoration, but the body and the glaze are much lighter than the type description. Paste for this variant is almost white, and the resulting glaze is a pale yellow rather than the darker golden variety. These are enumerated in Charleston as ‘pale’ slipware. Examples of this type were recovered from the John Bartlam pottery site in Cainhoy (South 2004), but South does not clearly attribute this ware to the local pottery. It is unclear if any or all of the Charleston slipwares of this type are the product of Bartlam.



Figure 45: examples of Mid-Atlantic earthenware

Early 18th century types of earthenware vessels for food consumption were still in use in the 1740s. Fragments of the previously described Manganese Mottled Ware (15) and Slip Coated Ware (4) were part of the 1740s assemblage.

The 1740s Milner assemblage also included a small number of slipwares attributed to potters in the Philadelphia or mid-Atlantic region of North America. Some of the slipwares

recovered in Charleston may have been produced by the Moravian potters in North Carolina (Bivins 1972); though it has not been possible to distinguish between the products. These wares, loosely categorized as American slipware, are distinguished by a red clay body decorated with trails of white clay, covered with a clear lead glaze. The resulting decorations are simpler than those of the Staffordshire wares, and the trailings of white clay often protrude above the level of the clay vessel. These trailings are sometimes absent from eroded or degraded fragments of the slipware, leaving strips that are missing the glaze altogether. Most of these vessels are flat-bottomed pans with straight sides. Carl Steen (1999) suggests that these wares were used in Carolina during the second half of the 18th century. Fourteen fragments of American slipware was recovered from the 1740s deposits.

A second style of lead-glazed earthenware commonly recovered in Charleston has been attributed to the mid-Atlantic potters, and has therefore been generally classified as 'mid-Atlantic earthenware'. These are medium-sized bowls or drinking pots, with or without handles. The exterior features a solid lead glaze in either brown, rust, or black, and an interior that features sashed or swirled slips, or powdered glazes that run to the bottom of the vessel. Steen terms these Clouded wares (1999). Four fragments were identified in the 1740s deposits.

Utilitarian earthenwares remain a significant portion of the 1740s ceramics, though they are reduced in proportion to an increase in Staffordshire slipwares. Lead glazed earthenwares in green, brown, rust, and yellow comprise 7.7% of the 1740s ceramics. Most are likely products of British potters, though some may be colonial in origin. Broad, shallow cream pans, deep butter pots, and jars are the most common forms. The assemblage also included smaller vessels, featuring a red clay body and black lead glaze. Nine unglazed red or buff wares were unglazed.

The 1740s assemblage included small numbers of the late 17th/early 18th century utilitarian wares identified in the earlier component. North Devon Gravel Tempered Ware, Sgraffito Slipware, and Buckley Ware. Five fragments of each of these wares were recovered from 1740s contexts.

The 1740s assemblage also included a number of utilitarian wares from sources other than Britain or its colonies. Together, earthenwares from France and Spain comprise nearly 5% of the 1740s ceramics. The Spanish ceramics include 14 fragments of Olive Jar and a single sherd of tin-glazed majolica.

Olive Jars are the amphora-shaped vessels ubiquitous on Spanish colonial sites, and commonly recovered in other colonial settings. The long, narrow vessels feature a rounded to pointed bottom, wide shoulders, and a restricted neck. The vessels are thick, with a buff to pinkish sandy clay body, and often feature a finger-ridged exterior. The vessels may be glazed on the interior, often in green, and feature a thin white slip on the exterior (Deagan 1987:30-35). They were manufactured from 1490 to 1800, and were



Figure 46: Olive Jar

used to transport and store liquids of all kinds. The single sherd of majolica was unidentifiable as to specific type, but exhibited the overall characteristics associated with Spanish tin enameled wares, namely a shiny, crazed glaze and a sandy cream-colored paste.

A lead-glazed earthenware commonly recovered on lowcountry sites has been attributed to French potters. This is a relatively thin-walled vessel with a sandy buff-to-pink colored paste and apple-to-olive green lead glaze with dark inclusions on the interior. Pots and jars in a variety of sizes have been noted, along with flat-bottomed pans. Following the example of scholars working on French colonial sites along the Gulf Coast, this ware is catalogued as French Green Glazed Coarse Earthenware; prior to positive identification as French, it was catalogued as “Southern European ware” (Calhoun et al. 1985). This was based on recovery of significant amounts at Lesesne plantation, Daniels Island and consultation with Stanley South and Ken Lewis. At the time, South reported that the ware was recovered at Brunswick Town, North Carolina, as well. Present in smaller amounts is Saiontage earthenware, characterized by a redware paste and a rich green glaze. Some vessels feature a white slip under the glaze and are known as Saiontage slipware (www.usouthal.edu; www.stmarys.ca). Both are present on Charleston sites in small, but significant amounts. The 1740s Milner assemblage included three fragments.



Figure 47: possible French earthenwares, green and yellow glazed examples.

The final earthenware of French origin again features a buff colored paste and a yellowish lead glaze on the interior. Often this glaze is thin and rather opaque. These were described by South and Lewis in 1985 as ‘continental ware’. Waselkov et al. classify yellow lead-glazed earthenwares as Charente plain (Olin et al. 2002; www.usouthal.edu).

Utilitarian stonewares from the Rhineland, later copied in England, are more frequent in the 1740s assemblage than in the previous deposits. Fragments of brown saltglazed stoneware jugs and bottles and gray saltglazed wares, particularly Westerwald, comprise nearly 10% of the 1740s assemblage. Among the blue-decorated westerwald sherds, chamber pots are the most common vessel form, though other forms were present. Included in this group are fragments of an elaborately sprigged tankard and the central medallion (G.R.) from a reed-necked jug.

Colono wares remain a significant component of the 1740s assemblage, though smaller in proportion to the overall ceramic assemblage. Colono wares of all types comprised 18% of the assemblage. Lesesne lustered remained the dominant type (n=113), followed by Yaughan (n=34). The River burnished wares, attributed principally to Catawba potters of the late 18th century, were represented by only three fragments. Instead, pottery of Native American origin remained a significant presence in the 1740s assemblage, comprising 1.6% of the ceramics. All of the colono wares will be discussed in greater detail in Chapter V.

Glass containers formed a significant amount of the 1740s assemblage; bottles comprised 42% of the Kitchen group. Olive green bottles, for wine and other beverages, comprised the majority of the group. Most of these were fragments, with no identifiable formal attributes. The assemblage also included a number of fragments of smaller aqua bottles, usually associated with medicines. Those of the mid-18th century are a dark aqua glass, rounded with straight sides and an everted lip on a constricted neck. Bases are typically 1.0 to 1.5” in diameter during this period. Colors range from deep aqua to a pale aqua, and occasionally are clear or amber. Twenty-four fragments were clearly identified as pharmaceutical. Fragments lacking formal attributes were classified by color; the assemblage included clear glass (n=46) and aqua glass (n=26).



Figure 48: pharmaceutical glass



Figure 49

The assemblage also included a significant amount of table glass. Table glass is clear, and often recognized by a chalky white or dark brown patina. Fragments of wine goblet bowls and tumblers often exhibit a rounded, or finished edge. Table glass can also include decanters for beverages and cruets for sauces and spices. Identifiable forms in the 1740s assemblage include two finials to glass stoppers. The first is a small rounded knob of solid glass, with a ring of decorative air bubbles on the underside. The second is a larger faceted stopper for a decanter.

The most remarkable artifact associated with the 1740s assemblage was the closure to a brass keg tap. The other portion of the tap was recovered from the same unit, in zone 5a above, and so was likely disturbed when the later soils were deposited. It is presumed that

Figure 50: brass keg tap and handle



the keg is associated with the earlier assemblage. The solid brass tap was tapered and grooved, to be hammered into the keg. The stop featured a “T” handle with a hole, that could be closed by turning the stop 90 degrees.

Architectural Materials: Architectural materials comprised a relatively small amount of the 1740s assemblage, when compared to the Carolina pattern or the general Charleston average. This, despite the fact that the assemblage includes ashy deposits from the 1740 fire, which consumed the buildings on the property. One possible explanation is that the units inside the stable are not located near any 1730s buildings. The assemblage consisted almost entirely of nails and window glass. As was the case with the 1730s assemblage, almost all of the nails were unidentifiable due to heavy corrosion. Occasionally, nails burned in a hot fire will be well-preserved, but only ten could be positively identified as hand wrought. The assemblage included 327 unidentifiable nails and 123 nail fragments. The assemblage also included four door lock parts and five tiles. One of these was a fragment of tin-glazed delft. The elaborate blue-painted floral decoration is similar to Virginia examples of the 1740s (Austin 1994:279).

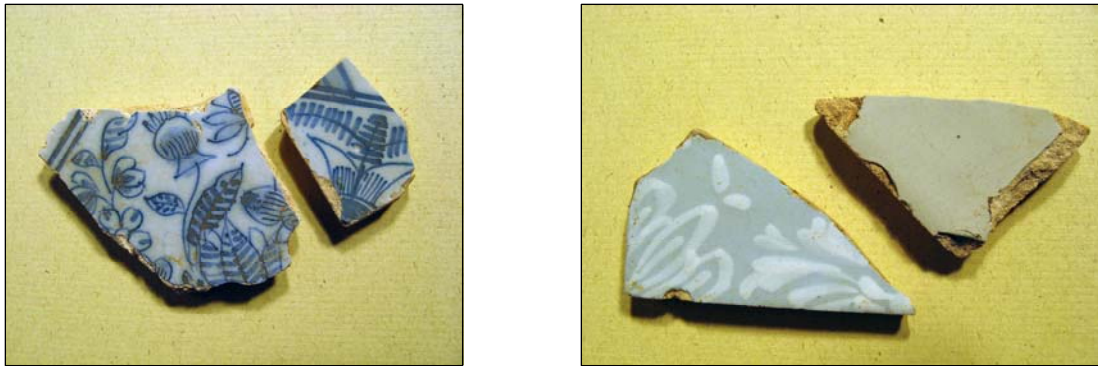


Figure 51: examples of delft tiles

Arms: Arms materials comprised .35% of the assemblage and consisted of nine items. Five of these were gunflints, of gray or tan flint. All were of the spall variety, exhibiting various degrees of use. Gunflints evidently had a finite use life, and were discarded after repeated sharpenings. Other artifacts in this group were lead musket balls, in standard 18th century size.



Figure 52: domed glass buttons; cuff link with glass stone setting; paste jewel

Clothing, Personal, and Furniture Items: Fourteen items related to clothing were recovered from 1740s contexts, comprising .35% of the assemblage. Buttons were the most common items. Two bone discs, considered a foundation for a covering of thread or fabric, were recovered. These feature a characteristic central hole. Five brass buttons were recovered. These were all plain brass discs with a wire shank, often used on men’s coats or vests. Three very unusual buttons were recovered from zone 5 contexts. Two were

identical, and recovered from levels 1 and 2 of zone 5. These were clear glass, or paste, with a faceted domed top and flat bottom, set with a brass wire eye (Stanley South's Type 13, dated 1726-1776). They were relatively large, ¾ inch in diameter. A third example was similar in size, but this was a blue glass button. It featured a smooth domed top; stress marks indicate it was constructed in wire-wound fashion. An iron eye attachment ran through the center of the button.

Artifacts associated with sewing retrieved in the 1740s deposits include a straight pin and a scissors fragment. Straight pins, similar in style and proportion to modern examples, are recovered on archaeological sites from medieval times to the present. Those predating the mid-19th century are usually of brass, with a wrapped wire head that could be hammered into shape or flattened (Deagan 2002:193). The scissors handle was of a style typical of the early 18th century (Noel Hume 1969:268; Deagan 2002:206).



Five glass beads were recovered from 1740s contexts. All were typical of 18th century British assemblages. Two clear glass wire-wound beads features a marvered pattern of raised linear ridges, similar to raspberry beads. Two others were also clear-to-translucent wire-wound beads, one a plain spherical bead and the other a faceted bead. The final example was a gooseberry bead, featuring a clear glass body with white stripes.

Figure 53: glass beads; gooseberry, clear and blue raspberry

Five items in the personal category comprised .2% of the assemblage. The most common items were two slate pencil fragments; these are often recovered on 18th to early 19th century sites in Charleston. Included in this category was a lead token, usually associated with bales of fabric. Also recovered was a brass cane tip.

The most unusual item was a brass stamp or seal. This featured a flat handle, fitted with a hole in the top and the remains of a brass pin. The flat surface has been compromised by decay, but features an elaborate pattern, including a vine with leaves around the edge and a series of swirling lines, possibly a cipher. When conservation began, the surface appeared convex and highly corroded; during conservation, this corroded surface peeled away intact, revealing the original carved design. The attached piece of corrosion may be residual lead or wax, and has remained stable. It contains a partial imprint of the design described above.



Figure 54: views of a brass seal



The furniture group was likewise composed of five items, for .2% of the assemblage. The only artifact reflecting furniture was brass tacks. These are most often associated with upholstery, but could also be used in leather.

Pipes: Tobacco pipe fragments remained a strong component of the 1740s assemblage, comprising 7.7% of the total. Nearly 200 fragments were recovered, evenly divided between stem and bowl fragments. None of the bowl fragments from 1740s contexts were large enough to determine bowl shape, and thus a date range.

Activities: Twenty-one items related to specific activities were recovered, comprising .21% of the total assemblage, despite the documented function of the site as a smithy. Those that were recovered, though, could be related to such an enterprise. These include scrap fragments of brass, iron, and lead, as well as two unidentified tool fragments. In the toy group, a single clay marble was recovered.

1770-1820; the Heyward and Grimke periods

Materials recovered during the 2002 project associated with the Heyward and Grimke families were slightly more numerous than those from the earlier occupations, and reflect use of the property as a residence and, occasionally, as a girls' school. These were retrieved from Zones 3 and 4, the builders sand and subsequent shallow midden that accumulated after construction of the stable. Also included in this assemblage is the deeper deposit of midden soil filling the foundation of the central tack room (excavated as zone 5a). A few post stains and the construction trench for the building and well are also included in this assemblage. The assemblage totaled 3,744 artifacts.

The Kitchen Group: Kitchen materials comprised 54% of the Heyward assemblage, proportionately less than the Carolina pattern and the previous assemblage. A range of ceramics typical of the period was recovered. Elite economic status was not so strongly reflected in the material assemblage as at other sites. Oriental porcelains comprised 6.3% of the total ceramics. The majority of these were decorated in blue designs applied under the glaze (n=59). Two fragments exhibit an overglaze design in gold that may have been added after the ware was manufactured in China. The style of the gilt decoration is English, rather than Oriental (Robert Leath, 2005, personal communication). Only nine sherds with overglazed decoration were recovered.



Figure 55:
Underglaze blue
Chinese Export
Porcelain, with
gilt decoration in
European style.

Other table and tea wares typically used during this period were present in moderate amounts. These include the finely made earthenwares – Astbury ware, Agate Ware and Jackfield ware. Astbury is the name given to a class of well-executed earthenwares, produced principally in tea forms. First manufactured in 1725, Astbury features a delicate red clay body with a clear lead glaze. The vessel is often decorated with a band of white clay along the rim or, less commonly in Charleston, sprigged designs of white clay. The resulting vessels are thin and well-made. Astbury was manufactured until 1750; three fragments were recovered from Heyward contexts. Agate ware features a body of ribboned red and yellow clays, covered with a clear lead glaze. This allowed the mixed clay to be visible through the glaze, giving a marbled, or ‘agate’ appearance. Occasionally, white clay rim strips are added for decoration. Agate ware was produced between 1740 and 1775; four sherds were recovered from Heyward contexts. Included in this assemblage are fragments of agate ware that include splotches of turquoise in the clear lead glaze. Jackfield refers to similar tea wares, these with a gray to dark red body under a shiny, almost oily, black lead glaze. Jackfield vessels are most often tea wares, and include handled cups, tea bowls, and footed tea pots. Jackfield was produced between 1740 and 1780. Three fragments were recovered.

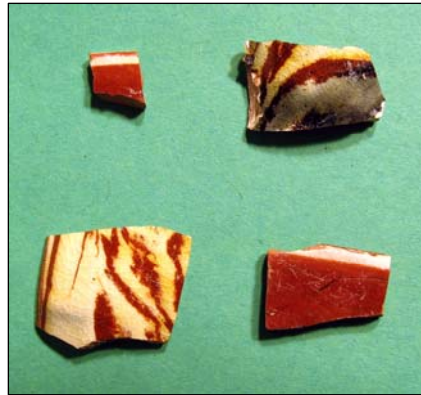


Figure 56: examples of agate ware, with aqua tint (upper right)

The assemblage also included mid-18th century tablewares in stoneware. The early (1715) slip-dipped saltglazed stoneware is less common by this period (3 fragments), replaced largely by the molded white saltglazed stoneware developed in 1740. The 65 fragments of this ware comprised 3% of the Heyward ceramic assemblage. White saltglaze stoneware was manufactured until 1775, but it was rapidly replaced with refined earthenwares after the 1760s. The Heyward assemblage included a variety of hollow ware forms and plates with rim decoration characteristic of the ware – barley, bead and reel, and dot-diaper-basket. The assemblage also included 19 fragments of Nottingham stoneware, characterized by a lustrous brown glaze over a white slip, on a gray stoneware body. The Heyward era fragments did not exhibit formal attributes, but Nottingham forms typically include tankards or cans, as well as tea wares.



Figure 57: examples of Elers ware

The assemblage also included a few fragments each of other mid-18th century stonewares. Three fragments of British brown stoneware, or Fulham ware, were likely from tankards or mugs. The assemblage included 2 fragments of Elers ware, produced from 1763 to 1775. Elers ware is characterized by a compact, well-fired stoneware body, usually unglazed. The most common vessel form is tea pots. The earlier examples were decorated with elaborate sprigged decorations

while later ones exhibited bands that were engine-turned (Noel Hume 1969:121). A similar teaware was produced in black, and is known as Black Basalte. While both wares were developed by Staffordshire potters in the 1760s, the black version persisted into the early 19th century as a mourning ware.

Delftware, the tin-enameled coarse earthenware commonly used for dining in the early 18th century, persisted in popularity during the Heyward occupation; in fact, it was surprisingly frequent for the later 18th century, comprising 30% of the Heyward ceramic assemblage. The majority were from vessels decorated in blue (n=189), followed by undecorated examples (n=133). Those decorated with polychrome designs were far less frequent (n=8). Vessel forms were principally larger bowls – either small punch bowls or slop bowls for tea – and plates. One unusual example was a rolled lug handle from a tureen or other hollow ware form. It may represent the terminal end of a wide ribbon handle, or it may be complete as a lug handle.



Figure 58: Tin enameled wares: left, rolled lug handle of blue on white delft; center, examples of delft, including example with tan lead-glazed exterior (upper right); right, examples of Faience, above, Moustiers yellow on white; below, Provence blue on white.

For the first time, tin-enameled wares from countries other than Britain were a significant component archaeological assemblage. The Heyward assemblage included five fragments of French tin-enameled ware, or Faience. Faience is generally characterized by a salmon-colored earthenware paste, a white tin enamel, and often curvy or undulating rims. The vessels exhibit minimal decoration, usually confined to an elaborate band around the rim and perhaps a central medallion. Two rim sherds were decorated with blue borders, variants of Provence blue on white (Waselkov and Walthall 2002:68). Two other fragments, collected during construction, exhibited the elaborate yellow-painted borders of Moustiers yellow on white. A single fragment of Spanish majolica was also recovered, likely San Luis blue on white. Spanish and French ceramics, including tableware, are a small, but significant component of Charleston ceramic assemblages, and they are more common in the second half of the 18th century. Noel Hume (1969:141) attributes the presence of Faience in the 1770s to an interruption of trade with Britain during the Revolution. Deagan (2005) suggests that the previously illicit trade between Spanish St. Augustine and Charleston was legalized after 1750; a

resulting increase in trade may account for the increase in Spanish ceramics in Charleston.

The assemblage of non-British ceramics also includes utilitarian earthenwares, discussed in the previous section. These were somewhat less frequent than in the earlier deposits, however. The Heyward assemblage included two fragments of Spanish Olive Jar and eight fragments of French Green Glazed Coarse Earthenware. Together, French and Spanish earthenwares, both dining and utilitarian, comprise 1.1% of the ceramics.

British ceramics dominated the utilitarian earthenwares. As was the case in the earlier assemblages, Staffordshire Combed and Trailed slipwares dominated this assemblage; 164 fragments comprised 15% of the Heyward era ceramics. Flatware forms include dishes in a variety of sizes, characterized by an unglazed exterior, and an interior decorated in trailed slips, clear lead glaze and coggled edge. Most common were hollow wares featuring brown dot decorations; these are termed 'dotware' by Grigsby (1993:55). The most common form in the Heyward assemblage, and throughout Charleston is the drinking pot, with one or two handles, and the smaller mug (Beaudrey et al. 1991:22-23). Other British wares present in the Heyward assemblage include seventeen fragments of Manganese Mottled Ware and four fragments of Slip Coated ware. Though other forms are possible, the vast majority of those recovered are mugs of various sizes.

Utilitarian earthenwares are still a significant component of late 18th century ceramic assemblages, including that of the Heyward family, though they are somewhat muffled by the explosion of new tableware types. The Heyward assemblage included 53 fragments of lead-glazed coarse earthenware, eight fragments of North Devon Gravel Tempered ware, and one fragment of Buckley. The American colonial earthenwares, principally from the Philadelphia area, increase in frequency in the second half of the 18th century. The Heyward assemblage includes five fragments of American slipware and two of Mid-Atlantic earthenware. The utilitarian stonewares of the Rhineland are still in use in the late 18th century, and the Heyward assemblage includes significant amounts of Westerwald stoneware (n=23 decorated, 32 undecorated); by the end of the 18th century, the most common form is chamber pots. Lesser amounts of brown saltglazed stoneware were recovered, as well (n=16). These are most often large bottles for storing liquids (Beaudry 1991:24).

The Heyward tableware assemblage is characterized by the refined earthenwares that revolutionized ceramic production and use in the later decades of the 18th century. Together, these wares comprise 7% of the ceramic assemblage. The most significant ceramic development of the 18th century was the gradual perfection of a thin, hard-fired cream-colored earthenware that could be dipped in a clear glaze. The ware fired at a lower temperature than stoneware, and was thus a refined earthenware. The resulting wares were durable, attractive, and inexpensive, and they rapidly spread throughout the industrial world. Pioneering efforts in this direction were made by potters Thomas Astbury and Thomas Wieldon, but it was Josiah Wedgwood who ultimately perfected these wares and marketed them successfully. The original cream-bodied ware, which featured clouded or swirled underglaze designs in purple, brown, yellow, green, and gray,

was introduced in the 1740s. In 1759, Wedgwood produced a wholly green ware. All of these are loosely categorized as Whieldon Ware by American archaeologists (Noel Hume 1969:123). Whieldon-type wares were evidently a principal product of local potter John Bartlam, who operated his pottery in nearby Cain hoy from 1765 until his move to the Camden area in 1774 (South 2004). The Whieldon wares were manufactured until 1770, and are consistently present in 18th century contexts in small numbers. The Heyward assemblage included 6 fragments.

Far more numerous were creamwares. Creamware was the most common refined earthenware in the Heyward assemblage, in keeping with the almost universal popularity of cream-colored earthenware in the late 18th century. (deposits excavated by Herold in the 1970s featured numerous table and tea vessels in creamware). After Josiah Wedgwood went into business on his own in 1759, he found the green glazed ware was not so popular, and he turned his attention to the refinement of the cream colored ware, later called Queensware. Wedgwood appears to have perfected the ware by 1762 (Martin 1994), although diverse archaeological sites have produced evidence of earlier use (cf. Deagan 1975). Regardless of the initial manufacture date, by 1770 these wares could be found in the four corners of the colonial world, and are ubiquitous on archaeological sites of the period. Creamware came in highly decorated and expensive sites, which appealed to the Charleston gentry, and in relatively plain and affordable patterns. Those from the stable at Heyward (n=44) fall principally into the latter category.



Figure 59: examples of decorated creamware: left, 'cauliflower whieldon ware, possible Carolina (Bartlam) creamware, pierced saucer; right, red enameled ware (above), black transfer printed ware (below), possible candlestick or cruet base.

Several examples of decorated creamware were present in the Heyward era assemblage, though. Most elaborate was a single sherd of a molded saucer with piercework rim. Two examples featured red enameled decoration over the glaze. Other fragments were decorated with black transfer printing over the glaze. Most of these wares are attributed to Messrs. Sadler and Green of Liverpool (Noel Hume 1969:128-129). Many of the black transfer printed creamwares recovered in Charleston are

commemorative in nature, and were produced from the 1770s through the early 19th century. The Heyward assemblage included two examples.

The creamwares were augmented after 1780 with pearlwares. Throughout the 1770s, Wedgwood continued to experiment with production of a whiter ware, which in 1779 he termed 'pearl white'. Thus 1780 marks the beginning of the era where British refined earthenwares feature a bluish tint to the glazing and blue pooling in the cracks and crevices. It was not Wedgwood's intention to replace the earlier creamware, but this did occur to a certain extent, as other potteries produced the new wares in quantity. Pearlwares comprise 2.1% of the Heyward and Grimke assemblages.

Pearlwares come in a wide range of decorations, compared to creamware. Undecorated vessels were rare, and the large number of undecorated fragments recovered from archaeological contexts are usually from the undecorated portions of decorated types. Thirteen fragments of undecorated pearlware were recovered from Heyward contexts. The earliest (1780 – 1810) decorations were hand painting, often in underglaze blue, and featuring chinoiserie designs. Contemporary pieces are decorated in a range of colors, often in delicate floral designs. These are catalogued as polychrome pearlware. Six fragments were recovered from Heyward contexts. Shell edge pearlware is perhaps the most readily recognizable historic ceramic, but it was less common at Heyward. Only one fragment was recovered from Heyward.



Figure 60: examples of pearlware

Two other decorative styles were applied to pearlware in 1795, and they dominate the early 19th century ceramics. Transfer or bat printing involved the creation of detailed designs in a myriad of patterns. The North Staffordshire potters, led by Josiah Spode, successfully produced this blue on white ware in 1784. This development, coupled with a significant reduction in the importation of porcelains from Canton after 1793, resulting in a large market for the new ware (Copeland 1994:7; Miller 1991). Transfer printed wares were the most expensive of the decorated earthenwares and are recovered in a wide variety of forms; plates of all sizes, bowls of all sizes, tea cups and coffee cups, with or without handles, mugs and saucers. The list of service pieces is equally lengthy, including platters, tureens, and tea wares. The second style, known as Annular wares, represent the least expensive of the early 19th century refined earthenwares (Miller 1991). These wares feature engine-turned stripes in a variety of patterns and the vessel forms are confined to bowls, tankards, and pitchers. Three fragments of annular ware were recovered from Heyward proveniences.

Though reduced in relative frequency, colono wares remained a significant component of the Heyward and Grimke assemblages. Colono wares comprised 8.6% of the ceramics for the late 18th/early 19th century assemblage. Lesesne lustered continued as the majority ware (n=60), followed by Yaughan (n=25). River burnished wares were the

minority, as only five fragments were recovered. Native American wares of the historic period remained an important component of the assemblage (n=23).

Glass artifacts increased in relative proportion to ceramics within the kitchen group. Olive green bottle glass remained the dominant artifact (n=726), but other glass containers, particularly those of clear glass, assume greater significance as the 19th century progresses; 108 fragments were recovered from Heyward-Grimke contexts. Equally significant were fragments of aqua glass, representing medicines or condiments (n=106).

Table glass remains a small but significant component of the Heyward assemblage; 36 fragments were identified. Several fragments were attributed based on the quality of the glass. Those identifiable by form included fragments of tumblers and wine goblets. These include a drawn stem and bowl fragment, typical of the 1780-1085 period, and a heavily faceted goblet stem, dating from 1760 to 1770.



The final kitchen artifacts from the Heyward assemblage included two examples of cutlery. Knives and forks recovered archaeologically from contexts of the late 18th century are typically iron, with attached bone handles. Most commonly, the knife or fork is constructed entirely of a flat piece of iron, and bone handles are riveted to either side with small brass pins. One fork from the Heyward assemblage appears to have been fitted with a solid bone handle, attached to the pointed end of the fork by a central hole.

Figure 61: cutlery from the Heyward assemblage

The Architecture Group: Architectural items comprise 36% of the Heyward-Grimke assemblage. Elite townhouse sites in Charleston consistently feature relatively large architectural assemblages, despite the presence of a standing structure. This has been attributed to the overall size and number of structures on the properties, as well as regular maintenance and renovation of the houses. Though large, the architecture group was composed entirely of mundane items. Over 600 nails or nail fragments were recovered, and none were identifiable by method of manufacture; most are presumed to be hand wrought. Window glass was more numerous; 751 fragments were collected from Heyward proveniences. Eight fragments of miscellaneous clay tiles were included in the sample, and a single fragment of delft tile was recovered; this particular fragment was undecorated (see figure 51).

The Arms Group: Arms materials comprised .59% of the Heyward assemblage. The group included a single lead musket ball. The relatively large proportion of arms



Figure 62: worked flint

materials came from flakes of European flint, possibly reflecting gunflint manufacture or maintenance on site.

The Clothing Group: Clothing items comprised .83% of the Heyward and Grimke assemblage, and was relatively diverse, compared to earlier assemblages. Buttons were the most common clothing artifact. Four bone buttons are the common bone discs with a single central hole. Four others features four holes, a style developed after 1800 (South 1964). The fifth 4-hole button was made of shell. The six brass buttons include flat discs with a wire eye, and two-piece, hollow buttons featuring domed brass tops and bone or bass bases. The new addition to this assemblage, temporally, were four prosser buttons. These are sometimes identified as milk glass or white porcelain, and exhibit a shiny white surface. They usually feature four holes, and come in a range of standard sizes. Prosser buttons are actually fine clay, ground ceramic wasters, and quartz, pressed into a mold. The resulting buttons feature a pebbly or rough back and a shiny surface (Sprague 2002: 111). They become more common as the 19th century progresses.

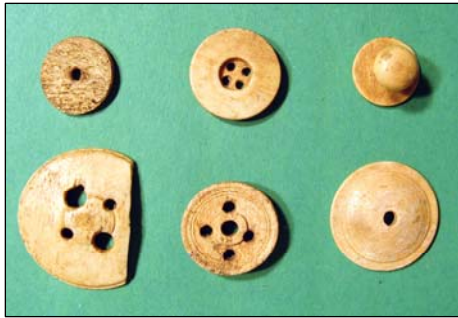


Figure 63: bone buttons: single hole button blank, four-hole machine made, bone collar stud, four and five-hole button back; single-hole button back

Eleven glass beads were recovered from Heyward assemblages, particularly from the zone 5a deposits in the central room. These were principally white to translucent/clear wire-wound beads, and most were highly eroded. Four were faceted. Three amber ‘doughnut’ (wire-wound) beads were also recovered. The final clothing item, again associated with the 19th century, was a shoe grommet.



Figure 64: white glass beads

Personal and Furniture groups: The personal and furniture groups for the Heyward and Grimke period were relatively small. Only two personal artifacts were identified, for .05% of the assemblage. These include a portion of a bone fan slat and a fragment of slate pencil, both relatively common artifacts in late 18th century assemblages. The furniture group included seven items, .18% of the assemblage. These included four brass upholstery tacks. A set of brass saddle bosses was recovered from levels of zone 5a. Three were rectangular with cut corners, approximately 1” by



Figure 65: furniture items

¾”, with prongs on the back for attachment to leather. Three items of miscellaneous hardware completed the group.

Tobacco Pipes and Activities: The tobacco group remained a significant component of the Heyward assemblage, though the 244 bowl and stem fragments were proportionately less than earlier assemblages. Pipe fragments comprised 6.5% of the total assemblage.

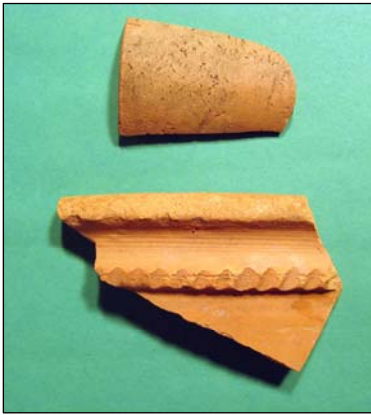


Figure 66: flowerpot fragments

The Activities assemblage included 65 items, comprising 1.75% of the assemblage. Most numerous were fragments of strap metal, usually from barrel straps. These are usually thin bands of iron 1-2” across, featuring nail holes or remnants of tacks at regular intervals. Other items included scrap brass and scrap lead. Three tools or tool fragments were recovered. Clay flowerpot fragments were the final artifacts.

Late 19th Century Assemblage

Artifacts associated with later inhabitants of the Heyward property, principally the Fuesler family, accumulated on the dirt floor of the stable building. These were retrieved from zone 1 throughout the building, and from the deeper deposits of refuse in the central room (feature 122). The latter deposits contained significant amounts of cultural materials. Many of these were 18th century materials, redeposited during continual use of the property. Other items, however, date to the second half of the 19th century and represent items lost or discarded during that occupation. Discussion below will focus on the materials made and used during the postbellum period, with briefer discussion of 18th century materials.

Kitchen group: Kitchen materials comprised 47% of the assemblage, slightly more than the Charleston average for this time period. Ceramics were proportionately less plentiful, though; only 36% of the kitchen materials were ceramics. The assemblage included fragments of all of the 18th century types discussed previously. Some of these were present in substantial amounts, but basically in proportions noted in earlier assemblages. Utilitarian wares included brown saltglazed stoneware and Westerwald stoneware. Staffordshire combed and trailed slipware was the most common utilitarian earthenware, followed by lead glazed earthenwares, American slipwares, North Devon Gravel Tempered ware, and French Green Glazed Coarse Earthenware. A few fragments of Manganese Mottled Ware, Slip Coated ware, and Mid-Atlantic earthenware were present, as well. Proportionately less colono ware was present in the late assemblage (4.6%), and for the first time Yaughan was the dominant ware.

Eighteenth century tablewares nominally present in the late 19th century assemblage included Slip Dipped white saltglazed stoneware (n=1), British brown stoneware (n=4), Astubry ware (n=3), and Agate ware (n=2). Present in more substantial amounts were Whieldon ware (n=4), Nottingham stoneware (n=6), and White Saltglazed stoneware (n=21). Also present for the first time was a single example of Scratch Blue stoneware. This variant of White Saltglazed Stoneware features etched decorations, filled with cobalt glaze. The example from Heward was a tea bowl, with blue scallops around the rim.

Chinese export porcelain remained a significant component of the late 19th century assemblage. Just how much of this type was used and discarded during the 19th century, rather than redeposited from earlier soil layers, is unknown. Porcelain comprised nearly 8% of the late 19th century assemblage, and the majority of the fragments were blue on white underglaze decorated. Despite its documented decline in popularity by the mid-18th century, Delft remains a significant component of the late 19th century materials, comprising 16% of the ceramics (a proportion comparable to slipware). A single fragment of Faience was also present.

Ceramics developed in the 19th century together comprise only 39% of the total ceramics. The ceramics associated with the mid- to late 19th century recovered from Charleston site include whitewares, white porcelains, yellow ware, and Rockingham ware. A variety of American stonewares replace those from Germany for utilitarian purposes. Archaeological ceramics decline in quantity and quality after 1840. By that time, much of the city's refuse was hauled to central dumping areas, and city residents were working to keep their yards refuse-free. Generally, ceramic styles of the 1830s continue through the century with few datable changes, and ceramics thus become less useful for dating archaeological proveniences.

An important development in the mid-19th century was the production of white porcelain in American factories beginning in 1851. Unlike the Oriental wares of the previous century, American white porcelain was inexpensive and was mass-produced as dinner ware. Plates and saucers are the most common form; a range of hollow ware forms were also available. After 1880, the wares often exhibit gilt decoration.

Refined earthenwares dominate the tablewares of the 19th century, and they form a significant component of the late 19th century Heyward assemblage. Though the peak in popularity for creamware was the 1770s-1780s, the yellow-glazed refined earthenware was manufactured through much of the 19th century. By the 1800s, cream-colored earthenware was the cheapest of the refined earthenwares (Miller 1983; 1991). These are often paler in color than wares from the 18th century, and overall vessel form is somewhat thicker. The late 19th century assemblage included 48 fragments, 10% of the ceramics.

Pearlwares developed in 1780 and 1795 are more common, and are present in a range of decorative styles. The 31 fragments of undecorated pearlware are, most likely, from undecorated portions of decorated vessels; this is particularly true for shell-edged pearlware, where only the rim is decorated. The assemblage included 11 fragments

identified as shell-edged. Hand-painted pearlwares are less frequent (n=5) and the striped Annular wares are only slightly more so (n=7). Transfer-printed pearlwares are the most common, and a range of vessel forms are represented. Together, pearlwares comprise nearly 16% of the ceramics.

The British potters, including Josiah Wedgwood, continued to refine the glaze formulas so that by c. 1820 the blue tinge had been removed from the wares, leaving a white china. All refined earthenwares manufactured after 1820 are classified as whiteware. Much to the confusion of archaeologists, the same decorative motifs continue from pearlware to whiteware. Blue transfer printing gets lighter and sparser on the overall vessel, and after 1830 appears in colors other than blue: black, brown, red, and green. Annular wares likewise continue through the 19th century, with some discernable stylistic differences. Shell edged and hand-painted wares also remain popular after 1820.



Figure 67: examples of pearlware and whiteware

None of the whitewares recovered from late 19th century proveniences were decorated, however. Throughout the antebellum period, undecorated whiteware increases in popularity. The mid-century is characterized by heavy, undecorated ware, often in paneled or octagonal forms. Fragments of these wares comprise 2% of the late ceramics.

Fragments of the 19th century utilitarian wares were equally sparse; only five fragments of 19th century stoneware crocks or jars were recovered. Stoneware vessels of the 19th century are often thicker and heavier than those of the previous periods. Most are finished on the interior with a lustrous brown glaze known as Albany slip. The assemblage included a single fragment of the lead-glazed stoneware known as Ginger Beer Bottle. Unlike most stonewares, this ware features a shiny lead glaze. Vessels are tan on the bottom half and mustard-yellow on top. The most common form is pint or quart bottles; ginger beer bottles are particularly plentiful at Civil War encampments.

The kitchen group of the late 19th century is, instead, dominated by glass containers. While the olive green bottles of the 18th century continue into the 19th century, clear glass containers become far more common. Added to the assemblages are container bottles of brown glass (often for beer) and blue glass (often for bottled water in the postbellum period). A variety of patent medicine bottles enter the archaeological record in the last quarter of the century. Glass fragments comprise 62% of the kitchen group.

Glass bottles continue to be an essential part of 19th century foodways. They were hand blown until 1820, and were then blown into a mold. For the remainder of the century, the bodies of glass bottles were molded, and the necks and lips were finished by hand. Mold seams on these bottles are visible on the bottom and sides of the containers,

and disappear at the hand-blown neck. Green glass continues to dominate the kitchen assemblage; 342 fragments were recovered from late 19th century contexts. Clear container glass increases in quantity in the 19th century, and this is reflected in the Heyward assemblage; 318 fragments were recovered. Smaller amounts of the later-style glass were noted. The assemblage included 47 fragments of brown or amber glass, one fragment of blue container glass, and one fragment of amethyst glass. The latter was developed after 1880.

Aqua glass was less common in the 19th century assemblage, but still a significant presence; 49 fragments were recovered. In the 19th century, aqua glass was used for condiments and sauces, as well as for medicines. The condiment bottles are often larger, and therefore the glass fragments may be thicker.

Figure 68: pharmaceutical vials



Table glass was relatively plentiful in the late 19th century assemblage; 69 fragments were recovered. Most were too fragmentary to identify vessel form, but the assemblage included at least three goblet stems, and two goblet bowls; the latter exhibited drawn stems and trumpet-shaped bowls. Another goblet bowl/stem fragment was molded in hexagonal shape, with incised horizontal bands around the bowl and stem. Another matched the example dated 1815 by Noel Hume (1969:191). This style features an angular/bladed knop and stepped junction with a faceted bowl. Another style of table glass present was a cut glass bowl, in a style dating between the 1870s and 1890s (Revi 1964).



Figure 69: examples of table glass

Architectural materials: Architectural materials comprise 43% of the late 19th century assemblage. As with the earlier assemblages, the group consisted almost exclusively of nails and window glass fragments. The nails included those too corroded to identify, as well as examples of hand wrought nails (typical of the 18th century) and machine cut nails (in use after 1815). Three hundred eight nails were recovered; an additional 207 nail fragments were identified. Twenty wire nails, in use after 1850, were recovered. The assemblage also included 7 copper nails, associated with slate roofs. Four tiles and a door lock completed the assemblage.

Arms, Personal, Furniture groups: The miscellaneous groups were relatively small in the late 19th century. Arms materials comprised .22% of the assemblage, and included two .32 cartridge bullet shells, as well as six fragments of English flint. The furniture group consisted of a two items, a brass furniture tack and a chandelier prism. The personal group, .1% of the assemblage, included four items. These were a slate pencil and a small brass lock fragment. Two coins were recovered; the first was a “V” nickel, dated to 1891. The second was an Indian head penny, pierced to be worn as a charm. The hole obscured the date.

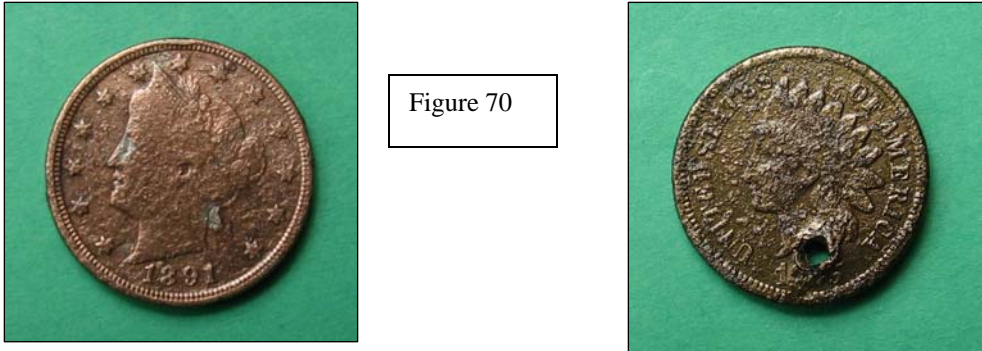


Figure 70

Clothing: As has been noted elsewhere in Charleston, the clothing group for the late 19th century was relatively large, and varied, compared to earlier assemblages. The clothing group comprised 2.3% of the assemblage, and included 65 items. The group was dominated by buttons; these may have been lost, or their presence may indicate that sewing took place in the stable building. Two bone one-hole buttons were retrieved, but three buttons exhibited four or five holes, typical of the 19th century. Most common were pearl buttons, often from shirts. Some exhibited two holes, but others had four. Twenty were recovered in all. Prosser buttons were also common (n=15) and came in two sizes. The standard ¾ inch button was most common, but the smaller ½ inch button was also present. Ten brass buttons were recovered, as well.

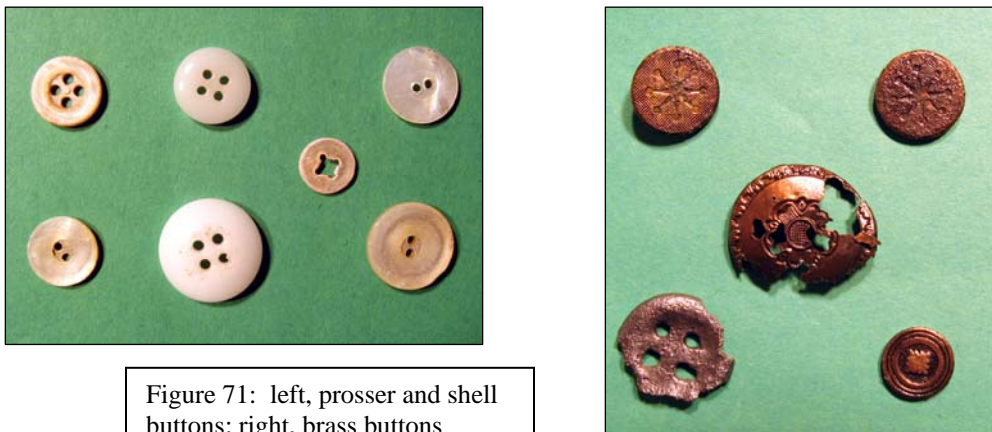


Figure 71: left, prosser and shell buttons; right, brass buttons

Other clothing items included two glass beads, likely redeposited from the early 19th century assemblage; both of these were small white wire-wound beads, like those from the previous assemblage. Items for sewing included a straight pin and a thimble.

Artifacts particularly associated with clothing styles of the postbellum period include 6 shoe grommets and five bone collar studs. The final item was a wire clothing eye; such fasteners have existed unchanged since the 17th century (Deagan 2002:176).

Tobacco Pipes and Activities: Fragments of clay tobacco pipes remained a significant portion of the late 19th century assemblage. These formed 3.1% of the assemblage, consisting of 86 fragments. These were evenly divided between stem fragments and bowl fragments.

The activities group was larger and more diverse than earlier assemblages; 104 items comprised 3.7% of the assemblage. Fragments of strap metal remained the largest portion of the group, with 54 fragments. Scrap brass and lead were also recovered. For the first time, clay flower pots, reflecting gardening, were a major component of the group; 45 fragments were recovered. As the majority of the clay pot fragments were retrieved from zone 1, rather than feature 122, it is likely that these flower pots are associated with gardening activities of The Charleston Museum, from 1930 to the present, rather than the late 19th century. While documents indicate that the Heyward house featured a formal garden in the late 18th/early 19th century, photographs of the rear yard at the time of Museum acquisition show the garden largely covered with work sheds and concrete slab foundations; gardening does not appear to have been a priority during the Fuesler years. Finally, the site yielded a number of marbles. The late 19th century included plain clay marbles, as well as two glass ‘latticino’ marbles developed in the early 20th century.



Figure 72: chandelier prism and glass marble

Materials from the 1970s Excavations

The excavations conducted by Elaine Herold continued for four years and recovered an unprecedented assemblage of material items, dating from the 1730s to the 1930s. Her preliminary report describes several of the nearly complete or unusual ceramics and other items retrieved (Herold 1978). Her listing is far from complete, as analysis and conservation of the collection was ongoing at the time of report preparation. Herold reports that 88,000 materials were retrieved, and casual observation suggests that the number is likely far larger. The curated materials include 320 cubic feet of boxed material, plus 150 cubic feet of study items. In addition, materials from the Heyward assemblage form the bulk of archaeological materials on exhibit in the Museum galleries and at the Heyward-Washington house.

Discovery of fragments of these same wares in the tightly dated strata of the stable strengthens Herold’s attributions for the artifacts. Some of the ceramics described by Herold and observed in the collection are shown below; these are more complete versions of types recovered from the stable excavation. This is not, by any means, an exhaustive description of the 1970s collection. As discussed in Chapter I, the stable

project is significant for the stratigraphy, and the recovery of tightly-dated assemblages. This, in turn, allows a detailed discussion of the material assemblages typical for these periods in Charleston. The artifacts discussed below are significant components of those assemblages. These, and many others, are on permanent display at the Heyward-Washington house and the permanent galleries of The Charleston Museum.

The Milner Assemblage: As discussed in the previous chapter, Herold uncovered extensive evidence of John Milner's occupation; this included evidence of buildings, forge, sheds, wells, and numerous posts, as well as a scatter of across the work yard surface. Two large features, in particular (feature 65 and feature 166) contained several unusual ceramic vessels.

Lead-glazed earthenwares comprise 12% of the Milner assemblage from the stable, suggesting that such wares are an important component of early 18th century ceramic assemblages. Among the wares recovered were fragments of lead-glazed redware molasses jars. More complete examples were retrieved from feature 166, a large refuse pit located in front of the stable building. This vessel is typical of those produced for sugar refining, and used throughout the Caribbean colonies in the 17th and 18th centuries. Vessels used in curing and refining brown (muscavado) sugar include molds and drip jars. Molds are cone-shaped vessels fixed with a hole in the bottom that could be plugged. In Barbados, the unglazed ceramic molds were as much as three feet tall and 18" in diameter at the top (Legg 2006). The molasses dripped into large earthenware 'drip jars', in a style similar to those recovered from the Heyward-Washington house. Though Carolina was not a sugar-producing colony, the town boasted a sugar house by the mid-18th century. Here, muscovado sugar from the Caribbean was refined, or 'clayed' to produce a nearly pure, white product (Legg 2006). The same molds and drip jars were used in this process, and the Meyer-Peace house produced several examples (Hamby and Joseph 2004:266).



Figure 73

Michael Stoner's excavations at Codrington Plantation in Barbados uncovered evidence of domestic pottery production from the mid-17th century. The lead-glazed vessels closely resembled those produced in England, and included domestic wares as well as those associated with the sugar industry (Stoner 2006). He later identified these Barbadian wares at Charles Town Landing (Stoner 2006a, 2006b). Stoner identified several possible Barbadian wares in the Charleston collections, particularly Herold's

Heyward assemblage. The molasses jars at Heyward feature a thick redware body and translucent brown speckled glaze, with a well-made rim and incised lines around the shoulder. Clay source analysis is pending. Similar rim fragments were recovered in the stable.

The stable excavations produced a few fragments of French coarse earthenware, distinguished by a rich green glaze. Saintonge earthenware has only recently been identified on Charleston sites, following description of this ware from the 18th century site of old Mobile (Waselkov 1999). The majority of the French wares recovered in Charleston come from post-1750s contexts, but some wares have been reported from earlier deposits, including the Market. Herold's excavations produced a chamber pot of Saintonge earthenware from 1730s contexts. This vessel is unusual for its completeness, as well as for the early date.



Figure 74

The most common vessel in the Milner assemblage, both from the yard and from inside the stable area, was Combed and trailed slipware from Staffordshire. The 1970s excavations produced several reconstructed vessels, including the common drinking pot. The jug form is less common.



Figure 75: Staffordshire slipware pitcher and cup: Manganese mottled ware tankards

The Heyward excavations also produced significant amounts of Manganese Mottled Ware and the related Slip-Coated Ware. Mottled ware has been dated to 1670, from closed contexts at Charles Town Landing (Stoner and South 2001), and was produced through the first half of the 18th century. It is fairly common on lowcountry sites. Far less common is the variant known as Slip Coated Ware. This ceramic has a narrower date range, produced between 1720 and 1740. Slip coated ware was recovered in significant amounts in the Heyward stable and at the Beef Market, and appears to be a marker for assemblages of the second quarter of the 18th century. Feature 166 produced a

large assemblage of reconstructed mugs in both types; the assemblage included mottled ware mugs in a variety of sizes.

The ceramics of the North Devon potteries are considered hallmarks of the late 17th century and the earliest years of the 18th century in the lowcountry (South and Hartley 1977). North Devon Gravel-Tempered Ware was produced throughout the 18th century, and so is fairly common on colonial sites in South Carolina. The ware is often fragmentary, and vessel reconstruction rare. The most common forms are pans, identifiable by a distinctively sturdy rim. The Heyward assemblage included a significant portion of a small pot, or crock, as well as a pan.

Far less common are fragments of North Devon Sgraffitto Slipware, dating from 1650 to 1710. Sgraffitto slipware is a small, but significant component of the early Heyward assemblage. The Charleston assemblage does not include any reconstructed vessels of this ware, but Herold's excavations produced large fragments exhibiting formal attributes. These include a porringer with loop handle, a chamber pot with the characteristic everted rim and associated handle, and a candlestick.



Figure 76: North Devon gravel tempered ware and Sgraffitto slipware

Though John Milner was only moderately wealthy, the excavations revealed a silver tablespoon engraved M*M. The spoon is a 1730 style with a rat-tail spine on the back of the bowl, and was produced locally by Lucas Stoutenburgh, sr. (Burton 1968:178). It is currently exhibited in the Museum's silver gallery, one of only two pieces associated with Mr. Stoutenburgh.

The Milner features also produced a range of colono ware and two unusual vessels, likely associated with Native groups of the colonial period. The most outstanding is a brimmed bowl exhibiting characteristics associated with Yamasee pottery. The grit-tempered body features a well-finished interior and a wide rim with a dark red film. The exterior of the vessel is complicated stamped. This vessel is identical to vessels recently recovered from Altamaha Town (38Bu20/1206 and 38Bu1836/1837) by Brockington. The data recovery project at Heyward Point exposed six Yamasee houses with associated features. Most of the houses produced identical vessels of Altamaha Red Filmed ware, some with stamped exteriors and others with plain finishes. While the ascription of the bowl to Yamasee or other coastal tribes is fairly certain, association of a second vessel is open to review. This unusual pottery is limestone or shell-tempered, and is in the form of a large jar or bottle, with constricted neck and broad

shoulders. The shoulder is decorated with crude spiral incising. Again, the Altamaha Town excavations produced a jar with a similar form and design, but with grit tempering. A smaller amount of shell tempering was also present in the assemblage. Though no exact match for the Heyward vessel was recovered, it is possible that this jar is also Yamasee in origin. The Altamaha Town site provided important new data on these wares.



Figure 77: possible Yamasee vessel (front and back); unidentified shell-tempered jar

At the time of report production, Herold was less certain in her ascription of wares to the occupation of John Milner, Jr. Certainly the wares, developed after 1740 and manufactured for a short time, were used by the Milner family in their new home. White Saltglazed Stoneware was developed in 1740 and quickly became a tableware of choice. The Heyward excavations revealed several plates and serving vessels, including barley pattern and bead-and-reel pattern plates. A number of the Westerwald vessels may also have belonged to the Milners. These included reed-neck jugs, with characteristic bulbous bodies and the “GR” cipher, as well as mugs and tankards in a range of patterns.



Figure 78

Based on excavations at the Heyward house and at the Market, the French green-glazed coarse earthenware (previously described as Southern European ware) becomes a small, but significant component of Charleston ceramics by the middle of the 18th



century. These wares comprise 3% of the stable ceramics. The Heyward excavations produced the most complete vessels of this type recovered to date. This was recovered from deep levels in front of the stable building. The vessel is a small (roughly one quart) pot with interior green glaze and rounded, slightly inverted rim.

Figure 79

The Heyward site contained an unparalleled array of material items associated with the Heyward family in the late 18th century. While some of the vessel fragments were recovered from the yard, most were retrieved from lower levels of the privy. This assemblage included numerous vessels of feather edged creamware, including at least nine plates and ten soup bowls. Serving pieces included a teapot lid with finial in the design of a lily, a sauce boat, a small mustard pot, and a tureen lid. The tureen lid featured a feather-edge design, and a rope handle with sprigged decoration. An equally decorative mug, with sprigged decoration, was slightly lighter in color. This has been tentatively attributed to local potter William Bartram by John Bivins, Brad Rauschenberg, and Stanley South (South 2004).

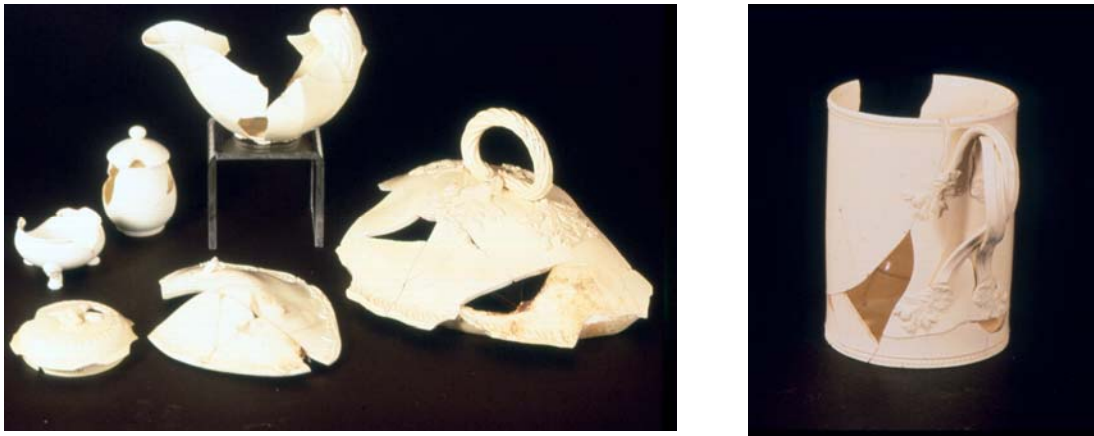


Figure 80: examples of creamware; possible Bartlam vessel

Discarded with the creamware were two sets of porcelain tea ware, likely owned and used together. The panel-decorated Imari set features tall, narrow cups with handles, a style relatively rare in Charleston collections. There are fragmentary remains of at least three cups and two saucers. Usage of this set may pre-date the overglaze/underglaze decorated set with a spearhead border by a decade or two; however, their simultaneous discard suggests they were in use at the same time. Their co-existence in the Heyward household underscores the quality and quantity of tea wares owned and used by the family. The earlier set features tea bowls in two sizes, and there are fragments of at least four cups and three saucers.



Fig. 81

A third hallmark of the late 18th century assemblage was a series of artifacts that could be ascribed to the Heyward family with certainty: green wine bottles affixed with a personalized seal reading “G.A. Hall 1768”. George Abbott Hall was the brother-in-law of Thomas Heyward. Mrs. Heyward and her sister Mrs. Hall were in residence in the house during the British occupation of the town. The assemblage included at least four bottles with seals affixed, and four additional seals, all identical. Bottle seals indicated a particular owner, or perhaps a tavern, and were associated with gentlemen in the 17th century. By the 18th century, they were more common. Bottle seals are relatively rare in Charleston, and those recovered are from prosperous merchants and planters. Recovery of seals from domestic properties other than the owners’ suggest that these bottles were used as gifts among gentlemen, or perhaps taken to dinners; identical seals for Charles



Figure 82: bottle marked for G.A. Hall 1768; close-up of seal



Pinckney (C.Pinkney) were recovered at his Sneer Farm plantation and at the home of Col. William Alston (Miles Brewton) at 27 King Street. The Heyward collection is the largest group of matching seals recovered in the city.

While Staffordshire Combed and Trailed slipware is associated with the early 18th century occupation of the site, its continued use through the colonial period is marked by recovery of significant pieces from late 18th century contexts. The privy yielded several slipware pans, characterized by swirled or combed slips on the interior, covered by a clear lead glaze, and unglazed exteriors. Some exhibit the buff paste typical of Staffordshire products, while others exhibit a pinkish to salmon-colored paste. The vessel forms and attributes, particularly the press-molded relief decoration and various glaze designs, suggest a British origin, probably the Midlands (Grigsby



Figure 83

1993:38). The Heyward assemblage included several small pans.

The most unusual, and perhaps the most significant, artifact retrieved from the Heyward strata, was not a ceramic, but two fragments of basketry. These were retrieved from the lowest levels of the privy, in association with the wares discussed above. The two fragments are from a heavier basket, likely of rush (Rosengarten 1986:18). These represent the earliest known examples of the sea grass basket tradition in the lowcountry.



Figure 84

More typical of Charleston sites, and likewise associated with African American residents of the back lots and quarter buildings, is colono ware. The Heyward assemblage included an extensive collection. Reconstructed vessels include an open bowl and a globular jar. The most unusual was a plate form, complete with smoothed rim, finished with a design likely made from the edge of a cockleshell. The resulting wavy lines were arranged in a series of triangular forms, while the plate overall was European in form. This vessel was recovered from the deeper levels of the privy, in association with the tablewares discussed above. The kitchen cellar contained other unusual colono wares, including a plate form with an octagonal rim, clearly copying forms found in English refined earthenwares.

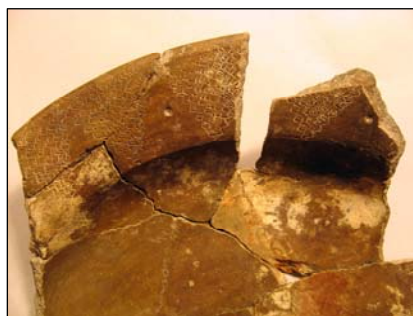


Figure 85: examples of colono ware; left, open bowl of Yaughan; center, plate with decorated rim; right, plate with octagonal rim and comparable creamware plate rim.

The artifacts discussed here are a small sample of the materials retrieved during the 1970s excavation. These relate to the artifacts recovered in 2002. Many of the Heyward materials are on permanent exhibit at The Charleston Museum and the Heyward-Washington House.

Table 4
Quantification of the Heyward Assemblages

	Zone 6 1730-40	Zone 5 1740-1750	Zone 3-4 1750-1820	Zone 1 1880-1830
<i>Kitchen group</i>				
porcelain,				
blue on white	5	66	59	30
overglazed	1	2	9	7
white				27
Stoneware,				
westerwald	3	53	23	12
Gray s.g.	4	24	37	15
Brown s.g.	4	26	16	8
u.d.	3	2		
slip dipped s.g.	4	11	3	1
molded white s.g.	2	65	65	21
Nottingham		7	19	6
British brown			3	4
Elers ware			2	
Scratch blue				1
Misc. 19 th cent.				6
Earthenware				
North Devon g.t.	5	5	8	4
Sgraffitto slipware	3	5		
Buckley	1	3	1	
Mang. Mottled ware	7	15	17	8
Slip coated ware	5	4	4	1
Combed & Tr. Slip	29	234	164	77
Lead-glazed e.ware	30	63	53	13
American slipware		14	5	3
Mid-Atlantic ware		4	2	1
FGGCEW	1	14	8	6
Saintonge		3		
Olive Jar		14	2	
Delft, undec	56	103	133	52
Delft, b/w	13	49	189	22
Delft, polychrome	2	10	8	2
Faience			5	1
Majolica	1	1	1	
Astbury ware		2	3	3
Agate ware		6	4	2
Jackfield ware	1		3	

Refined earthenware				
Whieldon ware		3	6	4
Creamware		1	44	48
Pearlware, undec			13	31
Hand paint			6	5
Transfer print			1	20
Annular			3	7
Whiteware, undec				25
Shell edge				11
Colono, yaughan	15	34	25	15
Les. Lustered	43	113	60	6
River burnish	2	3	5	
Native American	7	21	23	1
Olive green glass	167	586	726	342
Clear container glass	5	46	108	318
Brown container glass				47
Amethyst glass				1
Blue glass				1
Aqua/pharmaceutical glass	12	40	106	49
Table glass	19	30	36	69
Bottle seal	1			
Cutlery			2	
<i>Architecture group</i>				
Unidentifiable nail	140	327	445	308
Nail fragment	89	123	161	207
Nail, wrought		10		
Nail, cut				1
Nail, wire				20
Window glass	121	244	751	656
Window glass, scrap		18		
Delft tile	1	1	1	
Other tile	1	4	8	4
Misc. hardware		4		1
Brass nail			7	7
<i>Arms group</i>				
Lead shot	2	3	1	
Gunflint	2	5		
Flint fragment	2		21	6
Shell casing				2
<i>Clothing group</i>				
Bone 1-hole button		2	4	2

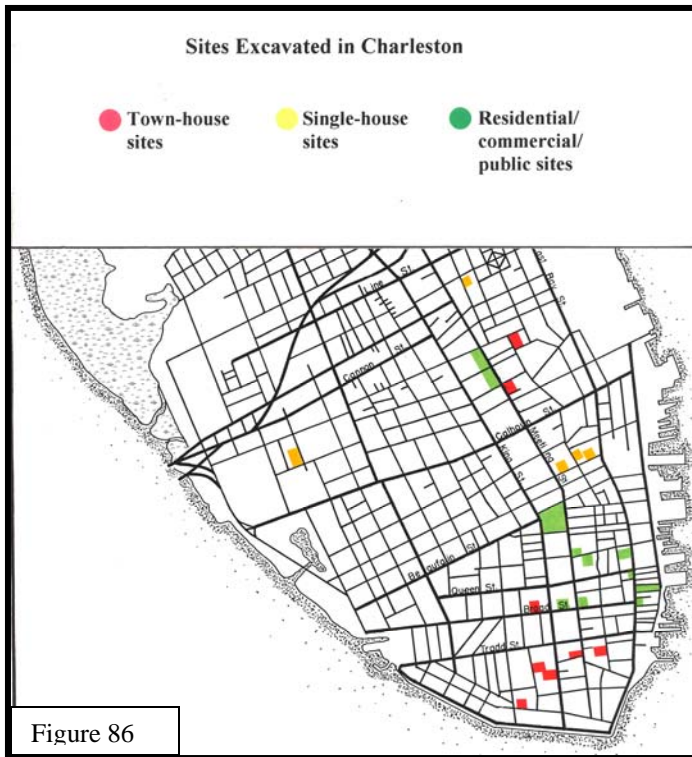
Bone 4-hole button			1	3
Brass button		5	6	10
Prosser button			4	15
Shell button			1	20
Glass button		3		
Bead		5	11	2
Straight pin		1	1	1
Thimble				1
Scissors		1		
Grommet			1	6
Collar stud				5
Eye				1
Shoe leather				1
<i>Personal group</i>				
Slate pencil		2	1	1
Coin				2
Cane tip		1		
Stamp/seal		1		
Wig curler		1		
Lead token		1		
Toy/marble	1			4
Fan fragment			1	
<i>Furniture group</i>				
Tack		5	1	1
Hardware			3	1
Saddle boss			1	
Chandelier prism				1
<i>Tobacco group</i>				
Pipe bowl	56	63	78	32
Pipe stem	55	135	166	54
<i>Activities group</i>				
Barrel strap	11	14	54	54
Flower pot			1	45
Scrap brass	5	5	2	1
Scrap lead			2	3
Slag	2			
Tool		2	3	
Keg tap			1	

Chapter V

Interpretation of the Heyward Site

Since 1982, archaeological research in Charleston has been guided by a series of long-term research goals. The proposed research topics address a number of issues, both descriptive and processual. These were initially proposed from archival studies (Rosengarten et al. 1987; Zierden and Calhoun 1984), while others were developed by scholars working in Charleston and other cities (for example, Cressey et al. 1982; Honerkamp and Council 1984; Lewis 1984; Reitz 1986). The issues were continually revised during archaeological excavations conducted since then. Research topic selection is based on the scale of the project, as well as the temporal and functional affiliations of the site. The unified research approach gives weight to small projects, while the cumulative research considers the entire city as the appropriate scale of analysis.

Research at the Heyward house derives meaning from comparison with numerous previously-studied sites in Charleston, and elsewhere. The twenty-plus archaeological sites examined by archaeologists from the Museum and other research institutions differ in many respects, but can be grouped into two categories: residential only and residential/non-residential.



The latter group includes public sites and commercial, craft, or service sites. The dual function sites are located in the portion of the city that has been intensely occupied from at least the early 18th century to the present. The dual-function sites include retail, craft, and service enterprises (Charleston Place, First Trident, Lodge Alley, 38 State Street, Visitor's Center, McCrady's Longroom and Tavern, Charleston Judicial Center). Public sites containing some residential debris include the Beef Market and two waterfront dumps (Exchange Building, Atlantic Wharf, and the 1712 Powder Magazine (Hamby and Joseph 2004; Herold 1981; Zierden and Hacker 1987; Zierden et al. 1983b, 1983a; Grimes and Zierden 1988; Zierden et al. 1982; Zierden and Reitz 2006; Calhoun et al. 1984; Zierden and Hacker 1986; Zierden and Reitz 2002; Zierden 1997).

A principal focus of the Heyward research is the issue of landscape formation; how Charlestonians changed, and were changed by, their interaction with the land. Study of the details of the physical, social, and ideological parameters of the Heyward-Washington site serves as a link to a broader understanding of Charleston's evolution as an urban center, through the

paradigm of landscape studies. The landscape study draws principally on data from the ten residential sites whose principal occupation dates to the late 18th and early 19th centuries. Urban gentry who built homes during this period include Miles Brewton (1769), William Gibbes (1772), John Rutledge (1763), Joseph Manigault (1803), Nathaniel Russell (1808), William Aiken (built by John Robinson in 1817), George Edwards (built by Francis Simmons in 1800), as well as the house built by Thomas Heyward in 1772. The Russell, Heyward, and Rutledge lots were occupied in the early 18th century, prior to construction of the present houses. The remainder of the houses were among the first in their respective neighborhoods (Zierden et al. 1987; Zierden 2001; Zierden and Grimes 1989; Zierden 1993a; Zierden 1992; Zierden 1996; Zierden et al. 1985; Zierden 2001a, Zierden 2001b; Zierden 2003). The four middle-class sites include 66 and 40 Society Streets and 72 Anson Street, rebuilt on Ansonborough lots after the 1838 fire, and 70 Nassau Street, built in the Charleston Neck in the 1840s (Zierden et al. 1988; Zierden 1989; Zierden and Anthony 1993; Zierden 1990b). More extensive and more recent archaeological work has been conducted at the residential sites, and this work has produce the core of information on the Charleston landscape; however, the public sites have also informed on the interpretations presented here.

Site Formation Considered

The horizontal variation among artifact categories of the same time period, and the changes in distribution through time and in association with various construction episodes are the building blocks of archaeological analysis. Consideration of the processes responsible for physical creation of an archaeological site is an essential first step in analyzing the materials retrieved from that site. Human habitation results in creation and gradual accumulation of soil. In his now-classic articles, archaeologist Michael Schiffer suggests that cultural materials, including natural and environmental data, enter the archaeological record (the soil) by four basic methods: discard, loss, destruction, or abandonment (Schiffer 1977). Discard, the throwing away of refuse, is the most common form of archaeological site creation. Artifacts and other debris are either broadcast on the ground surface, gradually forming zone deposits, or placed in newly dug (trash pit) or previously existing holes (such as abandoned wells, privy pits, etc.), called features. Items deposited due to loss are usually small, such as buttons, coins, toys, bits of jewelry, etc. Archaeologists discover lost items in wells and drains, in soil lenses that collect beneath wooden floors, and in yards where children play (particularly in the later 19th century). Abandonment includes destruction of buildings and their contents from fire or storm, or the cleanup associated with vacating a property or building. In some cases, though not all, it is possible to distinguish proveniences (the defined archaeological boundaries of single behaviors) resulting from specific depositional processes.

Once in the ground, artifacts can be redistributed or they can be removed (Honerkamp and Fairbanks 1984; Schiffer 1983). Such deposits have been described by Schiffer as secondary, those that have been removed from their original placement in the ground; nearly all urban deposits are secondary, if not tertiary, in nature. Archaeological deposits can also be removed, as when a pile of dirt or refuse deposit is loaded into a wagon and dumped elsewhere. Modern construction entails a good deal of removal of old (archaeological) soil and replacement

with new sterile soil. Usually the archaeological record is a combination of all three events – introduction, redistribution, and removal. In the urban situation, where the processes can become very complex, archaeologists are particularly interested in the processes that introduce and redistribute materials.

All of these issues come down to a basic question, “How did these artifacts get here?” Archaeologists are often asked this seemingly basic question by the visiting public, but they ask themselves the same question throughout the course of fieldwork and laboratory analysis. Archaeological excavations in Charleston are guided by this query. An assumption prefacing many studies is that the artifacts were discarded, or otherwise deposited, by the previous site occupants only. On an isolated, rural historic site, this is a fairly safe assumption. But this is not so in the city. On urban sites, where conditions are crowded and site improvement is constant, it is entirely possible that soil and its contents can be moved from one location to another for a variety of reasons. Likewise, refuse may be discarded on another, less improved, property a short distance from the source, whether such an action was sanctioned by the community or not. Such earth moving began in Charleston shortly after settlement, as residents filled low areas and built roads, and continues into the present century. Recent excavations at Charleston townhouse sites have documented cases of refuse from one home recovered on a neighboring lot (Zierden 2001a, 2001b), confirming long-held suspicions that refuse in Charleston ‘traveled’ from one property to another. How, then, to be sure the artifacts being recovered and analyzed were actually used and discarded on that site? Obviously, this cannot be addressed with certainty. Careful consideration of the materials recovered, the stratigraphy encountered, and variation from other sites is necessary to establish the association of materials recovered with former occupants.

Urban residents deposited most of their refuse in the back yard or work yard, if they deposited it on-site. But crowded conditions and health considerations resulted in the deposition of refuse in any convenient place in the city. The numerous creeks, marshes, and wetland areas that cross-crossed the peninsula were likely candidates, but open lots, unpaved streets, and alleys were also filled with trash from nearby households and activity areas (Calhoun et al. 1984; Zierden et al. 1983a; Rosengarten et al. 1987). The filling of creeks and marshes created new real estate (Zierden 1996).

Urban archaeological deposits can reflect abandonment and loss, as well as discard. Abandonment activities that have been recognized archaeologically include loss of materials due to fire or storm, and the resulting cleanup activities. Such deposits can often be distinguished from daily discard deposits by the artifact profile, as well as the physical properties of the artifacts. A recent example is the colonial plantation of James Stobo, where a storm appears to have damaged the planter’s house beyond repair. A number of artifacts that are curated and not normally discarded were recovered in a concentrated area. Such items as scissors, furniture hardware, and weapons were recovered in numbers and in conditions that far exceeds the normal range of materials (as reflected in South’s Carolina Artifact Pattern, for example (South 1977; see Zierden et al. 1999). Another common form of site ‘abandonment’, particularly in urban areas, is the transfer of a domicile to a new tenant or owner (moving). The single-event filling of large features such as privies and wells with unusual numbers of highly-curated items can reflect

this activity. Such deposits were noted at the Charleston Place block, where 19th century privies were filled with unusual concentrations of toothbrushes, pharmaceutical bottles, and other household items (Zierden and Hacker 1987). Lost items are usually small; when items resulting from loss are concentrated in a single provenience, it is usually one that represents a tight corner. Small items retrieved from the interior of drains are usually the result of loss. The drain at the Miles Brewton house contained children's marbles and jacks, a number of buttons, and a concentration of finishing nails, as well as a concentration of fish bones (Zierden 2001).

A major characteristic of the urban site can be disorganization, the result of continuous occupation and the intrusion of later deposits into earlier ones. Additional factors unique to urban sites are private or municipal collection of refuse, which resulted in the redeposition of material in a central location far from its place of origin (see Dickens and Bowen 1980) and replacement of private efforts with municipal services for such basic needs as water procurement and storage, sanitary waste management, and trash disposal. These activities can eventually result in an archaeological record that reflects, in Nicholas Honerkamp's view, mostly idiosyncratic activities such as lost toys and pet burials (Honerkamp and Council 1984; Zierden and Calhoun 1986).

An urban activity often reflected archaeologically is construction on a large scale, the moving of earth to build massive structures such as Charleston's urban townhouses or City Hall. At the Miles Brewton, Nathaniel Russell, and Heyward-Washington houses, for example, major building episodes (which may or may not be the first activity at the site) are reflected in deposits of yellow sand and orange clay mottled with a few pockets of darker midden sand, sparse artifacts, and mortar fragments. Such soil was encountered well beyond the probable limits of a typical "builder's trench", suggesting massive reorganization and site preparation on a large area of the urban lot. Finally, destruction may also be evident in the urban archaeological record, often in the form of features or zones of building rubble and associated artifacts (Zierden 1996, 2001, n.d.).

The documentary record of the Heyward property suggests episodes of destruction (the 1740 fire), demolition (razing of the John Milner Jr. single house), construction (building of the Milner single house and the Heyward double house), and abandonment (sale of the house and property to new owners). These events, plus a complexity of daily use and discard, were reflected in the archaeological record encountered inside the stable in 2002, and adjacent to the building in 1991. The location and limited nature of the two projects, however, limited the data on site formation evident from Herold's excavations. The location was evidently on the edge of intensive use during the Milner periods, and inside a structure after 1750. However, a few observations can be made from available data and inferred from the 1970s project.

Abandonment and destruction are in evidence in the Heyward assemblage, in the form of the ash layer (feature 119). The ash was clearly defined by the physical characteristics of the soil and the date of artifacts contained in it. The fire destroyed the house and workshop of John Milner, and Herold found extensive evidence of this in the yard directly beside the kitchen. The stable area, further to the west, appears to be outside the work yard complex, and so the ash encountered in feature 119 did not contain large, *in situ* artifacts found elsewhere. This was

further supported by the uneven distribution of ash throughout the stable. Feature 119 was deepest near the front of the stable, closest to the feature complex exposed by Herold, and quite narrow near the rear of the building, suggesting there was little to burn in that area.

Herold likewise encountered evidence of both construction and demolition of the house and outbuildings built by John Milner Jr. after his father's death. Evidence for this event from the present project includes the layers of yellow sand, orange clay, and crushed brick (zones 3-4) deliberately deposited to create a construction surface for the stable. These same soils can be traced in the builders trench for the stable and well, providing evidence that construction of the two was a single event (see discussion below). These same deposits were noted on the building exterior (Trench 1 and Trench 2), suggesting a site-wide preparation for construction.



The deposits encountered in the central room of the stable (feature 122 from the late 19th century and zone 5a from the late 18th/early 19th century) are substantial deposits of refuse that likely reflect loss as well as discard. The bone, ceramics, and glass likely result from discard, but the quantities of buttons, particularly from the 19th century, were likely lost. Their presence in significant amounts further supports interpretation of a raised wood floor for this room at some point.

Figure 87: discarded refuse in zone 5a

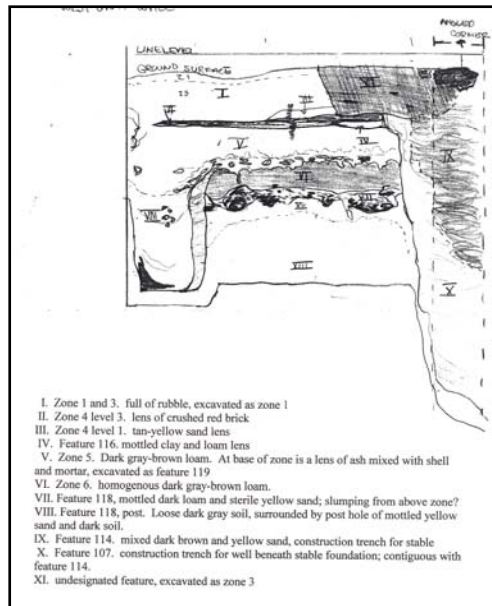
The majority of the artifacts encountered in the stable excavation are the result of discard and later redeposition. The midden layers, zones 5 and 6, contain a range of artifacts that reflect daily discard, and their small size suggests some trampling or movement after deposition. The faunal remains provide additional evidence of site formation. An unusually high percentage of the faunal specimens were gnawed, digested, and weathered, suggesting that a large quantity of trash accumulated on the floor of the stable and was left there for a considerable amount of time (see Chapter 7). General degradation of the faunal remains may also indicate heavy foot traffic in the stable in years following deposition of the refuse. Whether faunal remains from other areas of the site, outside of the stable, exhibit these characteristics is unknown. Generally, the stable area saw little refuse disposal, compared to the kitchen cellar and the privy; Herold recovered large quantities of relatively intact refuse from both locations.

An important issue to consider when analyzing refuse disposal practices at a site of long-term, evolving occupation such as Heyward is redeposition. As a late 19th century resident works and builds on his property, his ground-moving activities may disturb earlier deposits, bringing artifacts to the surface and mixing them with later materials in their new provenience. Precisely isolating redeposited artifacts is difficult; while we know when an artifact was

manufactured, we cannot say for certain how long it was used and when it was discarded. This is discussed further in Chapter VI.

Construction and Evolution of the Stable Building

Excavations in the Heyward stable were designed to retrieve general data on the multiple occupations of the property, and to add to an already-existing data base on the site. The excavations were bounded by the footprint of the stable building for practical reasons; this was the area to be impacted by construction. Retrieval of architectural data on the building itself was a secondary goal. Data from the 2002 project, combined with the 1991, project provided details on the style and date of construction for the building.



Based on archaeological data, Herold suggested that the kitchen building was constructed by John Milner, Jr. at the time that he built the brick single house, around 1750. She did not particularly address the construction date of the stable, and she did not excavate next to, or inside, the building. By general inference and style, it has been presumed that the stable was contemporaneous with the kitchen building. One mystery has been the brick well located beneath the north wall of the stable. The well features a circular brick shaft that is still open and holding water. The interior of the well shaft intrudes under the foundation of the stable, and so the exterior of the shaft protrudes beyond the interior of the stable wall.

Figure 82 profile, showing relation of builder's trenches (features 114, 107) to zone 4

While the position of a deep underground void beneath a building foundation seems unstable, there is no evidence of cracking or settling of the stable foundation above the well. Based on its position, it was assumed that the well pre-dated the stable; rather than abandon a serviceable well, the stable was constructed in a position that left the well accessible.

Excavations in 1991 exposed a paved surface (feature 104) surrounding both the well (feature 106) and the adjoining brick drain (feature 102). Based on artifacts retrieved, it appears that the brick paving was installed at the time that the drain was constructed in the early 19th century (TPQ of 1795, transfer-



Figure 89: Features 102, 104, and 106, added in the early 19th century.

printed pearlware). Beneath the 19th century brick paving, the well assumed the classic circular shape, and a construction trench was visible (feature 107). The area available for excavation was extremely limited, but the small sample retrieved from feature 107 suggested a 1740s date of construction. The construction trench for the stable was exposed in trench 1 (feature 101). The artifacts retrieved from the small sample were undated, but did not refute a 1740s–1750 date of construction.

The builders trench for the stable was exposed in several of the units excavated in 2002. Designated feature 114, the trench was exposed along the east and north walls of the stable; five 5-foot samples were excavated. Feature 114 contained ceramics developed in 1740 (white saltglazed stoneware, whieldon ware) as the latest artifact. Together, this larger sample supports the late 1740s-1750 date of construction, and suggests the stable is contemporary with the kitchen building.

Unit 2 shed further light on the relation between the well and the stable. This unit was located to expose the southern exterior of the well shaft, and it was visible in the western portion of the unit. A construction pit was clearly visible in plan view, and there was no visible separation of the well construction pit and the stable construction trench. Feature 114 initiated .3' below the interior ground surface and terminated 1.8' below surface. The portion around the brick well shaft continued much deeper; excavation terminated at 4.8' below surface. The two features appeared to be a single excavation, as they contained fill identical in content and condition. The soils were distinguished by the inclusion of yellow sand and orange clay, the soils of zones 3-4 that are a construction surface for the stable building. The excavated soils, then, suggest the filling of feature 107 and 114 was a single event. One possible alternative is that the upper portions of the well were rebuilt of brick at the time of construction of the stable; there was ephemeral soil outlines tentatively interpreted as a separate, earlier construction trench. Regardless, the continuous builders trench suggests that the builder intended for the well to be an integral part of the stable and work yard complex.

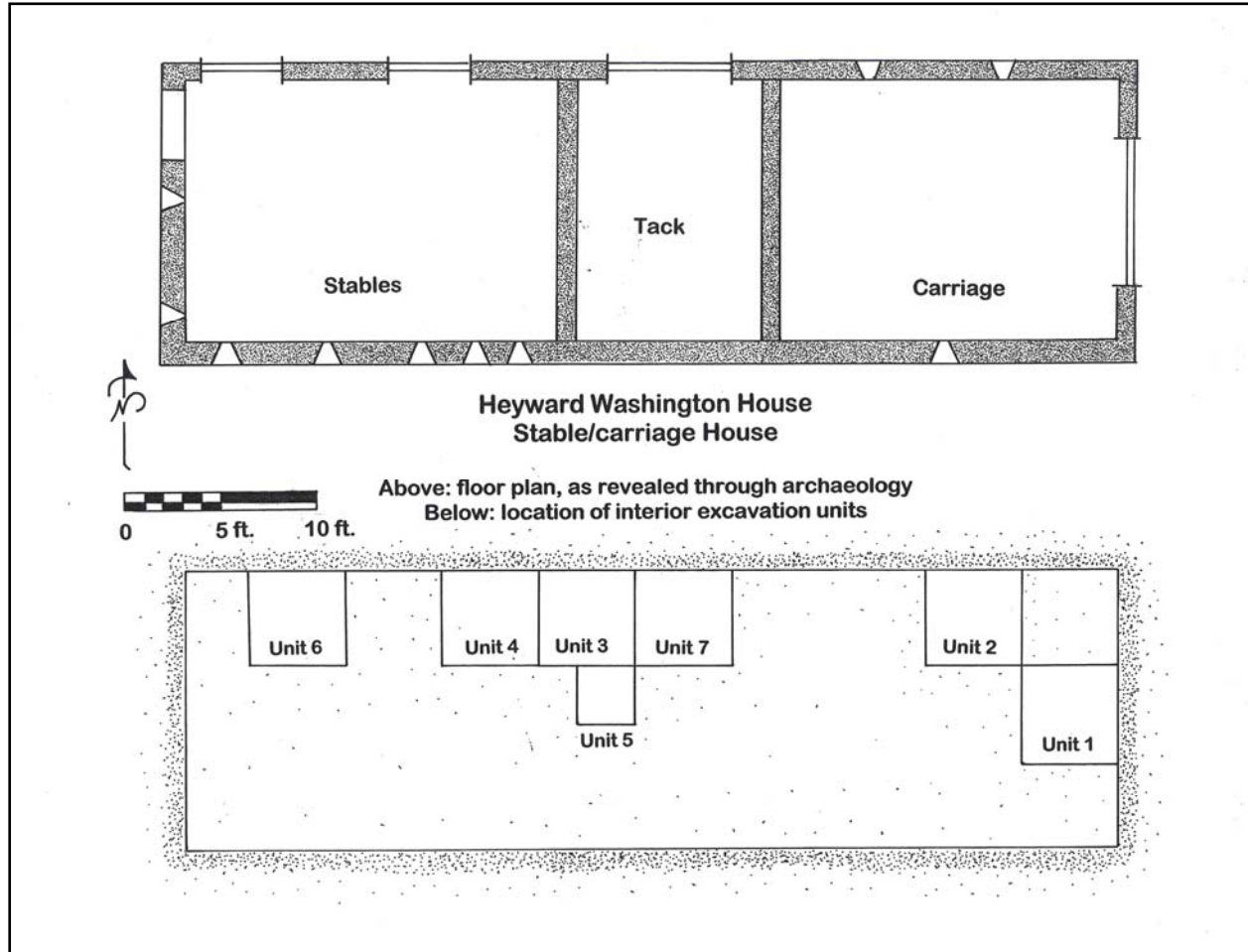
The excavations on the building interior provided further details on the construction and layout of the building. Since the Museum acquired the property in 1929, the stable building has been a single room, with no interior divisions. The only internal feature was a hearth and chimney, used by the Fuseler bakery. (The chimney was truncated when a new roof was put on the building, and was in poor repair. It was removed during the present renovations).



Figure 90

Excavations revealed two brick foundations for internal walls. Unit 3 exposed feature 121, while unit 7 revealed a companion wall (also designated feature 121). Together these walls defined a central room, 10' by 14'. The two outer rooms measure 18' by 14'. Function is inferred by the placement of doors and air vent openings, which is irregular. The central room features no openings, except for a small central door on the north side. This is likely a tack

room. The eastern room features two widely-spaced vents on the north side and a single vent, centrally located, on the south side. A large door is located on the east wall of the building, facing the drive and Church Street. This room likely was the carriage house. The western room features two small doors in the north wall, five vents in the southern, or back, wall, and two in the western wall. A larger opening on the north side of the west wall is likely a later alteration, replacing a third vent. The number of air vents, plus the two doors suggest that the western room



was the stable.

The stable and carriage rooms likely featured dirt floors throughout the 18th century. Wood floors are possible, particularly for the carriage room; their removal or decay may not be evident in the archaeological record. The well-preserved Aiken Rhett stable (c. 1830) features wood floors in the carriage room and dirt stalls, surrounded by a brick walk, in the stable. Open arcade stalls at the Miles Brewton house (c. 1769; stalls added 1820s) evidently featured earthen floors.

The tack room evidently featured a shallow basement or crawl space, possibly over a wooden floor. This area filled with refuse, first in the late 18th century (zone 5a) and again in the later 19th century (feature 122), possibly at the time the property was altered by the Fuseler

family. Suspension of a wooden floor over the crawl space would create the void that later filled with refuse. It is likely that the room was later paved with brick, as indicated by the remnant brick adjacent to the door (feature 120). The tack room at the Miles Brewton stable complex featured a similar configuration, and a deep cellar that was filled with refuse in the late 19th century (Zierden 2001).

The 2002 excavations provided important new information on the layout of the cellar building. The building was divided into three rooms, with a central tack room, a carriage room on the eastern side, and stables on the western side. Maps and architectural details visible on the building exterior may be used to interpret these functions to site visitors.

The Late Colonial Landscape

The initiation of settlement on the peninsula that would become the city of Charleston has been described as “conversion of the native terrain, flora, and fauna into what would become Charleston” (Herman in Zierden and Herman 1996). Changing the native peninsula to suit the needs of soon-to-be urban residents began almost immediately and included, among other things, imposition of a regular grid known as the Grand Modell over a very irregular peninsula. The original lot configurations allowed for these irregularities to some extent, but the maze of creeks and lowlands that marked the peninsula were soon altered and filled to create real estate that was more usable, more desirable, and certainly more regular. The social goals manifested in the 18th century as gridded and platted cities intensified as the city developed, into a drive to ‘conquer space’; Upton suggests that early Americans thought of regulated space as essential to human society (Upton 1992:53-54).



The immediate, and gradual, filling of creeks and lowlands eventually reduced the natural relief of the Charleston peninsula. Originally distinguished as a ridge of high land running up the center of the peninsula, King Street is now hardly recognizable as such. A review of the city maps created in 1739, 1788, 1852 and 1872 (see Chapter II, figures 6 and 10) shows measurable land creation, particularly along the Cooper riverfront and in the areas of former creeks, such as Water Street and Market Streets. Creation of ‘made land’ along the Cooper began in the late 17th century and continued for nearly 300 years. Concurrent with this, and noted archaeologically throughout the city, was the filling of small marshy and low areas to improve individual lots or blocks. So common was this that zones of former marsh are now readily recognizable in archaeological profiles.

Areas of former wetlands, and their conversion, are also noted through pollen analysis. Pollen samples from 14 Legare Street, Miles Brewton, Nathaniel Russell, the Powder Magazine,

and elsewhere, revealed a sequence of mesic arboreal pollen associated with undisturbed wetlands followed by pollen from weedy colonizers that inhabit wet areas. A gradual decline in mesic pollen and seeds has been noted on a city-wide basis (Reinhard in Zierden 2001b; Reinhard in Zierden and Grimes 1989).

A prominent feature of the Grand Modell was “a Square of two ackers of land upon which the four great streets of 60 foot wide doe center”. According to Jonathan Poston, this large civic square at the intersection of Meeting and Broad streets was intended to become the center of Charleston and the location of its most important public buildings (Poston 1997:155). But it was located on the city’s edge adjacent to the gates, and was slow to develop. Still, the northeast corner was set aside as a market square as early as 1690, and both cartographic and archaeological data suggest that this intersection was high ground.

Palynological and ethnobotanical studies at various Charleston sites have documented a rather dramatic deforestation of the Charleston peninsula, particularly during the second half of the 18th century. Pollen studies at the Miles Brewton house and, particularly, the John Rutledge house (located on Broad Street, a block and a half west of the market) show a decrease in the amount of oak and pine during this period and a dramatic increase in the weed species which colonize open, or disturbed, habitats (Reinhard 1989; 1990). While some of this change through time reflects individual lot clearing for building construction, the pollen spectrum reads a much larger range, and reflects a general deforestation of the Charleston environs, ostensibly for lumber and firewood. The documents hint at this phenomenon through a dramatic rise in firewood prices during the colonial period (Weir 1983:44).

The ethnobotanical samples from Charleston sites of the early 19th century are dominated by weedy plants (Trinkley in Zierden and Grimes 1989). Pollen analysis from 19th century samples at the Powder Magazine (Reinhard 1996) likewise documents a number of weed species, as well as an increase in pine and decrease in hardwoods. In contrast, a mid-18th century midden from the Courthouse site (across Meeting from the Market) revealed a variety of hardwood species – oak, elm, gum, hickory, pecan, cypress, junper, and palm – as well as pine, some weed species, and some grasses. Though the analysts suspect some recent contamination of this midden (Joseph and Elliott 1994:94), the pollen profile supports the current model.

The Charleston Judicial Center site exhibited unusual preservation of macrobotanical remains. Numerous features filled with charcoal and ash, as well as a number of primary deposits provided a wealth of environmental and dietary data (Raymer in Hamby and Joseph 2004). Flotation samples from sealed deposits “provided evidence of food production, gathering of wild plants for food and medicine, the overall character and composition of the local forest, and what woods were selected for building material and for fuel” (Raymer 2004:193). The samples span the 18th century. Particularly germane to the present discussion is evidence of the local forest. The Charleston Judicial Center data contained a heterogeneous mix of pines, oaks, hickory, maple, and other hardwoods. Oak was the most common, followed by pine. There were also a number of swamp hardwood species. Oak appears to have been the most common fuel wood, while pine dominated the architectural samples. Several native herbaceous plants were recovered; many of these, such as clover, dock, and goosefoot, are typical of open pastures

and areas of human habitation. Other native plants recovered at the site were commonly used as food and medicine, particularly by African American residents.

Limited soil chemistry, pollen, and parasitological analysis were conducted on samples from the Heyward stable. Overall, the results were disappointing, but still informative when compared to the larger city sample. Pollen samples were analyzed by Dr. John Jones. Pollen preservation was generally poor, and only two of the six samples analyzed containing meaningful data. Still, these revealed a host of weedy species typical of disturbed habitats and, in Charleston, work yards. Nearby trees include maple (*Acer*), cherry or plum (*Prunus*), and sumac (*Rhus*). Other common tree species are pine (*Pinus*) and oak (*Quercus*). Also present in the pollen samples are a number of cereal grains (wheat, barley, rye and oats). While the presence of these grains in a stable might be expected, the preserved samples are from zone 5, pre-dating construction of the building. The cereals are associated with the post-fire Milner occupation, and could have been grown on-site, or stored in a previous structure.

Soil analysis conducted by John Foss revealed an elevated level of major elements, such as lead (Pb), zinc (Zn), copper (Cu), calcium (Ca), manganese (Mn), magnesium (Mg), potassium (K), and phosphorous (P). Some of these could be related to recycling decomposed vegetation into gardens. Parasite analysis by Karl Reinhard identified plant fiber consistent with herbivore feces in a tack room sample. All of these analyses point to an intensively-used, “messy” work space throughout the 18th century.

But just how messy? The use of yards for refuse disposal, and efforts to minimize this, has been measured on Charleston sites by calculating the amount of cultural material present in the soil. To standardize this, the number of artifacts is calculated against the cubic footage of soil excavated, measured by the depth of the soil deposit and the dimensions of the excavation unit. Likewise, bone weight in grams has been calculated in the same way. These measures have only recently been added to the retinue of analytical tools used in Charleston, and calculations are only available for two domestic sites, the Miles Brewton house and the Simmons-Edwards house. At each of these, 18th and 19th century deposits were calculated separately, and work yards were considered apart from formal gardens. Work yards were the scene of the affairs of daily life, including cooking, cleaning and butchering. Dense refuse deposits are expected in these spaces. Archaeological excavation has demonstrated that formal gardens also received a good bit of debris, particularly bone, in the form of fertilizer. Bone deposits were particularly dense in the formal garden at 14 Legare.

Compared to the three early 19th century assemblages, both bone and artifacts were relatively dense in the Heyward stable. This is true for the early period, as well. Moreover, refuse increases through time; by the early 19th century, the basement of the tack room (feature 122, zone 5) became a convenient place for refuse disposal. The elevated presence of bones that are gnawed or degraded (see Chapter VII) further supports the interpretation of an area in which refuse was casually discarded; it is expected that the yard and garden might. Refuse density figures are also presented for several Beef Market assemblages; here, it is clear that the archaeological signature of the market is a concentration of refuse. Artifact density is only slightly higher than the residential sites, but the bone concentration is nearly ten times that of most residential sites.

Table 5: Bone and Artifact density at Charleston Domestic Sites

	<u>Bone, grams/ft³</u>	<u>Artifacts/ft.³</u>
14 Legare, front garden	40.0	6.6
14 Legare, work yard	16.3	9.4
14 Legare, 18 th Century refuse	139.4	41.8
14 Legare, 19 th century average		11.8
Nathaniel Russell house		16.7
Miles Brewton house		24.8
Miles Brewton garden*		32.4
Heyward 1730-1740	26.3	11.6
Heyward 1740-1750	42.0	21.9
Heyward 1750-1820	78.3	37.0
Market, 1760s floor	224.4	60.4
Market, 1739 midden	90.8	82.7
Market, 1700s living surface	219.9	31.8

The Built Environment of the Heyward Era

In a shift from a diverse, pan-Atlantic style, the Charleston single and double houses emerged in the mid-1700s as local forms that dominated the city's architecture for the next 150 years. The much-discussed single house, one room wide and two deep with a central hall and a side piazza, has been interpreted in a variety of ways. Origins for this style have been attributed to England, adapted to the tropics of the West Indies, and to Africa. Most recently, Bernard Herman (1997) has suggested a new approach, and has attributed this style to the pervasive ideology of Atlantic mercantilism and the plantation system, calling these 'urban plantation houses' (see also Herman 2005). The double house featured a four-square plan with central hall. In both floor plans, the best room was located across the front of the second floor. Charleston's most elaborate double houses date to the late 18th or early 19th centuries. The Heyward-Washington house fits this description.



Figure 93: front and rear of the Heyward house

The Heyward family purchased a well-established property in the oldest part of the city. They then replaced a modest, but likely serviceable house with one that filled the entire street frontage and featured detail and layout considered necessary for families of their social standing. The existing service buildings were evidently considered adequate, and were retained. Though data are not available, it is likely that the Heywards filled the rear yard with the formal garden. They may have constructed the privy, as well; its location at the edge of the garden is typical of late 18th/early 19th century townhouse properties (Brown 2000).

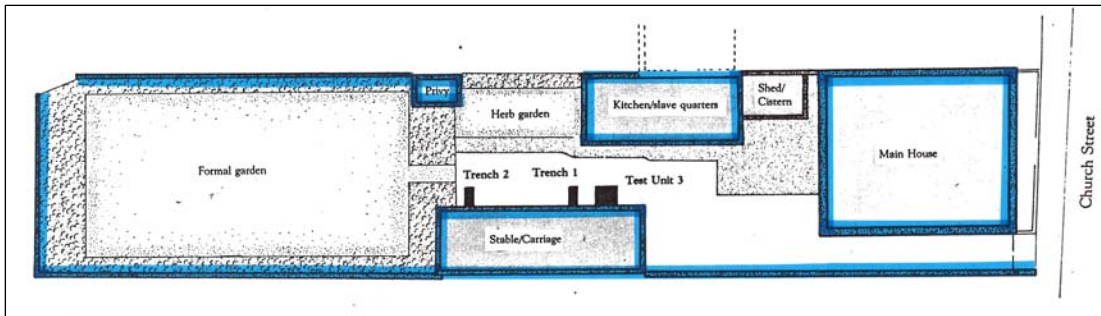


Figure 94: the Heyward lot

Owners of these houses often enlarged or remodeled their homes and service buildings periodically to make them more fashionable and functional. Herold (1978) has discussed several possible changes to the exterior of the Heyward house. This attention to architectural detail is manifest in an elevated proportion of architectural artifacts, usually over 30% of the assemblage, despite the fact that no buildings were razed or destroyed on the property. The Heyward assemblages of the late 18th and late 19th centuries feature 36% and 43% architectural materials, respectively.

The town house owners periodically renovated their outbuildings as well as their houses. The support structures and activity areas that, in conjunction with the main house, formed the



Figure 95: current interpretation of the kitchen

urban compound were integral to daily life in the city, and often received attention comparable to the main house. The support structures included kitchen, slave quarters, stables, carriage house, livestock shed, privy, well, cistern, and drainage system. The maintenance of gardens might require additional features. While variation in the size, content, construction method, arrangement, and specialization of these structures existed, they were

considered essential functional components for urban life, and were present in some form at all sites, not just those of the elite.

At some point, likely the second quarter of the 19th century, a cistern surmounted by a pantry was constructed in the space between the front of the kitchen and the rear of the house. As part of this change, the entry to the kitchen cellar was sealed and the first floor kitchen window was moved (Herold 1978:fig 12). The late Paul Buchanan of Colonial Williamsburg suggested that, prior to construction of the pantry, a single-story porch extended across the back of the house, covering the stairway to the cellar and the rear door. Herold points to a range of evidence to support the existence of this feature, including whitewashed walls in early 20th century photos and ghosting of shelves along the north wall of the property, indicating that end of the porch served as a warming or storage room (Herold 1978). Maurie McInnis notes that the pantry became popular ‘because of the elaboration of 19th century dining rituals’ (McInnis 2005:175; see also Haney 1996).



Figure 96: the 19th century pantry

The early 19th century was a period of change for many townhouse structures. Both Bernard Herman (1996, 1999) and Maurie McInnis (2005) discuss architectural changes associated with increasing restrictions on the slave population. At the Miles Brewton slave quarter, for example, second-story windows that faced the adjoining property were closed, and new buildings focused inward. Domestic space in the city likewise became more segmented and partitioned into discrete areas. Open walls and fences were rebuilt in brick, yards were subdivided into discrete areas with walls and fences, and exterior windows were sealed.



Figure 97: kitchen and slave quarters, early 20th century

Excavations at the Miles Brewton house suggested that the solid brick walls that currently surround the property were added in the second quarter of the 19th century, replacing more open, informal boundaries (Zierden 1996). The Heyward wall, however, must be earlier. Heyward’s 1792 advertisement for sale of the townhouse,

“it having twelve rooms with a fireplace in each, a cellar and loft, a kitchen for cooking and washing, with a cellar below and five rooms for servants above; a carriage house and stables, all of brick *surrounded by brick walls* (S.C. Gazette, May 16, 1792; emphasis added).

However, the fact that the property featured a brick wall in 1792 does not necessarily suggest that it was original to the house in 1772, or earlier. Still, a date of 1792 suggests that the Heyward wall predates many in the city. It must be emphasized there have been no archaeological explorations of the Heyward wall. Archaeology might reveal a more complex sequence, such as multiple construction episodes or evolution of styles. Such was the case at the Miles Brewton site.

The Work Yard

The deliberate placement of specialized service buildings, separation of work yards and gardens, and specific locations for refuse disposal were conscious attempts to mold an urban landscape suitable to the social values, as well as physical needs, of urban residents. The needs and values of Charleston's citizens changed as the 19th century progressed. Many of the visible changes were attempts to improve sanitation and prevent the spread of disease in an increasingly crowded city (Rosengarten et al. 1987).

The work yard, surrounding the outbuildings, was the scene of daily activities, including food preparation, livestock maintenance, cleaning and laundering. Sheet midden deposits contain quantities of discarded animal bone fragments; recovered skeletal elements suggest on-site butchering. The work yard was also the locus of refuse disposal, a critical problem of urban life and the one most visible archaeologically.

Refuse disposal, for example, must have reached critical proportions in the city in the early 1800s. Many of the town house work yards were paved in the early 19th century; this is reflected in plat data as well as archaeological data. Examples of extensively paved work yards include the Aiken Rhett house, the Miles Brewton house, and the Heyward Washington house. Herold noted multiple paving episodes, the latest dating to the 1840s.

A significant vehicle for a more sanitary yard was a drain system. Such features have been encountered at most of the townhouses excavated to date. While a few are earlier, most are antebellum improvements. While some of them facilitated stormwater runoff, their presence on some high lots suggest other functions as well. The elaborate late 18th century drain in the Brewton work yard evidently transported waste water from the work yard. The accumulation of small artifacts and animal bone, particularly fish scales, suggest that the drains were used primarily for the disposal of waste water.

While municipal drains in Charleston and other cities appear about mid-19th century, many houses of the well-to-do had their own drains. Nathaniel Russell's 1808 construction included a large drain in the driveway; sometime later he added a small drain in the garden. The modest drain at Legare appears to be contemporaneous with the house and outbuildings. Cruikshank and Burton (1990) suggest that many of the better English houses had some type of drains by the early 19th century. But even with these 'conveniences' there were problems. There was a constant seepage problem and a perennial issue of blockage. While some drained well, others were built with inadequate fall. In dry weather there was no flush, and solid deposits

could build up rapidly. For this reason most cities outlawed connections to privies. On properties without drains, “night soil was kept in poisonous pools, of which the inhabitants pump out the contents into open channels in the streets at night” (Cruikshank and Burton 1990).

The drain that initiates in front of the Heyward stable and runs the length of the driveway was constructed in the 1840s, based on the presence of transfer-printed whiteware in the builders trench. The vaulted brick structure was similar in style and construction method to those at the Miles Brewton and Nathaniel Russell houses. This drain is still integral to drainage of the property. Another drain was briefly exposed in the rear garden during installation of water pipes in the 1990s. Drains were an essential part of the 19th century Charleston landscape.

Wells were the principal source of water, including drinking water, in 17th and 18th century Charleston. Due to the city’s low elevation, potable water may be encountered no deeper than 10-12 feet below surface. Wells in the city were first wood or barrel lined, and then built in brick. Because of their open top and shallow nature, they were subject to contamination. This ranged from stray rats and kittens that fell into foul substances which seeped in from the sides. Contaminated wells were often abandoned and another constructed in close proximity. Others, particularly public wells, remained open as a source of water for fire fighters. Many properties contained more than one well. Often these were located close to the kitchen. The Heyward property features several. The well located beneath the stable building remained open throughout the 19th and 20th centuries. A second substantial well was located adjacent to the door to the kitchen, and is currently covered with a wooden platform. Historical architect Paul Buchanan suggested that, when functioning, would have been covered in similar fashion, with a trap door for safety and cleanliness. Proximity of the well to the kitchen would have simplified cooking and washing activities. The Milner occupation featured several wells. These were less substantial, constructed of stacked wooden barrels or wood planking. Feature 128 inside the stable appears to be another such feature. Shallow barrel wells were easily constructed and, after a decade or two, abandoned for another.

Cisterns to collect and store rainwater are another sanitation feature added to Charleston lots. As the 19th century progressed, Charlestonians became increasingly concerned with health problems that plagued the city and began to relate them to poor sanitation and increased population pressure. Specifically, increasingly large numbers of wells and privies resided on increasingly small lots in all-too-close proximity to each other (Honerkamp et al. 1982; Honerkamp and Council 1984). The result was contamination of the groundwater, described in graphic language in 1880s reports by the Public Health Officer (Rosengarten et al. 1987). Cisterns designed to collect rainwater via gutter systems from roofs, provided an alternate source of drinking water. They were first constructed in the early 19th century and became a standard feature by the 1850s. These were newly-constructed rectangular or circular vaults, often lined with mortar. They were designed to be free of contamination; the archaeological signature is often a clean sand fill with no artifactual material. All of the townhouses studied to date have at least one cistern, and the Aiken-Rhett house has several. The addition of a cistern to the Heyward property in the 1840s follows a city-wide trend.

The garden

The features and layout of the Heyward yard suggest that a formal garden was an important component of Thomas Heyward's townhouse. Along with houses, furnishings, and fashionable possessions, gardens were "statements of wealth and the right to own it" (Kryder-Reid 1994:131). A garden was "an extension of the parlor, a place where polite people walked and conversed," and a surrounding fence separated it from areas unrefined (Sarudy 1989; Bushman 1992:130). Gardens emerged as one of the sites where public and private worlds intersected (Harwood 1993). Part and parcel of the elite homes of the 18th century was a formal garden. Bushman notes that by 1725, as mansions began to appear on the American landscape, gardens came with them. From 1750 on, a garden was requisite for every mansion (Bushman 1992:129).

Gardens as an outdoor extension of interior space may have held particular importance in Charleston, where hot weather abounded. Barbara Sarudy has noted in her study of garden furniture that Charlestonians moved themselves, and their furniture, outside in search of cooling breezes (Sarudy 1995b; personal communication). There is plenty of evidence that gardens and gardening has been an important element of the Charleston landscape since at least the mid-18th century, though the styles and meanings of gardens have evolved through the centuries. James Cothran (1995) suggests that early in her history the city became the center of gardening in the southern colonies. Through the 18th and 19th centuries, the city boasted a number of nationally-important naturalists and horticulturalists. Charleston's horticultural knowledge was greatly enhanced by the founding of the Charleston Library Society in 1748 and The Charleston Museum in 1773, which boasted many important reference works. Local nurseries and seed dealers gradually replaced English suppliers as the colonial period proceeded. Formal gardens in the European style could be found on plantations by the second quarter of the 18th century and in the city by 1750. By the Revolutionary period, professional gardeners were advertising their services (Cothran 1995; see also Rogers 1984).



Figure 98: the Heyward garden, 1940s and 2002

Examinations of the McCrady Plats of Charleston properties by a host of scholars suggest that, like the Heyward property, the formal Charleston gardens of the 18th century were often located behind the townhouses, which fronted the streets (Richardson 1943; McInnis 1996). By the 19th century, many engaged in creation of formal spaces placed their gardens in front of, or in the case of Nathaniel Russell and George Edwards, beside their grand single houses, so that the garden might be viewed by those passing by.

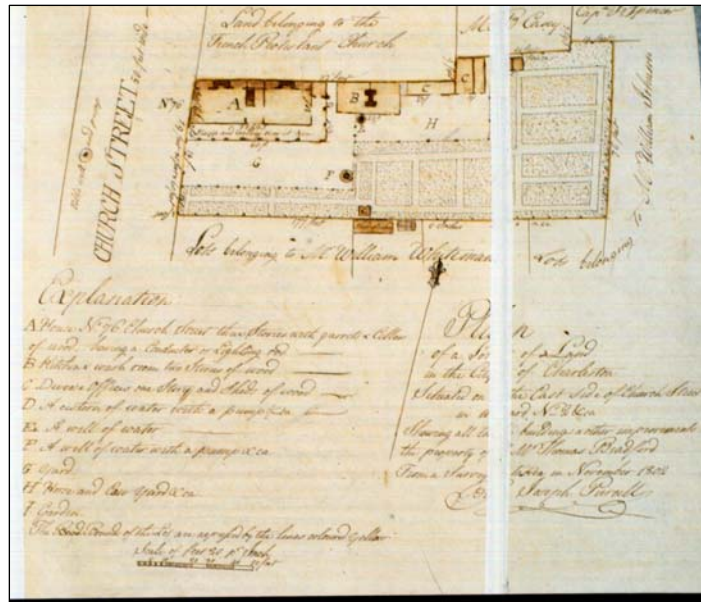


Figure 99: example of a house and lot on Church street, late 18th century. A formal garden, separated by a fence, surrounds the work yard. The ‘yard’ (G) is further divided from a ‘horse and cow yard’ (H). A small privy is located at the rear of the service buildings and interfaces with the garden. A well is located at the intersection of the yard and garden (F).

In a further connection between the garden and the interior, the plants functioned just as the delightful objects did, as subjects for conversation and comment. Just as with their buildings, Charlestonians copied English and European garden styles, but melded them with the physical conditions of their new world settings and their own community self-image. Gardens were, according to Elizabeth Kryder-Reid (1994:131), “powerful statements of wealth and the right to own it”. A proper garden required financial resources, but also privileged knowledge. Gardening required a familiarity with literature, classics and art, as well as the sciences - geometry, botany, husbandry, hydraulics, surveying, and architecture. Gardens were, particularly in the 18th century, “controlled domains of nature”. Yet gardens almost always combined the useful with the purely ornamental, even if the design was carefully contrived (Sarudy 1998:62; see also Rogers 1984; Haney 1996).

To date, no archaeological excavations have been conducted in the Heyward garden. In 1931, Emma Richardson initiated restoration of the rear yard as a period garden. At that time, the yard beyond the stable and privy was covered with concrete and broken brick, remnant of the numerous sheds and buildings associated with the Fuseler bakery. There was no specific documentation for a Heyward garden, but the configuration of the yard strongly suggested that one had existed. Facing a lack of specific data, Ms. Richardson designed a garden typical of the 1780s; this plan has remained on the property through the present. A few site features suggest a slightly different footprint may have existed. Of particular interest is the rear corner access to St.

Michael's Alley. Given proximity to this access and a rear gate, it is likely that a drive or walk continued from this point along the north wall of the current garden, to the work yard. Such an arrangement would allow through traffic of horses, carts, and carriages in a relatively constricted yard. A formal garden likely occupied the majority of the rear yard, and would have been segregated from the drive by a fence of some sort. Several Charleston plats of the late 18th century show such an arrangement. Archaeological evidence for the garden may remain below the current garden and the architectural rubble of the late 19th century.

The Early 18th Century Landscape

The Charleston landscape of the late 18th century, as discussed in the previous section, has been analyzed by a host of material culture scholars (Poston 1997; Herman 1997, 2005; Waddell 2003; Severens 1988). The house form most commonly identified with this landscape, and unique to Charleston, is the single house. These multi-story dwellings were one room wide and three across, typically with its narrow end to the street. A series of outbuildings were arranged behind the house on long, narrow lots. This house and lot layout dominated the city landscape for the next two hundred years.

Prior to development of this form in the second half of the 18th century, Bernard Herman notes that the city's domestic architecture was "considerably more diverse and more in keeping with a broader transatlantic English tradition of provincial ports and market towns" (Herman 1997:38), including paired housing, row housing, and single dwellings that combined commerce and residence.

Recent archaeological work at the Charleston Judicial Center suggests that the early city featured diverse lot layouts as well as house forms (Hamby and Joseph 2004; Joseph 2002). The project explored an entire city block adjacent to the gates of the city walls, occupied from the earliest decades of the 18th century. The use of block stripping allowed exploration of the landscape features on a scale previously unavailable in the city. This revealed an urban landscape that evolved to fit the needs of a growing population through the colonial period. The discoveries at the Judicial Center are directly relevant to the Heyward site.

The earliest architecture described by Joseph featured modest houses fronting directly on the street. Most interesting was exposure of a house earthfast construction, consisting of clay walls set in wall trenches. There was evidence for a variety of building styles and materials, "ranging from African earth-walled structures to European half-timbered dwellings to Lowcountry tabby structures to Caribbean buildings of Bermuda stone" (Joseph 2002:224). The building location and style are similar to John Milner's house on Church Street, though the gunsmith's home was constructed on brick piers. The Milner house measured 24' along the street and was 18' deep (Herold 1978:5).

More revealing was Joseph's research on land use and lot layout. Hamby and Joseph recovered a range of work yard features in the immediate rear yards of the homes

along Broad Street. These included root cellars, storage pits, structures, wells, and privies. The rear yards, in contrast, were free of features during this early period. Joseph suggests that, prior to the 1740 fire, more than half of the urban lots were used for agricultural purposes, for fields and livestock. Work yard functions were concentrated near the house and the street frontage. Such a model fits the earliest layout of the Heyward property. John Milner's modest house fronted directly on Church Street, and his work yard and smithy were located immediately behind it. The concentration of features noted by Herold was supported indirectly by data retrieved in 2002; the ash from the fire - more precisely, from structures burned in the fire - was concentrated near the front of the stable and diminished markedly in the rear of the building. Only a few post features and an abandoned well were located here. Joseph attributes this layout to cultural preference, as well devotion of considerable space to production of food and agricultural resources.

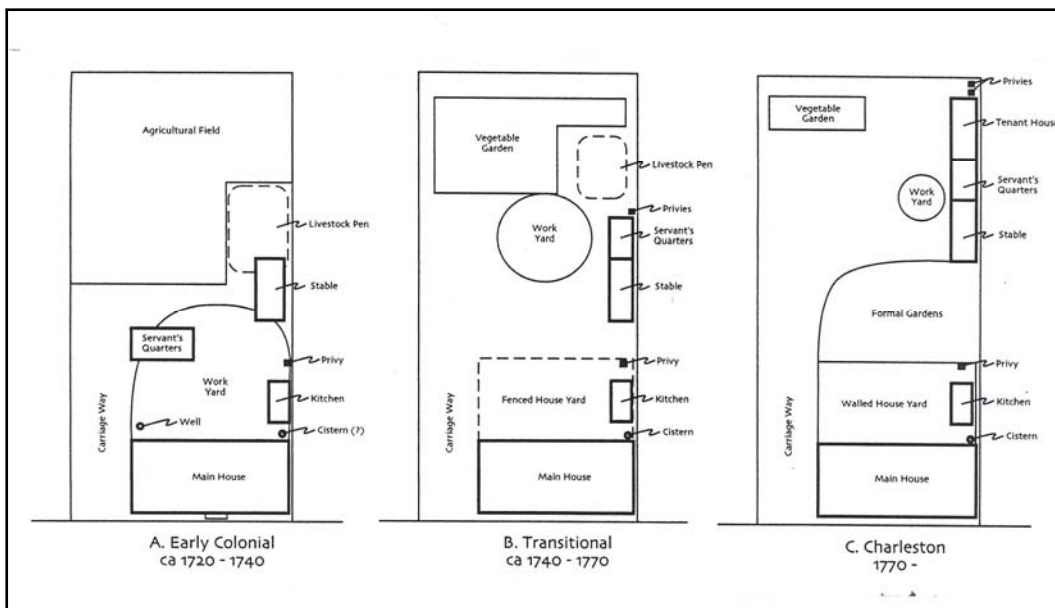


Figure 100: evolution of lot layout at the Charleston Judicial Center site (J.W. Joseph, New South Associates, Atlanta).

Joseph notes a change in this pattern near the middle of the 18th century. Generally, the work yard is reduced in size and moved toward the center of the block. This is particularly true for servants' quarters. He also notes a reduction in the number of pit features associated with the work yard. These changes may reflect a decrease in the amount of space devoted to agriculture. Several events critical to the city's development occurred at this time. Creation of the market in 1739 likely made foods more available to urban residents, while the fire of 1740 cleared space for newer building styles. The Stono Rebellion of 1740 was the first recorded slave uprising, and it resulted in stricter slave codes. Joseph noted some evidence for fencing of the rear yards. He suggests that this may indicate the creation of gardens, but may also reflect heightened security (Joseph 2002:229).

Evolution of the Charleston lot ‘reached full expression’ (Joseph 2002:229) by the third quarter of the 18th century. Lots were subdivided and infilled; rear yard enclosures shifted from wood fencing to wrought iron and brick (Zierden and Herman 1996; Joseph 2002). Work yards and buildings were arranged in linear fashion, reaching into the center of the block, further reducing space available for pasturage or crop production. Lots were enclosed and subdivided into well-defined spaces.

Joseph’s path-breaking analysis makes sense of the features discovered at the Heyward site. The evolution described at the Judicial Center is mirrored in the three construction events at the Heyward site. The earliest Milner occupation is concentrated in the front half of the lot, with little evidence for use of the rear half. The 1750s construction of the younger Milner uses a greater length of the property, and the site is filled with well-established buildings. The Heyward lot features an opulent home that fills the lot, an ordered work yard, and a formal garden likely segregated by a fence. A surrounding brick wall secured the entire compound.



Figure 101: evolution of lot layout at the Heyward site (Elaine Herold, The Charleston Museum)

The discoveries at the Heyward site and the Judicial Center site led to reconsideration of the early cartographic sources for Charleston. The earliest view of the city dates a year before the fire; the Roberts and Toms view of 1739 shows a city characterized by “late-17th century postmedieval and Jacobean buildings, with curvilinear gables and steeply-pitched roofs. Some of the buildings were half-timbered or of Bermuda Stone” (Poston 1997:25; see also Saunders 2002). A companion map by the same engravers show the city blocks filled with structures fronting directly on the streets, while the interiors of the blocks are empty. This is similar to the earlier map of the

walled city, drawn by Edward Crisp in 1711; again, buildings line the street frontage, but are relatively shallow. Traditionally interpreted as a stylized view – one showing only the main structure – the maps may, in fact, be accurate. The present archaeological research supports this view.



Figure 102: The Charleston waterfront in 1738, by Bishop Roberts

The research by Joseph, the excavations conducted at the site of the 18th century market, and the Heyward excavations all suggest that exploration of the early colonial city will require a shift in excavation methodology. The earliest occupation apparently fronts the city streets and so evidence lies beneath standing structures, not in the rear yards. But the three projects suggest that such evidence is preserved beneath the late 18th and 19th century buildings. Removal of these buildings at the Judicial center revealed subtle soil stains preserved beneath them. Herold excavated in the cellar of the Heyward house and discovered the foundations of the Milner houses preserved beneath the 1770s home. We expected that City Hall, constructed in 1800 on the footprint of the market, would have compromised the 18th century evidence. Instead, the opposite was true. Many layers of colonial occupation, filled with artifacts and bone reflecting marketing activity, were undisturbed except for narrow construction trenches, despite the fact that the City Hall foundations continued five feet below surface. These discoveries suggest that the place to look for early Charleston is in the basements of the single houses built after the events of 1740. Further, the remarkable preservation at these three sites suggests that evidence of the early city is intact.

Chapter VI Interpretation of the Artifacts

Definition of Temporal Assemblages

Since 1982, the material culture from Charleston sites has been subdivided temporally for sites occupied throughout the city's 300-year history. These temporal subdivisions were based on specific site events, as well as trends in Charleston's development. Though the site-specific subdivisions vary by a decade or two, depending on occupational histories, Charleston proveniences and their materials have generally been separated into three temporal subdivisions:

- a. 1670 to 1750
- b. 1750 to 1830
- c. 1830 to 1900

The early period is associated with Charleston's development as a frontier outpost and emerging Atlantic port city. The second marks Charleston's economic 'golden years' as a leading seaport and center of wealth and influence, and the third corresponds with Charleston's economic decline and stagnation. These periods also correspond to changes in technology reflected in glass and ceramic artifacts. The early period is that of relatively scarce and expensive material culture. The second corresponds to the rise of the British pottery industry and the development of refined earthenwares. The third is associated with a decline in new ceramic types and the explosion of mass-produced glassware.

These temporal subdivisions are more or less comparable for a number of sites. Development of baseline data for this analysis began with excavations in front of the stable building at the Heyward house in 1991 (Zierden 1993). At that point, five to six assemblages were available for each of the three temporal periods. In each case, the majority of the samples were from elite townhouse sites, but at least two were from other types of sites: middle class residential, mixed residential/commercial, or public. Though there was some overlap, each of the three temporal assemblages included data from a different grouping of sites. Listing of the sites used for each assemblage may be found in Table 6.

Each of the three temporal groupings was analyzed in relation to South's Carolina Artifact Pattern, and the eight broad functional groups. The relative proportions of these categories remain more or less consistent through time, and remarkably similar to the Carolina Artifact Pattern, supporting South's original contention that this pattern reflects typical behavior on a British colonial domestic site (South 1977:chapter 4), and measures site function. The Carolina Pattern does not appear to be particularly sensitive to variables such as status and ethnicity; site formation processes, site sampling strategies, and technological changes instead affect the relative proportions. More detailed discussion of the general temporal data may be found in the site report for the Miles Brewton project (Zierden 2001).

Table 6
Temporal Changes in Charleston Artifact Assemblages

	<u>C. 1720-</u> <u>1760 *</u>	<u>C.1760-</u> <u>1830#</u>	<u>C.1830</u> <u>1880@</u>
Kitchen, % total	55.81	58.47	43.63
Architecture, % total	26.0	33.64	48.32
Arms, % total	.19	.30	.24
Clothing, % total	.64	1.13	3.52
Personal, % total	.29	.45	.61
Furniture, % total	.25	.20	.18
Pipes, % total	11.25	4.45	1.39
Activities, % total	5.47	1.31	2.05
Ceramics, % kitchen	59.2	58.59	35.68
Glass, % kitchen	41.0	41.46	50.44
Tableware, % ceramics	58.42	81.98	88.09
Utilitarian, % ceramics	41.57	18.01	11.90
Colono ware, % ceramics	22.36	4.97	1.27
Oriental porcelain, % ceramics	6.07	20.38	15.34
Creamware, % ceramics		20.61	11.24
Pearlware, % ceramics		12.99	7.43
Olive green glass, % kitchen	32.52	27.29	18.59
Clear bottle glass, % kitchen	5.46	6.65	22.04
Window glass, % architecture	22.90	39.21	43.92
Total # artifacts/provenience	122	159	22
total # proveniences	67	205	84
total # artifacts	8229	32,746	18,670

* assemblage composed of **six** sites: Heyward-Washington 1991, John Rutledge, Miles Brewton, Beef Market 1984, First Trident, McCrady's Longroom.

assemblage composed of **six** sites: John Rutledge, Miles Brewton, William Gibbes, Beef Market 1984, First Trident, 66 Society St.

@ assemblage composed of **five** sites: Miles Brewton, Aiken-Rhett, John Rutledge, Heyward-Washington 1991, 66 Society.

Specific artifact types and classes were also analyzed as part of the general temporal analysis described above and some general patterns were evident. A variety of artifact types and classes, particularly ceramics, were compared and contrasted. Some of the ceramic types were already considered temporal markers, but calculation of baseline proportions provided data on peak popularity and usage. This was particularly true for wares manufactured for decades, or even centuries.

Tempering this exercise, however, is the issue of redeposition; on sites occupied over a long period of time, artifacts from earlier deposits are often mixed into later proveniences through the ground disturbing activities of subsequent site residents (see Schiffer 1977:27; Zierden 1981:44). The exact amount varies from site to site, and provenience to provenience, depending on the specific site formation activity. Therefore, complete tabulation of artifact assemblages, particularly for late 18th and 19th century occupations, presents a somewhat skewed artifact profile. In a late 19th century assemblage, for example, ceramics from the 18th century may reflect older materials used for a long time and then discarded, or they may reflect redeposition of earlier materials, not part of the later household. This issue may be reflected in the presence or absence of Slip coated ware, for example. As shown below, this ceramic was manufactured for a short period, 1720 to 1740, and is recovered in quantity in proveniences of the second quarter of the 18th century. It is rarely found on sites with an initial occupation date after 1760 (such as the Miles Brewton, Nathaniel Russell, and 14 Legare sites; see Zierden 1996; 2001a; 2001b).

The stratified deposits at the Heyward site, together with those from the recently excavated Beef Market site, provide an opportunity to refine our definition of temporal components in Charleston. Together, the two sites made it possible to define narrow (twenty-year) time periods in the 18th century. Combining data from the two sites masks some differences between them, likely due to site function. For this reasons, proportions of both sites are presented separately, as well as averaged together. These are shown in TablesUnlike previous studies, all of the ceramic types recovered from 18th century proveniences are considered here. Assemblages are defined for the 1720-1740 period (or, for the purposes of this study, the early 18th century), the 1740-1760 period (or mid-18th century), and a 1760-1800 period (or late 18th century). Each of the specific temporal assemblages will be discussed separately. This will be followed by discussion of change through time of particular diagnostic artifact types.

1720-1740 assemblage

The early 18th century ceramic assemblage is marked by a relatively narrow range of ceramics. Some differences between the public market site and the residential/craft Milner occupation likely reflect functional differences; significant differences are discussed. Overall, averaging of the two assemblages serves as the basis for defining the

assemblages. Together the two sites produced 1,310 ceramics from the 1720-1740 period.

Four ceramic types dominate the early 18th century assemblage. Most common are delft tablewares from Britain (27%), Combed and trailed slipwares from the Staffordshire region (12%), lead-glazed utilitarian earthenwares (10%), and locally-made colono wares (17%). Colono wares were relatively rare at the Market site (see Zierden 2006:94; 2007), and so may skew the average of these ceramics. Colono wares are 8.3% of the market ceramics, but over 27% of those from the Milner household. Colono wares attributed to Native peoples alone comprise 2.5% of the ceramics.

Other early 18th century earthenwares are present in smaller, but significant amounts. The earliest utilitarian earthenwares, North Devon Gravel Tempered Ware and Sgraffitto Slipware together comprise 4% of the ceramics. The general-purpose tankards reflected in Manganese Mottled Ware and Slip Coated ware together comprise 5.3% of the 1720-1740 wares. French and Spanish earthenwares are a minor component of this assemblage, but they are consistently present. For the early period, the majority of the non-English earthenwares are utilitarian, such as Olive Jar and French green glazed earthenware.

Table 7: Ceramic Assemblage, 1720-1740 (% of total)

Ceramic type	Market	HW	Combined
Chinese porcelain	1.0	2.4	1.7
Slip dipped saltglazed stoneware	4.8	1.6	3.2
White saltglaze stoneware	2.4	.8	1.6
Nottingham stoneware	.8	0	.4
British brown stoneware	.2	0	.1
Westerwald stoneware	4.0	2.8	3.4
Brown saltglaze stoneware	.3	1.6	.9
North Devon gravel-tempered ware	4.5	2.0	3.2
Sgraffitto slipware	.5	1.2	.8
Buckley ware	0	.4	.2
Manganese mottled ware	5.6	2.8	4.2
Slip coated ware	.2	2.0	1.1
Staffordshire combed & trailed slipware	12.9	11.8	12.3
American slipwares	.2	0	.1
Lead-glazed coarse earthenware	9.5	12.1	10.8
Delft	25.6	28.9	27.2
French ceramics	.8	.4	.6
Spanish ceramics	.8	.4	.6
Colono wares (total)	8.3	27.3	17.8
Native American pottery	2.1	2.8	2.4
Yaughan	3.5	6.0	4.7
Lesesne lustered	2.4	17.4	9.9
River burnished	.27	.8	.5

Several readily recognizable ceramic types are present in the early 18th century assemblage in smaller, but still significant amounts. A hallmark of this period is the white saltglazed, grey-bodied tableware known as Slip-dipped white saltglaze stoneware.

Developed in 1715 and manufactured until 1775, slip-dipped stoneware (and an absence of the later molded white saltglaze ware) is a marker of pre-1740 assemblages. Slip-dipped ware was nearly 4% of the combined 1720-40 assemblage. Far less common was the contemporary Nottingham stoneware. The utilitarian stonewares of the Rhineland, Westerwald and Brown saltglaze, constitute another 4.5% of the ceramics.

From his extensive excavations at the site of the Charleston County Judicial Center (northwest corner of Meeting and Broad Streets), J.W. Joseph defined a ceramic signature for pre-1760 Charleston as colono ware, delft, slipware, and Chinese porcelain. Chinese porcelain was a major component of the Judicial Center assemblage, but was surprisingly less common at the Heyward and Market sites. Here, Chinese porcelain comprised only 1.7% of the ceramics for the early period.

1740-1760 Assemblage

The combined assemblage from roughly the middle of the 18th century was significantly larger than the previous period, reflecting the increased availability of manufactured items and the ability to purchase them; 7,317 ceramics were available for the current analysis. The mid-18th century assemblage included some new ceramic types developed after 1740, and changes in proportions of those manufactured throughout the

Table 8: Ceramic Assemblage, 1740-1760 (% of total ceramics)

<u>Ceramic type</u>	<u>Market</u>	<u>HW</u>	<u>Combined</u>
Chinese export porcelain	3.7	6.9	5.3
Slip dipped saltglazed stoneware	2.8	1.1	1.9
White saltglazed stoneware	2.7	6.6	4.6
Nottingham stoneware	.8	.7	.7
British brown stoneware	.4	0	.2
Westerwald stoneware	7.5	7.8	7.6
Brown saltglazed stoneware	.27	2.6	1.4
North Devon gravel tempered ware	3.1	.5	1.8
Sgraffitto slipware	2.2	.5	1.3
Buckley earthenware	.3	.3	.3
Manganese mottled ware	6.0	.3	3.1
Slip coated ware	.3	1.9	1.1
Staffordshire combed & trailed slipware	20.2	23.8	22.0
American slipware	.5	1.8	1.2
Lead glazed earthenware	5.6	6.4	6.0
Delft	30.7	16.3	23.5
French ceramics	.6	3.4	2.0
Spanish ceramics	.76	.1	.5
Colono ware (total)	3.8	15.3	9.5
Native American pottery	1.3	2.1	1.7
Yaughan	.4	3.4	1.9
Lesesne lustered	1.9	11.5	6.7
River burnished	.42	.3	.3
Creamware	0	.1	.05
Astbury ware	.06	0	.03
Agate ware	.04	.8	.4
Jackfield ware	.12	0	.06
Whieldon ware	0	0	0

century. Chinese porcelain, in particular, is more prevalent in the mid-18th century, comprising over 5% of the ceramics. Slip-dipped white stoneware is 2% of the assemblage, largely replaced by the new molded White Saltglazed Stoneware, which comprises nearly 5% of the wares. Nottingham stoneware is slightly more common in the mid-18th century, comprising nearly 1% of the ceramics. The newer tea wares, Astbury ware, Agate ware, and Jackfield ware, are present in small, but consistent amounts.

Surprisingly, delft remains the dominant tableware, averaging 23% of the ceramics. This average number, however, masks significant differences in the relative frequency of this ware at the two study sites. Delft is a dominant ware at the market, comprising over 30% of the ceramics. At the Heyward house, however, it is only 16 % of the ceramics.

Lead-glazed earthenwares decrease in frequency during the mid-18th century to 6% of the ceramics, while the Staffordshire combed and trailed slipware increases in popularity, and becomes a cornerstone of the kitchen and tableware of the mid-century. Slipwares comprise 22% of the ceramics. These are, for the first time, augmented by a significant amount of slipware from the mid-Atlantic colonies; American red-bodied slipware comprises 1.2% of the ceramics. This, and previous, studies suggest that the mid-Atlantic wares appear in South Carolina after 1750 (Steen 1999; Zierden 2006). The earlier utilitarian wares from the Devon region are slightly less common in the mid-18th century, but together North Devon Gravel-Tempered ware and Sgraffitto slipware average 3% of the 1740-1760 assemblage. Buckley earthenware remains a consistent, but very minor component of the utilitarian wares. The earthenware drinking vessels represented by fragments of Manganese Mottled Ware and Slip Coated ware together comprise 4% of the ceramics.

The utilitarian stonewares that were produced through the 18th century increase in frequency by the mid-18th century. Westerwald stoneware comprises 7.6% of the ceramics while Brown saltglazed stoneware comprises 1.5% of the wares. The smaller drinking vessels of British brown stoneware increase in frequency to .25% of the ceramics. These were particularly prevalent at the Market, compared to domestic sites studied to date.

The locally made colono wares decline in frequency relative to the European wares, but still remain a significant part of lowcountry foodways. Colono wares are nearly 10% of the mid-18th century wares. Those colono wares exhibiting Native American attributes comprise 1.7% of the total. In his analysis of the Judicial Center assemblage, Joseph noted a peak in popularity of colono ware in the 1740s. Colono wares comprised 21% of the ceramics for the previous decade, and 29% for the 1740s. He noted a decline in popularity of colono ware after that date (Joseph 2002:218).

1760-1800 assemblage

Stratigraphic definition at the Market and the Heyward site was less definite for the second half of the 18th century, and so the third defined assemblage spans forty years rather than the previous two twenty-year periods. The parameters of 1760 and 1800 cover the period of development of refined earthenwares in Britain and their spread to the North American colonies, as well as the social and economic adjustments of the American Revolution. Creamware was introduced at the beginning of this period, and became popular in the subsequent two decades. The later pearlwares were also introduced during this period. The defined parameters of 1760 to 1800, then should envelope the development and adaptation of these wares. As expected, the late 18th century assemblage exhibits different characteristics than those of the preceding decades.

Table 9: Ceramic assemblage, 1760-1800 (% of total ceramics)

Ceramic type	Market	HW	Combined	Brewton garden	average
Chinese export porcelain	7.1	6.3	6.7	41.9	18.4
Slip dipped stoneware	3.2	.3	1.7	.75	1.4
White saltglazed stoneware	4.3	6.3	5.3	6.8	5.8
Nottingham stoneware	.8	1.8	1.4	.7	1.1
British brown stoneware	.2	.3	.25	.5	.4
Westerwald stoneware	5.1	5.3	5.2	3.06	4.4
Brown saltglazed stoneware	3.9	.9	2.4	.5	1.3
North Devon gravel tempered ware	1.2	.77	.98	.3	.76
Sgraffitto slipware	.5	0	.25	0	.16
Buckley ware	.4	.1	.24	.25	.3
Manganese mottled ware	2.8	1.6	2.2	0	1.46
Slip coated ware	.5	.38	.44	0	.29
Staffordshire Combed & Tailed slipware	27.9	15.9	25.9	14.6	19.4
American Slipware	1.6	.68	1.4	.37	.8
Lead glazed coarse earthenware	9.6	5.1	7.3	3.5	6.0
Delft	18.0	32.1	25.0	11.7	20.5
French	.6	1.0	.8	1.06	1.07
Spanish	.6	.6	.6	0	.4
Colono wares (total)	3.9	8.6	6.25	3.9	5.4
Native American pottery	.6	2.2	1.4		
Yaughan	.5	2.4	1.4		
Lesesne lustered	1.5	2.4	1.9		
River burnished	.23	.4	.31		
Creamware	4.9	4.2	4.5	5.6	4.9
Pearlware	1.7	2.2	1.9	1.0	1.6
Elers ware	.07	.2	.14	.37	.21
Astbury ware	.67	.3	.48	.12	.36
Agate ware	.21	.4	.3	.18	.26
Jackfield ware	.54	.3	.4	.68	.45
Whieldon ware	.09	.58	.33		

In addition to the two sites considered here – the Heyward-Washington house and the Beef Market – an additional assemblage is available for analysis. Excavations in the formal garden at the Miles Brewton House (c. 1769) revealed a dense layer of refuse

deposited for drainage, and possibly fertilizer, at the time of garden construction. Analysis of this short-period assemblage indicates that the materials were deposited in the 1770s. The Brewton garden assemblage adds nearly 1,600 ceramic fragments to the already large assemblage, for a total of 10,493 ceramics. This number reflects the explosion of mass-produced wares in the fourth quarter of the 18th century

Tablewares in general and Chinese porcelain in particular increase in frequency relative to utilitarian wares in the second half of the century. The Brewton garden was filled with discarded Chinese porcelain. The three sites together average 18% porcelain, while the Heyward and Market average only 6.7% porcelain. Creamware, developed in 1760 and prevalent by the 1770s, supplies an additional 5% of the ceramic assemblage. The later pearlwares provided a smaller portion of the ceramic assemblage; the many decorative styles together comprised slightly less than 2% of the ceramic assemblage.

The earlier tablewares also remained significant components of the late 18th century ceramics. Delft averaged 20% of the ceramics, and ranged from 11% in the Brewton garden to 18% at the Beef Market and 32% at Heyward (despite the multiple sets of creamware and Chinese porcelain, as documented by the privy deposits). White saltglaze stoneware is still present in measurable amounts, averaging nearly 6% of the ceramics. The earlier slip-dipped stoneware averages 1.4% of the ceramics.

Tankards and mugs of Manganese mottled ware decline in relative popularity (1.5%), and an equal amount of British brown stoneware vessels are present (1.8%). The slip-coated ware vessels comprise only .3% of the late 18th century wares. The relative proportion of Nottingham stoneware is comparable at 1.2% of the ceramic assemblage.

The delicate tea wares of the third quarter of the 18th century remain a minor component of the ceramic assemblage, but are most popular during this period. The tea wares include Elers ware, Astbury ware, Agate ware, and Jackfield ware. Of the four, Jackfield evidently was the most popular. Together, these four ceramics comprise 1.3% of the ceramics. Also included in this total is Whieldon ware, the refined table and tea ware that preceded creamware.

Staffordshire Combed and Trailed slipware remains the dominant utilitarian ware, and still comprises 20% of the ceramics. Lead glazed earthenwares are less common, comprising 6% of the ceramics. Stonewares comprise an additional 6% of the ceramics. Colono wares overall decline to 5% of the ceramics.

Change through Time

Of particular interest are the utilitarian earthenwares that form the foundation of kitchen wares during the 18th century. North Devon Gravel Tempered Ware and North Devon Sgraffitto slipware were developed in 1650 and are considered markers of 17th century occupation in the lowcountry (South and Hartley 1980). However, Sgraffitto slipware is documented through 1740 and the gravel-tempered ware was made through the end of the 18th century. These have been recovered in small, but consistent amounts

in later proveniences, and so their mere presence is not necessarily evidence of early occupation. But the proportions of North Devon wares supports the proposed period of manufacture and peak use. North Devon gravel-tempered ware comprises 3.2% of the early 18th century assemblage (though it is more prevalent at the Market than in the Milner household), and Sgraffitto slipware an additional 1% of early ceramics. Together, the wares comprise 4% of the 1720-1740 ceramics. They decline only slightly in proportion in the mid-18th century assemblage; though the relative proportions change – Sgraffitto slipware increases to 1.3% of the assemblage – together they comprise 3.1% of the 1740-1760 assemblage. This suggests that these early utilitarian wares were still in use in the city through the middle of the 18th century. A smaller proportion of these wares persist in the late 18th century assemblage; together the two wares comprise 1.2% of the 1760 to 1800 assemblage. The conclusion is that an early 18th century assemblage will contain a significant proportion of the North Devon wares, but that these persist in use through the mid-18th century, at least. Sgraffitto slipware declines significantly in the late 18th century, but the gravel-tempered ware is more common – nearly 1% of the assemblage – reflecting its continued manufacture.

Table 10: Comparison of Ceramic Assemblage through the 18th Century (Heyward Washington and Beef Market, % of total)

Ceramic type	1720-1740	1740-1760	1760-1800
Chinese export porcelain	1.7	5.3	6.7
Slip dipped saltglazed stoneware	3.2	1.9	1.75
White saltglazed stoneware	1.6	4.6	5.3
Nottingham stoneware	.4	.75	1.3
Elers ware	--	--	.14
British brown stoneware	.1	.21	.25
Westerwald stoneware	3.4	7.65	5.2
Brown saltglazed stoneware	.93	1.43	2.4
North Devon gravel tempered ware	3.2	1.8	.98
Sgraffitto slipware	.85	1.3	.25
Buckley earthenware	.2	.3	.24
Manganese mottled ware	4.2	3.15	2.2
Slip coated ware	1.1	1.1	.44
Staffordshire combed& trailed	12.3	22.0	25.9
American slipware	.1	1.2	1.14
Lead glazed earthenware	10.8	6.0	7.3
Delft	27.2	23.5	25.0
French/Spanish	1.0	.49	1.31
Astbury ware	--	.03	.48
Agate ware	--	.4	.3
Jackfield ware	--	.06	.4
Whieldon ware	--	0	.33
Creamware	--	.05	4.5
Pearlware	--	--	1.95
Colono wres	17.8	9.5	6.25
Native American	2.4	1.7	1.4
Yaughan	4.7	1.9	1.4
Lesesne lustered	9.9	6.7	1.9
River burnished	.53	.36	.3
*Based on #	1,310	7,317	8,895

Buckley ware, manufactured from 1720 to 1775, is a minor component of the ceramics throughout the 18th century; however, it persists at the same proportion, roughly .25%, throughout the study period. The general category of lead-glazed utilitarian earthenwares is a more significant component of the early colonial assemblage. These wares average nearly 11% of the early 18th century assemblage, and decline to 6-7% throughout the remainder of the century. Also significant markers of early 18th century occupation are the tankards of Manganese mottled ware and, to a lesser extent, the variant known as Slip Coated ware. Mottled ware, manufactured from roughly 1670 to 1750, is over 4% of the early 18th century assemblage, and declines steadily through the century, to 3%, and then 2% of the later ceramics. The mere presence of the solid-colored variant known as slip coated ware appears to be a marker of the early 18th century, as the ware is extremely rare on sites occupied after the third quarter of the 18th century. Slip coated ware comprises 1% of the early and mid-18th century assemblages, and .4% in the late 18th century

One of the colonial periods most common wares, Staffordshire Combed and Trailed slipware, was manufactured in a variety of decorative motifs from 1670 until 1795. The ware is a significant component of the early 18th century assemblage (12.3%), but it increases dramatically in the second half of the century (22%) and is, in fact, most prevalent in the late 18th century (26%). This suggests that the ware increases in popularity as the century progresses, despite the development of new ceramic types. The increase in the late 18th century is due primarily to a preponderance of this ware at the Market (28% of the assemblage in contrast to 16% at the Heyward house), and may reflect activities particular to that site.

Delft is the most common ceramic and, somewhat surprisingly, remains so through the end of the century. This, despite the development of a series of new ceramics that were both more durable (such as White Saltglazed Stoneware in 1740) and more affordable (Creamware in the 1760s). Studies suggest that delft was rather rapidly replaced with the new wares (see Martin 1994a). Further, reconstructable vessels of delft are relatively scarce in the Charleston collections, including those from the Heyward house; therefore, delft has been analyzed in less detail than other ceramic types. The fact that delft is so fragile may partially explain its prevalence in the archaeological record, but it does not fully account for the continued dominance of this ware in the late assemblage. British delft was manufactured through the end of the 18th century, and it was evidently purchased and used by Charleston residents through the entire period. Delft is 27% of the early 18th century ceramics, 23% of the mid-18th century ware, and still 20% of the late 19th century assemblage.

French and Spanish wares are a small, but surprisingly consistent part of the ceramic assemblage throughout the century. They are 1% of the ceramics throughout the time period. Not reflected on the associated tables, but noted on others is that the most common ware, French Green Glazed Coarse Earthenware generally increases in popularity through the century, particularly in the 1760-1800 period. Also, the French and Spanish wares of the first half of the century are predominantly utilitarian

earthenwares. Tin-enameled tablewares, both Faience and Majolica, increase in frequency in the second half of the 18th century. Ivor Noel Hume (1969:141-142) suggests that Faience appears on British colonial sites in the late 18th century, a result of trade interruption during the Revolutionary War. Spanish wares increase slightly after sanctions against the long-standing trade with St. Augustine were relaxed in the second half of the 18th century (Deagan 2005).

Dates for introduction and widespread use of creamware have been the subject of some debate (Deagan 1975; Martin 1994; Miller et al. 2000). Though Wedgwood was working on development of his cream colored earthenware in the 1750s, and presented his perfected ware to the Queen in 1762, archaeologists suggest the explosion of creamware on British colonial sites does not occur until the 1770s (Martin?). These dates are supported by the present data. Creamware is barely present in the 1740 to 1760 assemblage (.05%), and is still proportionately small in the 1760-1800 assemblage (4.5%). Creamware comprises 5% of the Brewton garden assemblage, deposited in the 1770s. This supports the general consensus that, once available, creamware is purchased and used in large amounts (Martin 1994, 1996).

A similar argument can be made for pearlware. Introduced in 1780, with new types available in 1795, the ware remains relatively scarce in the 1760-1800 assemblage. According to the figures presented here, pearlware lags well behind creamware in popularity through the end of the century. Pearlware comprises 1.6% of the late 18th century ceramics, compared to 4.9% creamware. When the Brewton garden collection is excluded from calculation (this assemblage was deposited before the development of pearlware), pearlwares still comprise only 1.95% of the ceramics, compared to 4.5% for creamware. Earlier temporal quantification for Charleston (Zierden 1996:116) featured different time periods, with different results. The 1760-1830 period featured an assemblage with 13% pearlware. Comparison between the two calculations suggests that most pearlware cycles into the archaeological record after the turn of the 19th century.

The present exercise provides additional data to the ongoing study of colono wares in the urban setting. Previous studies suggest that colono wares span the 18th century in Charleston and, though they decline in popularity by the end of the century, are still present in the early 19th century. Joseph's decade-by-decade analysis of proveniences from the Judicial Center site indicate that colonoware peaks in popularity in the 1740s (29% of the pottery sherds), and declines rapidly after the 1760s (7%) to a low of 2% in the 1790s and 1800s. Data from Heyward and the Market suggest a similar, though less dramatic, trend. Colono wares are nearly 18% of the 1720-1740 assemblage, 10% of the mid-18th century assemblage, and 5% of those from the 1760 to 1800 assemblage. Proportions are similar for the previously-calculated 1760-1830 general Charleston assemblage; here colono wares were also 5% of the ceramics, suggesting a steady use and discard into the early 19th century.

Finally, comparison of the materials from the Heyward/Market to the Carolina Artifact pattern reveal some general trends in the total artifact assemblages for these periods. It must be stressed that the Carolina Pattern is based on domestic sites of the

British colonial period, though South's (1977) model was based on at least some sites that served as craft enterprises as well as residences (the Brunswick tailor shop, Fort Moultrie). The Heyward site served as a residence and smithy during the first two periods of consideration, while the Market was a public location throughout the 18th century. With these caveats in mind, the three temporal assemblages are combined and compared to the Carolina Pattern. Doing so masks differences between them, and combines samples of different sizes; this is particularly true for the 1740 to 1760 period, as the Market assemblage is five times as large as the comparable Heyward assemblage. For these reasons, the assemblages are presented separately, as well as in combination, below.

Table 11: Comparison of HW and Market to Carolina Artifact Pattern

Artifact group (% of total)	1720-1740		1740-1760		1760-1800	
	HW	Market	HW	Market	HW	Market
Kitchen	47.9	52.9	65.9	74.0	53.2	69.3
Architecture	37.9	26.0	24.2	13.9	36.8	19.6
Arms	.63	1.7	.35	2.7	.59	2.4
Clothing	0	.3	.54	.1	.83	.3
Personal	0	0	.19	0	.05	.07
Furniture	0	0	.19	.05	.18	.16
Pipes	11.7	13.2	7.7	15.7	6.5	16.0
Activities	1.6	1.6	.82	1.7	1.7	1.2

Still, the separate assemblages exhibit comparable proportions, and so the combined assemblages reflect some general trends. These are, briefly, a relative paucity of the artifacts considered 'luxury' items, such as clothing, personal and furniture items. Though not reflected in the combined figures, the use of tobacco pipes generally decreases through the 18th century, relative to other artifact groups. The abundance of pipes at the market is responsible for the high proportion of pipes through all three periods in the combined assemblage. Kitchen materials increase in quantity from the early 18th century through the mid-century. After that, architectural materials increase in proportion in the archaeological record, as rebuilding and renovation continues on confined city lots. The dramatic increase in material items available, and within the financial reach of, Charleston residents is reflected in the dramatic increase in total number of artifacts recovered from proveniences dating after 1740.

The baseline artifact profiles presented in this section are designed as a guide to understanding poorly documented assemblages. They are by no means definitive; the sample was created from only two sites, with different functions and occupations. The strength of this comparative exercise comes from the narrow, and comparable, date ranges for the assemblages, made possible through detailed documentary records and well-preserved stratigraphy. The artifact profiles will be refined as additional data become available.

Refinement and the Consumer Revolution

The layers of earth on archaeological sites such as Brewton have produced assemblages of material culture that reflect the purchasing power of Charleston's elite, which was the greatest of any colonial city. The material culture reflects the transformation of Charleston from a frontier settlement to a flourishing metropolis, defines the characteristics of daily life in the city, and prescribes a language of shared beliefs among the planter-merchant elite. At the same time, it presents the somewhat muffled voices of the city's middling and poor, free and enslaved residents who understood this language of artifacts, even if they did not share its rewards. The Charleston data reflect the "refinement of America" argued by Richard Bushman and others (Bushman 1992; McInnis 1996; Carson et al. 1994).

Maurie McInnis has noted that townhouses were the "ultimate consumer object" (McInnis 1996; Chappell 1994). As refinement took hold in the early 18th century, the first object acquired by the rising gentry was a new house (Bushman 1992; Sweeney 1994:15). Within these houses, a well crafted and appointed interior became "a carefully orchestrated processional space. Charlestonians knew the importance of having a house 'in order' and they strove to create the proper setting for the enactment of their social rituals. It was on the interior where the patron could impart his personal cultural refinement with the combination of interior architectural details and collections of paintings, furniture, and decorative arts" (McInnis 1996:7, 10, 15). Indeed, addition of



plasterwork and other finishes was the first step in creating a separate dining room in the early 19th century (Jordan 1988). Sweeping staircases, large sash windows, elaborately detailed public rooms, and a carefully arranged traffic pattern were element which emphasized social inclusion within clearly defined boundaries of social division and distance.

Figure 103: the Heyward dining room in 2002

Through the development of refinement and gentility, the rising gentry sought to distance themselves from the lower social classes. Gentility was the visible expression of gentry status. Most germane is that the genteel life depended on the creation of these proper environments. As gentility trickled down to the middle class, the need for 'refined' objects created an unprecedented mass market for individual items. Those who

had achieved gentry status during this period proclaimed this status through possession and use of the proper equipment, all increasingly available from the European markets. People wanted carpets, mahogany furniture, drapes and coverings, tableware, fine fabrics, candlesticks, buckles and buttons, hats, and a host of signifying objects. Charlestonians had a particular affinity for British style and British goods, attributed to the “constant arrival of both foreign artisans and imported consumer goods, the availability of imported design books relating to both architecture and furniture, and the experiences of Charlestonians traveling abroad (Savage 1995:4; Savage and Iseley 1995; Savage and Leath 1999).

The above list reminds the reader that the archaeological record contains only a small fraction of such objects, as the archaeologist deals only with what was discarded, lost, or abandoned. The objects that dominate advertisements, such as fabrics, household furnishings, fashion accessories, and exotic foodstuffs (Martin 1995; Calhoun et al. 1982) rarely find their way to the archaeological record. Likewise, we rarely recover the goods and services for aspiring gentlemen touted by local craftsmen: portraiture, silver, clocks and cabinetry, luxurious dresses, china painted with “gentlemen’s coats of arms” (South Carolina Gazette 1770). Though the range of items is limited, the extensive archaeological excavations have revealed a number of artifacts which, when viewed from this perspective, provide tangible evidence of the items used by the town house owners and, inferentially, the meaning of these objects to them, to guests, and to the rest of the city.

On a broader level, archaeologists have been investigating the relation between material culture and symbolic behavior since the 1970s, and have looked for indicators of socioeconomic status in the archaeological record. Studies of status have focused on specific artifact types on a presence/absence basis, and on relative proportions of broad artifact categories (Otto 1975; Spencer-Wood 1987; Zierden and Calhoun 1990; Zierden 1999). The results of these studies have been mixed, and scholars have agreed that the issue of an individual’s status in a community is complex, with both individuals and groups ascribing status in different ways. Status in a complex society is determined by a variety of factors and is often revealed by differing access to symbolic and material rewards. Measuring symbolic rewards is beyond the scope of archaeological study, but scholars have worked to relate socioeconomic status to material remains. Here, socioeconomic status refers to the relation of unequal distribution of goods in a market economy relative to social and economic differentiation. An assumption of archaeological research is that the material culture served a sociotechnic function, and was reflective of both income level and the prestige level of its users (Binford 1962; Deetz 1977; Spencer-Wood 1987:2; Zierden and Calhoun 1990).

Analysis of the Heyward materials follow from studies at contemporary townhouse sites, particularly the Miles Brewton site and the Brewton materials retrieved from the 14 Legare site (Zierden 2001a, 2001b). The wealth and prestige of the Brewton household is most strongly reflected in the kitchen and dining artifacts recovered on site. The wealth of Chinese porcelains and elaborate table glass recovered from the garden deposits suggest that such items were owned, and discarded, in relatively large numbers

by the household. These assemblages, too, contained a number of tea wares, in both porcelain and white saltglazed stoneware. The somewhat more mundane creamware assemblage contained a pattern of hand-painted dinner wares, possibly a special order for the family. The later Pringle-Frost assemblage, in contrast, is filled with everyday items, from buttons to ceramics, suggesting that little of the family's remaining finery was cycled into the archaeological record during this period

Little of the Heyward finery was recovered in the stable (see Chapter IV). The materials excavated by Herold, particularly the collection from the privy and the kitchen cellar, define the material goods of Charleston's revolutionary elite. The Heyward assemblage is dominated by a set of feather edged creamware, featuring plates and soup bowls, as well as a host of special serving pieces. Many of these are decorated with enameled, molded, pierced, or sprigged designs. A wide range of Chinese export porcelain includes at least three matching sets of tea ware, as well as a range of other pieces. The assemblage also includes a wide range of table glass, including stemmed wine glasses, tumblers in a variety of size, punch cups, and specialty vessels. Decanters are included, as are the set of personalized wine bottles belonging to George Abbott Hall. The 1970s assemblage is not yet completely quantified, so direct comparisons with other Charleston sites are not available. But the range of ceramics and other artifacts compare favorably with other elite Charleston assemblages.



Figure 104: Tablewares from the Hewyard assemblage

Easily lost in the interpretation of properties like Heyward is that for more than half a century African Americans likely comprised the majority of residents at the property. One of the frustrations of townhouse sites, though, is that the rubbish of master and slave are likely mixed in most primary contexts, and certainly in all of the secondary ones. Further, master and slave used many of the same materials, but ascribed to them different meaning, difficult to decipher from archaeological data alone. Master and slave ate many of the same foods, but perhaps prepared them in a different way. To the extent possible, the limited archaeological data will be used to give 'voice' to the black bondsmen and women. In her study of the Calvert household of Annapolis, Maryland, Ann Yentch worked to give voice to these urban residents, teasing their presence from ethnographic, historic, and demographic data. From here, she discussed architecture and social spaces of the "workaday world" and the few artifacts that could clearly be attributed to African American residents (1994:188). Her research serves as a comparative base for work in Charleston (Zierden 1996; 1999).

The basic unit of excavation and analysis is the land or house lot associated with a domestic structure and outbuildings. Although a few artifacts could be lost in the yard by visitors to a house, the vast majority excavated from primary deposits in a yard that is well fenced or otherwise clearly separated are usually assumed to have been deposited by

the house residents who controlled the yard space (Deagan 1982:161; Spencer-Wood 1987:2), evidence from the 18th century deposits at 14 Legare notwithstanding (Zierden 2001c). The archaeological data associated with one structure, though, usually cannot be divided to correspond with smaller economic or social units that may be housed in that structure, such as multiple families, servants, or boarders. Therefore, the archaeological meaning of a household corresponds to all residents of a domestic structure that have created primary deposits of artifacts in the house yard. Archaeological analyses represent, then, the combined acquisition and discard behaviors from all residents in a house structure, and possibly from some visitors as well (Spencer-Wood 1987:2).

Archaeologists began their research on African American sites in a quest for “Africanisms” (Ascher and Fairbanks 1971) - material signatures of an African past and African identity (Singleton 1991; 1999). Few were found. But with a black majority, sizeable and continuous influx of people directly from Africa, and black communities living in relative isolation into the twentieth century, the South Carolina lowcountry seemed an apt location for such a search.

And lowcountry sites did yield a relatively large number of things that seemed to be peculiarly African - colono wares, mud-walled houses, distinctively marked graves, cowrie shells and, as an example of European goods used in an African way, blue glass beads (Ferguson 1992; Joseph and Zierden 2002; Shlasko 2001; Combes 1974; Stine, Cabak and Groover 1996). But what has emerged is a picture of complexity. The people being studied were not, particularly by the 19th century, African, but African American, a creolized society encompassing ideas and traits acquired from contact with Native Americans and Europeans (Singleton 1999; Cooper and Steen 1998; Steen 1999). The enslaved people who lived at the Heyward site were not African, but African American. The objects they used, and the few objects they owned, were created in a multi-ethnic new world setting or, primarily, obtained from the vast European market of mass-produced goods. But what did these manufactured, or hand made, objects mean to the people who used them? Leland Ferguson (1992:xli) has suggested that creolization theory is an appropriate avenue for exploring the material expressions of African American material culture. Creole people are culturally and/or racially mixed; more significant is the examination of the creolization process, a multicultural adjustment experienced by all of the groups in contact, entailing interaction, exchange, and creativity. Moreover, differences of time, place, and ethnic mix resulted in different creolized cultures in various parts of the Americas.

Archaeological evidence of ethnicity is indicated from several sources; objects presumably brought from Africa; recreations of African-styled or African-influenced objects, and mass-produced objects and other Euro-American materials reinterpreted for a special African American meaning (Singleton 1991; Ferguson 1992). It is the latter group that has held the greatest interest to archaeologists in recent years.

Archaeologists have suggested that these European artifacts were appropriated and altered by Africans for use in protection rites grounded in African cosmology (Franklin 1996). Most common were a variety of artifacts marked with an X or other markings, interpreted as symbolic of the Bakongo cosmogram (Ferguson 1999; Franklin

1996; Russell 1997; Young 1994). Such marks have been found on pewter spoon bowls, colono ware vessels, clay marbles, and coins. Other artifacts were appropriated, given religious meanings, and possibly worn as charms, such as pierced silver coins and a variety of glass beads (Stine et al. 1996; Young 1996; Heath 1999; Singleton 1991). Still other objects have derived meaning from their deliberate placement, as shrines or charms, in sub-floor pits, beneath floors and within walls, or in other hidden locations (Brown and Cooper 1990 ; Samford 1999; Bankoff et al. 2001). Stine, Cabak and Groover have separated these into two groups: personal charms, worn on the body, and household charms, placed around the household to protect the structure, its contents, and its residents (Stine et al. 1996:54). Interpretations of the latter group have been based principally on their place of recovery and the *in situ* association of altered and unaltered objects. While these interpretations are supported by the current archaeological, historical, and ethnographic evidence, some scholars have warned that African culture is complex and varied, and the objects may have held multiple meanings (DeCorse 1999:132-133).

Researchers have focused on glass beads, with blue beads the most common on African American sites. William Adams has suggested that a single blue bead protected the bearer from the evil eye (Adams 1987). Others have suggested that the blue beads may have a broader meaning (Yentsch 1994; Stine et al. 1996:64). Glass beads were widespread in the 18th century, and were used in a variety of ways by many cultural groups, most notably as an item traded to Native Americans. Therefore, all beads recovered on colonial sites cannot be attributed to African residents. It has been suggested, however, that glass beads were not popular among Euro-Americans in the 19th century (Yentsch 1994). Glass beads were relatively common in the Heyward stable. The most common types recovered were plain white or clear beads. Also prevalent in late 18th century assemblages are cornaline d'alleppo, which are green glass tube beads covered in opaque red glass, in imitation of carnelian. The site also produced Spanish coins, some pierced to be worn as charms..

The most common artifact associated with African American residents is colono ware. Unlike the objects described above, the colono ware recovered at Heyward, and on other lowcountry sites, has been attributed primarily to African American potters. African Americans are also viewed as the primary users of this ware, though this attribution is less clear. The Heyward site contained a large and varied assemblage of colono ware, compared to other townhouse sites. The ware particularly predominates the early assemblage. Native American wares are also part of the early assemblage, though their source in urban collections remains poorly understood.



Figure 105: colono ware and creamware from the Heyward site

Chapter VII

Interpretation of the Animals

Animal Remains from the Heyward Washington Stable

Elizabeth J. Reitz and Carol Colaninno

Recent work at the Charleston City Hall/Beef Market site raised many questions about the use of animals in Charleston during the eighteenth century. More data from sites occupied during the early eighteenth century, sites whose function was residential, and sites occupied during the late nineteenth-century were clearly needed to test some of the questions raised by the Beef Market data. Thus a study of animal remains recovered from the Heyward-Washington stable and carriage house is particularly important for the additional insights offered for domestic life in the city during the eighteenth century and at the end of the nineteenth century. In particular, this research provides additional data from a residential site whose occupants may have purchased some or all of their meat from the Beef Market.

Recent research into the role of animals in Charleston focuses on three related issues (Reitz 1986; Reitz and Zierden 1991; Zierden 1996b; Zierden and Reitz 2001, 2005). One of these is an apparent increase in commensal animals, particularly rats, at some sites. The other two research questions involve related phenomena: the increase in sawing toward the end of the nineteenth century and developments in the use of specific animals or groups of animals, such as small domestic animals (e.g., pigs, sheep or goats, and chickens), large domestic mammals (e.g., cows), and fishes. Use of these different groups of animals within Charleston may reflect use of the outlying areas and accommodations to growth within the city itself. They are also related to the development of commercial life in the city.

Studies of these issues are limited by the fact that, for the most part, interpretations are based on data recovered from residential or mixed activity sites occupied between the late 1700s and the mid-1800s (e.g., Reitz et al. 2005). The dominance of nineteenth-century residential data thwarts efforts to distinguish between aspects of animal use reflecting household-level choices and those that reflect commercial mechanisms. We have been unable to adequately study the extent to which the debris from residential lots is the product of on-site, household-level butchery or from meats purchased elsewhere. This is a severe limitation because the animal debris recovered from residential sites might represent trash discarded from meats purchased from local vendors, stores, or markets rather than from private, on-site slaughter of animals raised on residential properties. Without a larger sample from households contemporaneous with the Beef Market, it is not possible to define characteristics of each which might enable us to distinguish between household-level individual choices, or between two broad sources of meat in Charleston. The dominance of data from the antebellum nineteenth century also has made it difficult to study the development of commercial life in the city and animal husbandry in the low country.

A further problem studies of the eighteenth-century face is that a variety of activities occurred at many of these sites. Particularly surprising is the evidence that people lived at sites that are considered non-residential. The primary activities at eighteenth-century sites such as the

Charleston Exchange and Custom House, First Trident, Lodge Alley, McCrady=s Tavern and Longroom, and the Powder Magazine were not clearly domestic. Nonetheless, animal remains from these sites indicate that some residential debris was discarded at them. It seems more likely that anonymous urban poor lived at these so-called non-residential sites. Such sites are more correctly considered mixed-use sites where both commercial and domestic activities occurred. Work at Heyward-Washington does not fill this gap, but these non-residential or mixed-use sites probably offer examples of non-elite residential animal use in the city. The Beef Market itself also had signs of food consumption, but is more readily considered at least a commercial source of meat rather than an example of domestic or residential animal use.

Review of Previous Work

Recent work at the Charleston City Hall/Beef Market site enhances our ability to consider these issues. These topics are elaborated upon in *Archaeology at City Hall: Charleston's Colonial Beef Market* (Reitz 2005; Zierden and Reitz 2005) and the details will not be repeated here.

A summary of that research finds several areas which may distinguish between residential and commercial sites and between eighteenth-century and nineteenth-century sites (Tables 1, 2). For example, by the end of the eighteenth century, commensal taxa generally, rats in particular, form a large part of the urban animal community at residential sites. The percentage of domestic individuals declines in the Market and in the eighteenth-century city as wild animals, particularly fishes, increase. Sawing as a butchering device is less common in the eighteenth-century than is at the end of the nineteenth century. Hacking is much more common on Market specimens than on eighteenth-century, residential specimens. Cut marks are far more common on materials recovered from eighteenth-century sites outside of the Market than on specimens from inside the Market. Overall richness also increases; domestic animals are more dominant in early eighteenth-century Beef Market and city-wide assemblages than they are in assemblages from the late 1800s. This decline in domestic mammal individuals and increase in the richness of wild resources continues into the nineteenth century. Beef, however, was the primary meat sold at the Market and consumed in the city.

Pig and cow specimens recovered from the Market are similar in some respects to those discarded at residential sites in the eighteenth century (Figures 1, 2). In these figures, residential eighteenth-century pig elements are from Brewton, First Trident (Colonial), Post Office/McKenzie, pre-Russell, Rutledge, and 14 Legare. Non-residential eighteenth-century pig elements are from Atlantic Wharf, Charleston Exchange and Custom House, Lodge Alley, McCrady=s Tavern and Longroom, and the Powder Magazine (for references see Table 1 as well as Reitz and Ruff [1987] and Zierden and Reitz [2002]). Residential eighteenth-century cattle elements in this figure are from Brewton, First Trident (Colonial), Post Office/McKenzie, pre-Russell, Rutledge, and 14 Legare. Non-residential eighteenth-century cattle elements are from Atlantic Wharf, Charleston Exchange and Custom House, First Trident (Tannery), Lodge Alley, McCrady=s Tavern and Longroom, and the Powder Magazine. The patterns observed are not what one would expect if the Market was the primary source of meat (Reitz 2005; Reitz et al.

2005). If the Market was the source of much of this meat, we would expect the Market assemblage to contain specimens discarded there and hence absent from the consumer locations.

The age at death for pigs and cows both in the eighteenth-century city and in the Market indicates that these animals were raised primarily for meat (Tables 3, 4). The percentages of young pigs in the Market collection is about half that in the eighteenth-century city. The percentages of young cattle in the Market collection is somewhat higher than in the eighteenth-century city but the contrast is not as dramatic as that for young pigs.

Exploration of these topics, however, is hindered by small samples sizes and a lack of temporal control for the eighteenth century. One critical need was to find additional data from an eighteenth-century residential site. Stratified data from another eighteenth-century residential property were needed because one critical question continues to be unresolved. Can we determine if livestock was raised on residential properties; specifically, can we distinguish between slaughter debris originating from livestock slaughtered on urban properties and debris from meat purchased elsewhere based on the identity of the parts of the skeleton represented by the specimens recovered?

Methods

The Heyward-Washington House has been studied archaeologically since 1973; but the data reported here were excavated from the stable and carriage house in 2002 by Martha Zierden of The Charleston Museum. A 1/4 - inch mesh was used to recover vertebrate animal remains during excavation. For purposes of this report, four analytical units are defined: 1) Zone 6-7, associated with the earliest occupation of the site and John Milner's gunsmith operation from 1730 through 1740; 2) Zone 5 and Feature 119, dating from the 1740 fire and John Milner's reuse of the property from 1740 through 1750s; 3) Zones 3 - 4, 1750 - ca. 1820, dating to construction of the carriage house and use by John Milner, Jr. and Thomas Heyward; and 4) Zone 1, dating to the late-nineteenth/early-twentieth century when the structure was used for a variety of activities. A list of the proveniences studied and their temporal assignment is provided in Appendix A. Both Milner and Heyward were influential men in the community and the faunal remains from the stable and carriage house are considered examples of upper status, residential, eighteenth-century animal use in the city and are the focus of this study.

Vertebrate remains were identified using standard zooarchaeological methods. All identifications were made using the comparative skeletal collection of the Zooarchaeology Laboratory, Georgia Museum of Natural History, University of Georgia by Carol Colaninno and M. Rhonda Cranfill. A number of primary data classes are recorded as part of every zooarchaeological study. Specimens are identified in terms of specimens represented, the portion recovered, and symmetry. The Number of Identified Specimens (NISP) is determined. The only exception is the Indeterminate vertebrate category (Vertebrata), for which specimens are not counted due to their fragmented condition. Specimens that cross-mend are counted as single specimens. All specimens are weighed to provide additional information about the relative abundance of the taxa identified. Indicators for sex, age at death, and modifications are noted where observed. Measurements are recorded following the guidelines established by

Angela von den Dreisch (1976) and are presented in Appendix B. The Minimum Number of Individuals (MNI) is estimated based on paired specimens and age.

Although MNI is a standard zooarchaeological quantification method, the measure has several well-known biases. For example, MNI emphasizes small species over larger ones. This can be demonstrated in a hypothetical sample consisting of 20 squirrels and one cow. Although 20 squirrels indicate emphasis on the exploitation of squirrels, one cow could, in fact, supply more meat. Further, some specimens are more readily identifiable than others. The taxa represented by these specimens may be incorrectly perceived as more significant to the diet than animals with less distinctive specimens. Pig teeth, readily identified from very small fragments, exemplify this situation. Conversely, some taxa represented by large numbers of specimens may present few paired specimens and hence the number of individuals for these species may be underestimated. Turtles are good examples of this problem. MNI for these animals will usually be underestimated relative to the number of specimens. Basic to MNI is the assumption that the entire individual was used at the site. From ethnographic evidence, it is known that this is not always true (Perkins and Daly 1968). It is particularly likely to be untrue for larger individuals, animals used for special purposes, and where food exchange is an important economic activity (Thomas 1971; White 1953). In the analysis of contexts where some or all of the meat consumed may have been purchased from a market, MNI is particularly problematic.

In addition to these primary biases, MNI is also subject to secondary bias introduced by the way samples are aggregated during analysis (Grayson 1973). The aggregation of archaeological samples into analytical units allows for a conservative estimate of MNI, while the "maximum distinction" method, applied when analysis discerns discrete sample units, results in a much larger MNI. In estimating MNI for the four analytical units, all faunal remains associated within each unit are grouped together.

Biomass estimates attempt to compensate for some of the problems encountered with MNI. Biomass refers to the quantity of tissue which a specified taxon might have supplied. Estimates of biomass are based on the allometric principle that the proportions of body mass, skeletal mass, and skeletal dimensions change with increasing body size. This scale effect results from a need to compensate for weakness in the basic structural material, in this case bones and teeth. The relationship between body weight and skeletal weight is described by the allometric equation:

$$Y = aX^b$$

(Simpson et al. 1960:397). In this equation, X is specimen weight, Y is the biomass, b is the constant of allometry (the slope of the line), and a is the Y -intercept for a log-log plot using the method of least squares regression and the best fit (Reitz et al. 1987; Reitz and Wing 1999:225 - 231; Wing and Brown 1979). Many biological phenomena show allometry described by this formula (Gould 1966, 1971) so that a given quantity of skeletal material or a specific skeletal dimension represents a predictable amount of tissue due to the effects of allometric growth. Values for a and b are derived from calculations based on data at the Florida Museum of Natural History, University of Florida, and the Georgia Museum of Natural History, University of Georgia. Allometric formulae used in this report are listed in Table 5.

The species identified from the Heyward-Washington stable and carriage house are summarized in faunal categories based on vertebrate class. This summary contrasts the percentage of various groups of taxa in each collection. These categories are Fishes, Turtles, Wild birds, Domestic birds, Wild mammals, Domestic mammals, and Commensal taxa. In order to make comparisons of MNI and biomass estimates possible, the summary tables include biomass estimates only for those taxa for which MNI is estimated.

Turkeys are placed in the Wild bird category, but may actually be domestic birds. According to the American Poultry Association (1874), standards of excellence for turkeys were established by the mid-nineteenth century. However, measurements are the primary means of distinguishing between wild and domestic birds and specimens that could be adequately measured are not present in this assemblage. Because wild turkeys are present in South Carolina, the more conservative interpretation is to consider the archaeological specimens as pertaining to the wild form, especially for the early dates.

Commensal taxa include rats (*Rattus* spp., *R. norvegicus*, *R. rattus*), dogs and wolves (Canidae, *C. familiaris*), cats (*Felis domesticus*), and mule or horse (*Equus* sp.). Although commensal animals might be consumed, they are commonly found in close association with humans and their built-environment. They are animals that people often either do not encourage or actively discourage, or keep for their labor and companionship. Some animals identified as consumed might also be commensal.

The presence or absence of specimens in an archaeological assemblage provides data on animal use such as butchering practices and transportation costs. These data may be particularly important at a market. In order to explore this question, artiodactyl specimens identified at the Heyward-Washington stable are summarized into categories by body parts. The Head category includes only skull fragments, including antlers and teeth. The atlas and axis, along with other vertebrae and ribs, are placed into the Vertebra/Rib category. It is likely the Head and Vertebra/Rib categories are under-represented because of recovery and identification difficulties. For example, vertebrae and ribs of pig-sized animals cannot be identified as pig or caprine unless distinctive morphological features support such identifications. Usually they do not, and such specimens are classified as either Artiodactyla, or perhaps Indeterminate mammal (Mammalia), because a number of non-artiodactyls fall into the size range of these medium-sized ungulates. Forequarter includes the scapula, humerus, radius, and ulna. Carpal and metacarpal specimens are presented in the Forefoot category. The Hindfoot category includes tarsal and metatarsal specimens. The Hindquarter category includes the innominate, sacrum, femur, and tibia. Metapodiae and podiae which could not be assigned to one of the other categories, as well as sesamoids and phalanges, are assigned to the Foot category.

The specimens identified as artiodactyls from each analytical unit are summarized visually to illustrate their number and location in a carcass. The location of skull fragments is approximate and teeth are illustrated at the third lower molar location. Although the atlas and axis fragments are accurately depicted, other cervical, thoracic, lumbar, caudal vertebrae and ribs are placed approximately on the illustration. The last lumbar location is used to illustrate

vertebrae which could not be identified further than vertebra. Specimens identified only as sesamoids, metapodiae, podials, or phalanges are illustrated on the right hindfoot.

Pig and cow specimens are also studied by means of logged ratio diagrams, which serves to standardize the relative proportion of identified archaeological specimens with the relative proportion of the represented specimens in a complete, unmodified, reference pig and cow skeletons which serve as standards (Reitz and Wing 1999:211 - 213; Simpson 1941; Simpson et al. 1960:357 - 358). The formula is:

$$d = \log_e X - \log_e Y$$

where d is the logged ratio, X is the percentage of each specimen category in the archeological collection, and Y is the same percentage of this same category in the unmodified skeleton of the standard animal. In graphic format, the standard is represented by a horizontal line at zero and the logged ratio (d) is represented on the vertical axis. Values beneath the line are under-represented compared to the standard and values above the line are over-represented. The pig and cow skeletons are subdivided into Head, Forequarter, Hindquarter, and Foot categories defined above. Specimens in the Vertebra/rib are included in the calculation of X and Y , but d for this category is not presented in the figures because vertebrae and ribs are typically rare or absent in these collections, perhaps because of the analytical bias identified above.

Logged ratio diagrams equate fragmentary specimens representing archaeological specimens with whole specimens, a possible source of analytical bias. The negative aspects of this bias are balanced against the virtue that this method controls for degree of difficulty in identification and relative abundance in the skeleton whereas bar diagrams and other devices that rank specimens based on relative abundance in the archaeological collection do not. By standardizing the relative abundance of archaeological specimens against the relative abundance of the specimens that they represent in the unmodified skeleton, some of the problems associated with bar diagrams are avoided.

Relative ages of the artiodactyls identified are estimated based on observations of the degree of epiphyseal fusion for diagnostic specimens. When animals are young, their specimens are not fully formed. The area of growth along the shaft and the end of the specimen, the epiphysis, is not fused. When growth is complete the shaft and the epiphysis fuse. While environmental factors influence the actual age at which fusion is complete, specimens fuse in a regular temporal sequence (Gilbert 1980; Purdue 1983; Reitz and Wing 1999:76; Schmid 1972; Watson 1978). During analysis, specimens are recorded as either fused or unfused and placed into one of three categories based on the age in which fusion generally occurs. Unfused specimens in the Early-fusing category are interpreted as evidence for juveniles. Unfused specimens in the Middle-fusing and Late-fusing categories are usually interpreted as evidence for subadults, though sometimes characteristics of the specimen may suggest a juvenile. Fused specimens in the Late-fusing group provide evidence for adults. Fused specimens in the Early- and Middle-fusing groups are indeterminate. Clearly fusion is more informative for unfused specimens that fuse early in the maturation sequence and for fused specimens that complete fusion late in the maturation process than it is for other specimens. An Early-fusing specimen that is fused could be from an animal which died immediately after fusion was complete or many years later. The ambiguity inherent in age grouping is somewhat reduced by recording each

specimen under the oldest category possible. Tooth eruption data are also recorded (Severinghaus 1949).

The sex of animals is an important indication of animal use; however, there are few unambiguous indicators of sex. Males are indicated by the presence of spurs on the tarsometatarsus of turkeys, antlers on deer, large tusk-like canines on pigs, and bacula in some mammals. Male turtles are indicated by a depression on the plastron to accommodate the female during mating. Females are recognized by the absence of these features. Female birds may also be identified by the presence of medullary bone (Rick 1975). Another approach is to compare measurements of identified specimens for evidence of specimens which fall into a male or female range, though there are rarely sufficient numbers of measurements to reliably indicate sex.

Modifications indicate butchering methods as well as site formation processes. Modifications are classified as pathological, hacked, sawed, clean-cut, cut, burned, calcined, rodent-gnawed, carnivore-gnawed, digested, weathered, and worked. Although NISP for specimens identified as Indeterminate vertebrate are not included in the species lists, modified Indeterminate vertebrate specimens are included in the modification tables.

Hacked, sawed, clean-cut, and cut specimens are the product of butchering and food preparation. Hack marks are evidence that some larger instrument, such as a cleaver, was used. Presumably, a cleaver, hatchet, or axe was used to dismember the carcass, rather than after the meat was cooked. Saw marks may result from a variety of metal-toothed instruments (Reitz and Wing 1999:130 - 131). Saw marks from metal-toothed tools result in parallel striations which are usually clearly visible; however, some specimens have smooth, straight, but un-striated edges. These "clean-cut" specimens are most likely sawed, but the serrations are not visible because of the cancellous bone over which the saw passed. Cuts are small incisions across the surface of specimens. These marks were probably made by knives as meat was removed before or after the meat was cooked. Cuts may also be left on specimens if attempts are made to disarticulate the carcass at joints. Some marks that appear to be made by human tools may actually be abrasions inflicted after the specimens were discarded, but distinguishing this source of small cuts requires access to higher powered magnification than is currently available (Shipman and Rose 1983).

Burned and calcined specimens are the result of exposure to fire when a cut of meat is roasted or if specimens are burned intentionally or unintentionally after discard. Calcined bones are the result of two possible processes. Burning at extreme temperatures can cause calcination and is usually indicated by blue-gray discoloration. Calcination can also occur by leaching of calcite. Both types of calcination are believed to have occurred in this assemblage, but no attempt was made to distinguish between them.

Gnawing by rodents and carnivores as well as evidence of digestion and weathering indicate that specimens were not immediately buried after disposal. While burial would not insure an absence of these post-use processes, exposure of specimens for any length of time might result in gnawing, digested specimens, and weathering. Rodents would include such

animals as mice, rats, and squirrels. Carnivores would include such animals as opossums, dogs, raccoons, and cats. Gnawing by rodents and carnivores would result in loss of an unknown quantity of discarded material. Kent (1981) demonstrates that bone gnawed by carnivores such as dogs may not necessarily bear any visible sign of such gnawing and yet the specimens would quite probably be moved from their original depositional context.

Worked specimens are those that show evidence of human modification for reasons probably not associated with butchery. These are described in more detail in the results for each temporal subdivision.

Specimen count, MNI, biomass, and other derived measures are subject to several common biases (Casteel 1978; Grayson 1979, 1981; Wing and Brown 1979). In general, samples of at least 200 individuals or 1,400 specimens are needed for reliable interpretations. Smaller samples frequently will generate a short species list with undue emphasis on one species in relation to others. It is not possible to determine the nature or the extent of the bias, or correct for it, until the sample is made larger through additional work.

Specimen count, MNI, and biomass also reflect identifiability. Specimens of some animals are simply more readily identified than others and the taxa represented by these specimens may appear more significant in terms of specimen count than they were in the diet. If these animals are identified largely by unpaired specimens, such as scales and cranial fragments, the estimated MNI for these taxa will be low. At the same time, animals with many highly diagnostic but unpaired specimens will yield a high specimen weight and biomass estimate. Hence high specimen count, low MNI, and high biomass for some animals are artifacts of analysis.

Results

The four temporal units analyzed in this study reveal three slightly different versions of a common theme in animal use. The earliest analytical unit (1730 - 1740) and the latest unit (late-nineteenth century/early-twentieth century) contrast in several respects with the 1740 -1750 and 1750 - 1820 units. Of particular interest are differences in the percentages of commensal animals; the contribution of small-bodied versus large-bodied livestock; the types of pig (*Sus scrofa*) and cattle (*Bos taurus*) elements recovered; and the proportion of hacking, cutting, and sawing.

1730-1740

The earliest temporal subdivision contains 606 specimens weighing 2,076.28 g and the remains of at least 16 individuals from 12 taxa (Table 6). Domestic mammals contribute 44 percent of these individuals and 99 percent of the biomass (Table 7). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and sheep or goats (Caprinae). Beef contributes 80 percent of the biomass compared to 19 percent from pork or mutton. The only domestic bird is a chicken (*Gallus gallus*). Wild mammals and birds contribute 19 percent of the individuals and aquatic fishes and turtles contribute 25 percent of the individuals. Wild animals did not contribute substantial percentages of biomass. Six percent of the individuals are Commensal taxa but the

only commensal animal identified is an Old World rat (*Rattus* spp.). No evidence is observed for the sex of these animals.

Specimen distribution data for pigs, cows, and caprines are presented in Table 8 and Figures 3 - 5). Pig specimens are primarily from the Head (67 percent) and these are primarily teeth (NISP = 4). Specimens from the Head and Forequarter are over-represented compared to the standard pig and elements from the Foot under-represented (Figure 6). The absence of elements from the Hindquarter is unusual, but this is attributed to the small size of the sample for this time period. Cow specimen distribution data reveals a high incidence of specimens from the Forequarter (42 percent). Other parts of the carcass are less abundant. Compared to the standard cow (Figure 7), specimens from the Head and Foot are under-represented and specimens from the Forequarter and Hindquarter are over-represented. Half of the caprine specimens are from the Forequarter (50 percent) and the other half are from the Forefoot and Foot.

Juvenile, subadult, and adult individuals are present. Epiphyseal fusion and dental wear for pigs indicate that one individual was a juvenile when it died and the other individual was older than this but the age is indeterminate (Table 9). One cow individual was a juvenile at death, one was a subadult, and the age of the third could not be determined (Table 10). The age of the caprine individuals cannot be estimated, but they were at least subadults at death (Table 11). Three of the Indeterminate bird specimens are from juveniles animals.

Hacking is the most common modification in the material, present on 30 percent of the modified specimens (Table 12). Clean-cutting is present on 6 percent of the modified specimens, but there is no definitive evidence of sawing. Other specimens are cut, burned, and calcined. Evidence for exposure on the stable floor is found in the observation that 26 percent of the modified specimens are either gnawed or weathered.

1740-1750

The 1740-1750 temporal subdivision contains 2,296 specimens weighing 4,919.95 g and the remains of at least 34 individuals from 26 taxa (Table 13). Domestic mammals contribute 21 percent of these individuals and 92 percent of the biomass (Table 14). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), two sheep/goat (Caprinae), one of which is a sheep (*Ovis aries*). Beef contributes 71 percent of the biomass and pork or mutton 21 percent. The only domestic birds are chickens (*Gallus gallus*). Wild terrestrial animals contribute 21 percent of the individuals. Notable among the wild terrestrial animals are bear (*Ursus americanus*) and white-tailed deer (*Odocoileus virginianus*). Aquatic animals contribute 35 percent of the individuals. Notable among these are shark (Carcharhiniformes) and sea turtle (Cheloniidae). Wild animals did not contribute substantial percentages of biomass. Fifteen percent of the individuals are commensal taxa, which included three Old World rats (*Rattus norvegicus*, *R. rattus*) as well as a canid (Canidae) and a cat (*Felis domesticus*). Three Indeterminate bird specimens contain medullary bone, as does on turkey (*Meleagris gallopavo*) specimen, indicating the presence of at least one female bird in laying condition. A cock spur indicates the presence of a rooster.

Specimen distribution data for pigs, cows, and caprines are presented in Table 15 and Figures 8 -11. Pig specimens are primarily from the Head (82 percent) and these are primarily teeth (NISP = 33). Specimens from the Head and Forequarter are over-represented compared to the standard pig, with small numbers of specimens from the Hindquarter and Foot (Figure 6). Cow specimen distribution data reveals a high incidence of specimens from the Head (32 percent) and Foot (40 percent). Compared to the standard cow (Figure 7), only specimens from Foot are under-represented and the Foot specimens actually fall on the line for the standard animal. All parts of the caprine skeleton are represented except the vertebra/rib portion, which could be a result of identification. Three-quarters of the caprine specimens are from the Head and Foot. The bear is represented by a third phalanx and the deer by two teeth.

Juvenile, subadult, and adult individuals are present. Epiphyseal fusion for pigs indicate that one individual was a juvenile when it died and the other individual was a subadult (Table 16). One cow individual was a juvenile at death, one was a subadult, and the age of the third could not be determined (Table 17). One of the caprine individuals was a juvenile when it died and the sheep was at least a subadult at death (Table 18). The cat was likely an adult, as was the deer. Two of the Indeterminate bird specimens are from juveniles animals as is one chicken specimen.

Hacking is the most common modification in the material, present on 30 percent of the modified specimens (Table 19). Sawing and clean-cutting are present on 7 percent of the modified specimens. Other specimens are cut, burned, and calcined. Evidence for exposure on the stable floor is found in the observation that 32 percent of the modified specimens are either gnawed, digested, or weathered. One Vertebrate specimen is worked (FS# 57). This is a thin, flat, polished fragment that is 25 mm long and 7 mm wide; likely a piece of inlay.

1750-1820

The 1750-1820 temporal subdivision contains 2,429 specimens weighing 6,767.83 g and the remains of at least 46 individuals from 28 taxa (Table 20). Domestic mammals contribute 20 percent of these individuals and 90 percent of the biomass (Table 21). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and a sheep/goat (Caprinae). Beef contributes 72 percent of the biomass and pork or mutton 18 percent. The domestic birds are chickens (*Gallus gallus*) and dove (*Columba livia*). Wild terrestrial animals contributed 15 percent of the individuals and aquatic animals contributed 24 percent of the individuals. Notable among these are shark (Carcharhiniformes). Wild animals did not contribute substantial percentages of biomass. Thirty percent of the individuals are commensal taxa, which included 10 Old World rats (*Rattus norvegicus*, *R. rattus*), two dogs (*Canis familiaris*), a cat (*Felis domesticus*), and a mule or horse (*Equus* sp.). Thirteen Indeterminate bird specimens contain medullary bone indicating the presence of at least one female bird in laying condition. Two cock spurs indicates the presence of roosters. One pig individual is a male.

Specimen distribution data for pigs, cows, and caprines are presented in Table 22 and Figures 12 - 14. Pig specimens are primarily from the Head (66 percent) and these are primarily teeth (NISP = 20). Specimens from the Head, Forequarter, and Hindquarter are all over-represented compared to the standard pig (Figure 6). Cow specimen distribution data reveals a

high incidence of specimens from the Hindquarter (21 percent). Compared to the standard cow (Figure 7), specimens from the Head are under-represented and specimens from the Forequarter and Hindquarter are over-represented. All parts of the caprine skeleton are represented except the vertebra/rib portion, which could be a result of identification. Specimens from the Head and Foot contribute 54 percent of the caprine specimens. The canids are represented by two atlas; the cat by a tibia, and the equid by a phalanx.

Juvenile, subadult, and adult individuals are present. Epiphyseal fusion for pigs indicate that one individual was a subadult when it died, one was an adult male, and the age of the third could not be estimated (Table 23). One cow individual was a juvenile at death, two were subadults, one was an adult, and the age of the fifth could not be determined (Table 24). The caprine individual was a subadult when it died (Table 25). The age of the dogs could not be estimated; the cat was a subadult; and the equid was at least a subadult. Six of the Indeterminate bird specimens are from juveniles animals as are three chicken specimens. Three of the chickens are adults and one is a juvenile.

Hacking is the most common modification in the material, present on 23 percent of the modified specimens (Table 26). Sawing and clean-cutting are present on 8 percent of the modified specimens. Other specimens are cut, burned, and calcined. Evidence for exposure on the stable floor is found in the observation that 44 percent of the modified specimens are gnawed, digested, or weathered. One Indeterminate mammal specimens is worked (FS# 85); a thick chunk of bone that is 35 mm long, 15 mm wide, and 7 mm thick.

Late-nineteenth/early-twentieth century

The late-nineteenth/early-twentieth-century temporal subdivision contains 1,502 specimens weighing 3,498.62 g and the remains of at least 35 individuals from 22 taxa (Table 27). Domestic mammals contribute 20 percent of these individuals and 88 percent of the biomass (Table 28). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and sheep or goat (Caprinae). Beef contributes 69 percent of the biomass and pork or mutton 19 percent. The domestic birds are chickens (*Gallus gallus*) and rock doves (*Columbia livia*). Wild terrestrial animals contribute 14 percent of the individuals and aquatic animals contribute 31 percent of the individuals. Notable among these are salmon or trout (*Salmo* sp.) and sea turtle (Chelonidae). Wild animals did not contribute substantial percentages of biomass. Fourteen percent of the individuals are commensal taxa, which included four Old World rats (*Rattus norvegicus*, *R. rattus*) and a cat (*Felis domesticus*). The remains of one rooster and one hen are present in the collection.

Specimen distribution data for pigs, cows, and caprines are presented in Table 29 and Figures 15 - 17). Pig specimens are primarily from the post-cranial region (69 percent). Head fragments are entirely teeth (NISP = 4). Specimens from the Head, Forequarter, and Hindquarter are all over-represented compared to the standard pig (Figure 6). Cow specimen distribution data reveals a high incidence of specimens from the Head (19 percent); primarily teeth (NISP = 7). Compared to the standard cow (Figure 7), specimens from the Head and Foot are under-represented and specimens from the Forequarter and Hindquarter are over-represented. All parts

of the caprine skeleton are represented except the vertebra/rib portion, which could be a result of identification. The cat is represented by an atlas.

Juvenile, subadult, and adult individuals are present. Epiphyseal fusion for pigs indicate that one individual was a subadult when it died and the age of the second could not be estimated (Table 30). One cow individual was a juvenile at death, one was a subadult, and the age of the third could not be determined (Table 31). One caprine individual was a subadult when it died and the age of the second individual could not be determined (Table 32). The age of the cat cannot be determined, though it was at least a subadult when it died. Six of the Indeterminate bird specimens are from juveniles animals as are two chicken specimens. One of the chickens is a juvenile.

Hacking is the most common modification in the material, present on 19 percent of the modified specimens (Table 33). Sawing and clean-cutting are present on 18 percent of the modified specimens. Other specimens are cut, burned, and calcined. Evidence for exposure on the stable floor is found in the observation that 43 percent of the modified specimens are gnawed, digested, or weathered. Two Indeterminate mammal specimens are worked (FS# 86 and FS #146) as is one of the Indeterminate vertebrate specimens (FS #146). One of the mammal specimens is a fragment of a comb (FS #86). The two worked specimens in FS #146 are irregular in shape, thin, and have a hole or a portion of a hole drilled through them.

Animals Remains Recovered from the Heyward-Washington Stable and Carriage House

The four temporal subdivisions in the Heyward-Washington assemblage reveal several areas of change and continuity during the eighteenth century consistent with what is known from other eighteenth-century residential sites (Figures 1, 2; Tables 1 - 4, 34). Some of these may be due to sample size biases rather than to substantive differences in behavior at the site over time and others likely represent the preferences and habits of specific households. Nonetheless, some of these observations appear to represent changes in marketing habits and urban life in the city. Likewise, the Heyward-Washington assemblage supports other interpretations about differences between the eighteenth and the nineteenth century.

In the following discussion, it is presumed that the debris recovered from the stable and carriage house generally represents the use of animals as food by people living elsewhere on the property and that it also reflects the activities of other creatures who sheltered in the building itself. The stable was used by a number of non-human animals during the two centuries represented by these materials and the evidence of their activities is one of the most interesting aspects of the assemblage. Most of the non-commensal animal remains studied from the Heyward-Washington stable and carriage house may not have been originally discarded in the building and some were probably brought into the stable by scavengers from elsewhere. It is tempting to argue that when the structure was used as a gunsmith shop (1730 - 1740) less bone was discarded there (Table 34).

The percentage of commensal taxa in the three eighteenth-century collections is generally higher than that for other eighteenth-century sites in the city: 6 to 30 percent of the individuals in the Heyward-Washington stable collection compared to 6 to 10 percent of the individuals in collections from other eighteenth-century residential sites (Tables 1, 34) and from the Market (Table 2). The percentage of commensal individuals is much higher after the 1740 fire when the building was used as a stable and carriage house. By the end of the nineteenth century, commensal taxa had declined to 14 percent of the individuals at Heyward-Washington, a level consistent with other residential sites in the city (Tables 1, 34).

Much of the increase in commensal taxa after 1740 - 1820 is due to an increase in rats, which reach a quarter of the individuals in the 1750 - 1820 Heyward-Washington collection (Table 34). The subsequent decline in commensal taxa can be attributed to a decline in rats, though rats continued to form a higher percentage of individuals in the Heyward-Washington collection in the stable compared to other locations in the city (Tables 1, 34). Rats may have been very common in areas such as the stable where warmth, shelter, and food may have been readily available. Associated with the high percentage of rat individuals, rodent-gnawed specimens are far more abundant in the Heyward-Washington stable collection than at other residential sites or in the eighteenth-century Beef Market assemblage (Tables 1, 2, 34).

Patterns in the modifications observed on the Heyward-Washington specimens indicate some aspects of butchery which may be markers for household activity and some which may not be (Tables 1, 2, 34; for this discussion pathological, digested, and weathered specimens are omitted from the calculation). Although the 1730 - 1740 Heyward-Washington collection is very small, 7 percent of the modifications are either sawed or clean-cut (Table 34); a percentage consistent with other eighteenth-century residential collections (Table 1) and with the Beef Market (Table 2). Sawing appears to have been more frequent at eighteenth-century residential sites than at the Beef Market, suggesting that sawed specimens were acquired from locations other than the Beef Market. This alternate source may have been other commercial outlets, either other vendors or a slaughter house, or the household itself. By the end of the nineteenth century sawing is far more common at residential sites, though Heyward-Washington collection is noteworthy for its comparatively low incidence of sawed specimens.

Although some variation occurs among the three eighteenth-century analytical units, hack and cut marks are present on 58 percent of the modified Heyward-Washington specimens (Table 34). At other residential sites in the eighteenth century, hacking and cutting is found on 68 percent of the modified specimens (Table 1). Within the eighteenth century, hacking declines as cutting increases (Tables 1, 34). The percentages of hack and cut marks distinguish eighteenth-century residential sites from the Beef Market (Tables 1, 2, 34). Hacking is far more common as a percentage of the modified specimens recovered from the Beef Market compared to other eighteenth-century collections.

Although the incidence of hacking and cutting is variable among the eighteenth-century collections, cutting is consistently more common in collections from residential sites than it is at the Market (Tables 1, 2, 34). Virtually all of the butchering modifications on Market specimens are hacks, which increase in frequency from 78 percent of the butchering modifications in the

early part of the century to 85 percent of the butchering modifications at the end of the eighteenth century (Table 2). Cut marks are rare in the Market assemblage. Although hacking is more common on specimens from the eighteenth-century Beef Market than at eighteenth-century residential sites, cutting is more likely to be a residential treatment and is more common at eighteenth-century residential sites than it is at the Beef Market. The high percentage of hacked specimens at residential sites suggests that some butchering is associated with these sites as well as with the Market. Of particular interest, however, is the high incidence of cut marks among the modified specimens recovered from residential sites. Cut marks appear to be markers for household-level processing.

Hacking and cutting decline in residential collections by the end of the nineteenth century as sawing increases (Tables 1, 34). By the end of the nineteenth century, 40 percent of the Heyward-Washington modifications are hacks and cuts, although at other nineteenth-century residential sites, hacks and cuts are a less common modification (26 percent of the modified specimens). Sawing, however, is found on between 20 percent (Heyward-Washington) and 52 percent of the modified specimens from the late-nineteenth/early-twentieth century collections.

Burned specimens are a higher percentage of modified specimens in the 1730 - 1740 Heyward-Washington collection, before the gunsmith shop burned, than in the post-fire collection (1740-1750; Table 34). The percentage of burned specimens in the 1730 - 1740 collection is unusually high, though it is similar to that in the earliest level of the Beef Market (1720 - 1740; Table 2).

The types of animals identified in the assemblage from the Heyward-Washington stable and carriage house indicate that local resources were an important part of the household's diet (Table 34). Evidence of this choice is found in other residential collections and indicates that local resources were not supplanted by non-local resources (Tables 1, 2). The only solid evidence for a non-local resource in the Heyward-Washington assemblage is the salmon (*Salmo* sp.) specimen identified in the collection from the late 1800s (Table 27).

Wild resources were also important in the Heyward-Washington diet (Table 34). In fact, the percentages of domestic individuals is highest in the earliest collection (50 percent of the 1730 - 1740 individuals) and then declines. This pattern is also found at other eighteenth-century residential sites and in the Beef Market (Tables 1, 2). Wild terrestrial and aquatic animals contributed at least half, and generally about two-thirds, of the individuals estimated for eighteenth-century residential collections.

Most of this increase in wild animals is due to an increase in fishes. It is difficult to see this trend in the Heyward-Washington assemblage because of the simultaneous increase in commensal animals. If commensal taxa are removed from the calculation, fishes are 13 percent of the non-commensal individuals in the 1730 - 1740 collection, 31 percent in the 1740 - 1750 collection, 25 percent in the 1750 - 1820, and 30 percent of the late 1800s collection (Table 34). In other residential collections, fishes increase from 26 percent of the non-commensal individuals in the 1720 - 1740 collection to 31 percent in the 1740 - 1760 collection (Tables 1, 34). The increase in fishes at residential sites in the eighteenth century is mirrored by a similar

increase in fishes in the Beef Market assemblage (Table 2). By the time the Beef Market was closed, it might have been more appropriately called the Fish Market.

The percentages of chicken individuals increases in the city at large between the eighteenth century and the late nineteenth century, a characteristic which is not observed in the Heyward-Washington stable debris (Tables 1, 34). It seems likely that what must have been very high numbers of rodents, dogs, and cats (not to mention horses) in the stable would have discouraged chickens from foraging inside the structure and would also have lead to the prompt consumption of any chicken bones discarded in the area. Elsewhere it seems probably that chickens, as well as pigs and caprines, were small barnyard animals which became increasingly popular to raise on residential properties. This may be largely a late-nineteenth/early-twentieth century pattern independent of markets. It may also be that chickens became more popular as backyard fowl once technology developed to encourage these birds to lay eggs throughout the year, a phenomenon that would be unlikely to be expressed in a structure inhabited by so many rats.

The increase in fishes and small domestic animal was part of a general broadening food base during the eighteenth and nineteenth centuries (Tables 1, 34). This expansion is reflected in the number of taxa for which MNI was estimated, otherwise known as richness. The most pronounced difference in Heyward-Washington richness is that fish taxa increase from 17 percent of the taxa in the 1730 - 1740 collection to 29 percent of the taxa by the end of the eighteenth century, and finally 36 percent of the taxa in the late 1800s (Table 34). This is similar to what is found in other eighteenth-century collections (Table 1). In both Heyward-Washington and other residential collections fish taxa are most common in the mid-1700s (ca. 1740s - 1760s). Further research is necessary to determine if this is due to larger sample sizes for the late eighteenth century or if it reflects an expanding city menu. Richness in other taxa also increases over time as domestic meats are augmented by broad array of other foods. These other meats may not have supplied many calories compared to beef, but they became an important ingredient in the Charleston cuisine.

Analysis of the domestic meat portions represented in the Heyward-Washington assemblage, particularly the pigs and cows, reinforces the notion of continuity of butchery and marketing practices in the city (Reitz 2005; Reitz et al. 2005). The logged ratios for pig specimens recovered from the Market are essentially identical to the pattern for the eighteenth-century city as a whole, including Heyward-Washington (Figure 1). The high incidence of Head and Forequarter specimens and the under-representation of Foot specimens appears characteristic of Charleston use of pigs in the eighteenth century. One difference which may eventually prove significant, however, is the lower Hindquarter values in all of these collections compared to the standard pig. This may indicate that when pork was purchased from the Market to augment home-slaughtered meats the portion purchased was likely to be from the Forequarter and that Hindquarters were processed or used in a different way.

Logged ratio diagrams of the cow specimens reveal a consistent pattern of equitable or under-representation of Head and Foot specimens, and an over-representation of Hindquarter and Forequarter specimens (Figure 2; Reitz 2005; Reitz et al. 2005).

It is possible that there were changes in the portions of pig and cow carcasses between the eighteenth and nineteenth centuries both at the Market and at residential sites that are masked in Figures 1 and 2, but the pattern of element distribution in non-residential, residential, and market collections is remarkably similar. If the non-residential sites are actually occupied by lower status individuals and families, the similarities between these two groups may indicate that the types of pork and beef cuts used does not distinguish class at all. More likely it is the quantity of pork and beef consumed rather than the type that would reflect economic and social status. Furthermore, it is noteworthy that even high-status collections, such as that from the Heyward-Washington property, contain specimens from the Head and Foot. This strongly suggests that all parts of the pig and cow carcass were used on both residential and non-residential (or lower status) sites and raises questions about the reliability of using element distributions to infer status for otherwise undocumented sites.

Juvenile and subadult pigs were a consistent part of the use of animals at the Heyward-Washington property (Table 3). The percentages of young pigs present in the eighteenth-century Heyward-Washington collection is lower (57 percent) than in the eighteenth-century city (63 percent of the individuals) but higher than that of pigs sold from the Beef Market (30 percent of the pig individuals). The percentage of young pigs in the late 1800s is lower (50 percent for Heyward-Washington and 62 percent for the nineteenth-century city). No explanation offers itself at this time for these differences, though perhaps a characteristic of residential meats was that these were from younger, more tender pigs compared to those available from commercial outlets such as the Market.

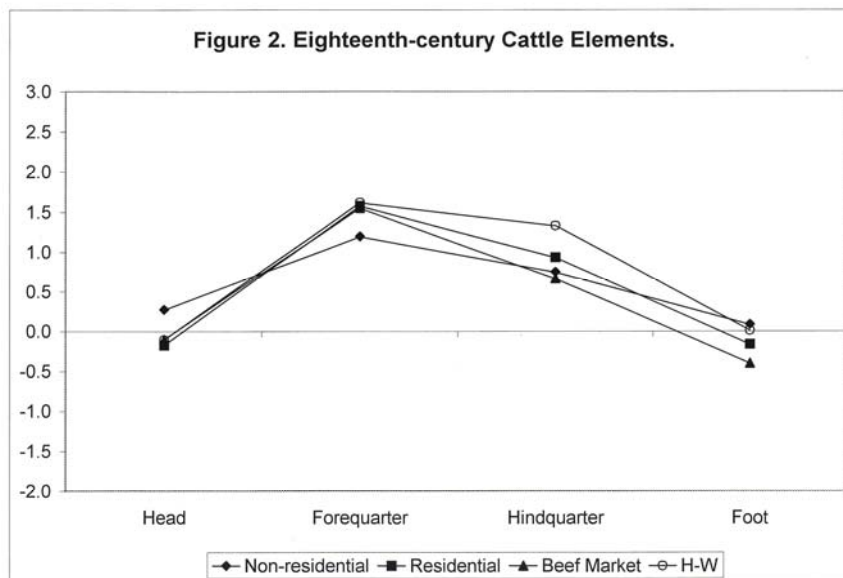
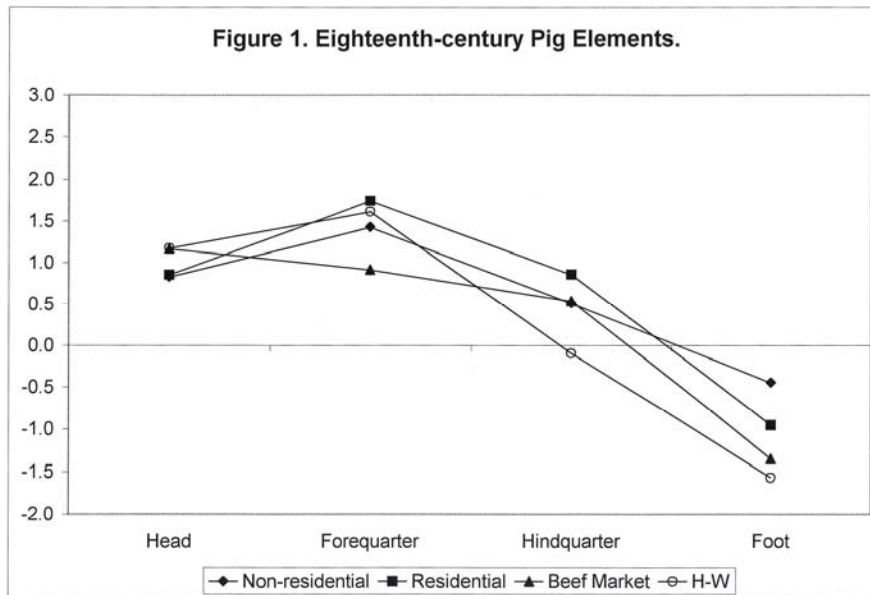
The percentages of young cattle in the eighteenth-century Heyward-Washington collection (64 percent) is higher compared to the eighteenth-century (56 percent of the individuals) and the nineteenth-century city (49 percent) (Table 4). The difference in young cattle is primarily attributable to a decline in calves. Calves comprised 27 percent of the eighteenth-century Heyward-Washington cattle individuals, 23 percent of the Beef Market cattle individuals; 20 percent of the eighteenth-century city-wide cattle, 33 percent of the late nineteenth-century Heyward-Washington collection, and 14 percent of the nineteenth-century city cattle. It may be that affluent households fattened and slaughtered their own young cattle instead of purchasing them, as they did young pigs, especially in the eighteenth-century.

Conclusion

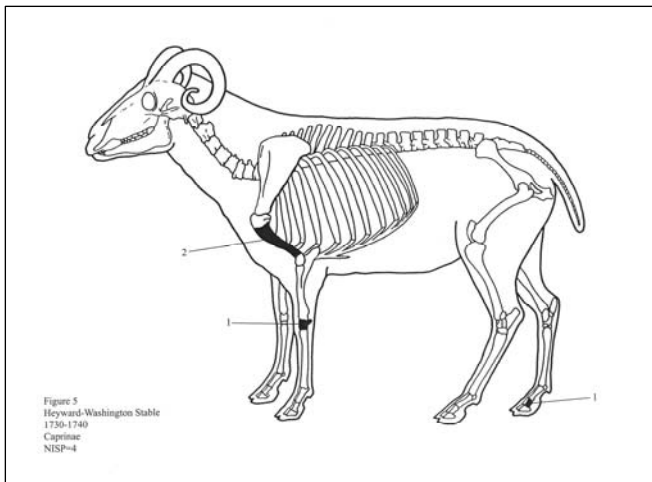
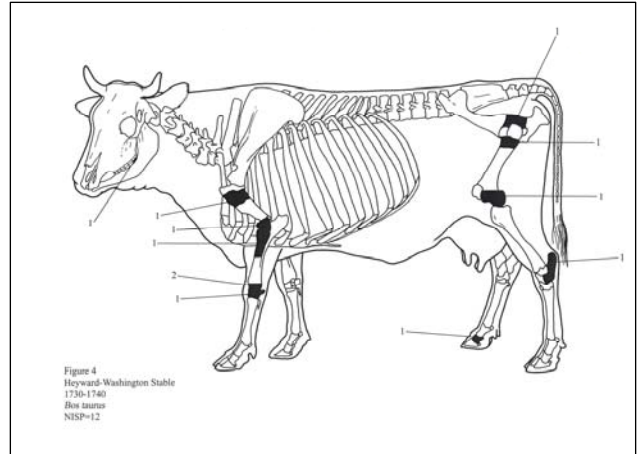
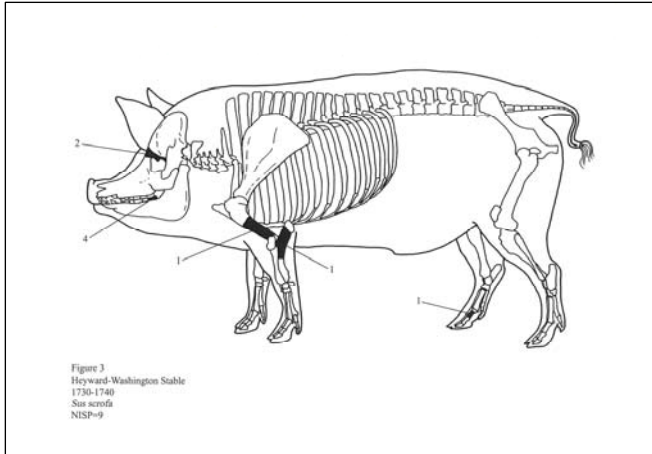
Research at the Heyward-Washington stable and carriage house provides additional data from an eighteenth-century, elite, residential site which expand our understanding of the commercial role of animals in the city and provides new data pertinent to the presence of commensal animals, particularly of rats, in the city, methods used to prepare meats, and developments in the use of specific animals or groups of animals, such as small domestic animals and fishes. The Heyward-Washington materials are very similar to those from other sites in Charleston, reflecting both differences attributable to household-level choices and similarities to broader forces operating as the city grew. Unfortunately, it is still not possible to determine if livestock was raised on residential properties; or to distinguish between slaughter debris

originating from livestock slaughtered on urban properties and debris from meat purchased elsewhere based on the identity of the parts of the skeleton represented by the specimens recovered. Future research should explore the relationships among eighteenth-century sites in the city and elsewhere in the low country, the relationship between commercially-available meats and household choices, and finer details of animal use during the nineteenth century.

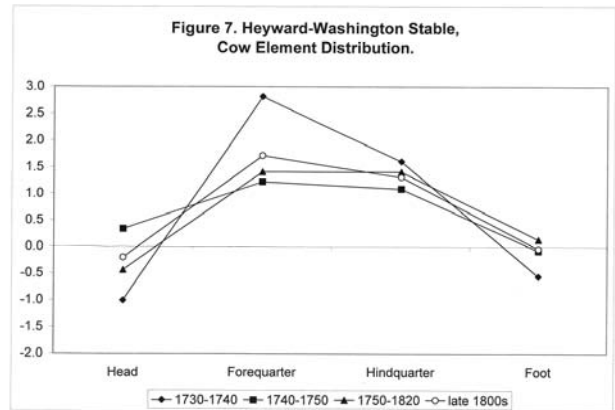
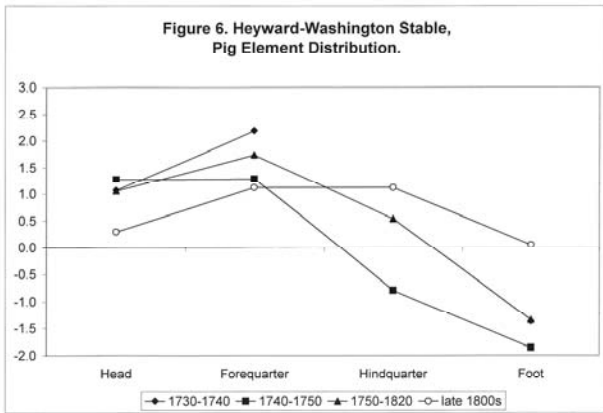
Note: Figures referenced in this section appear below. Tables 1-34 appear as Appendix I.



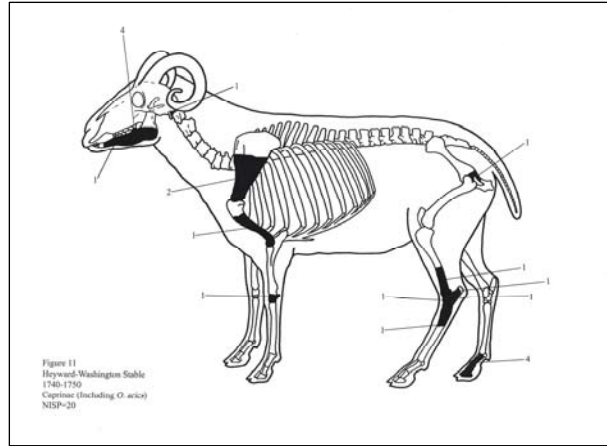
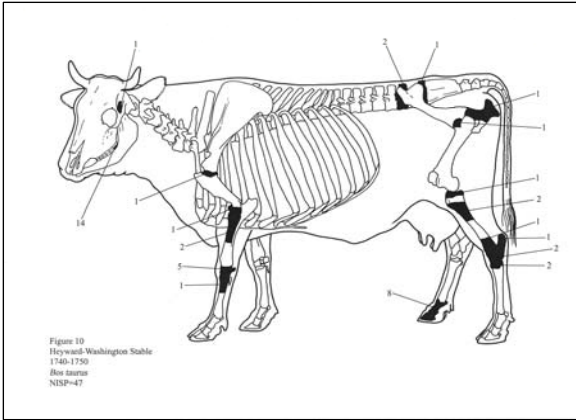
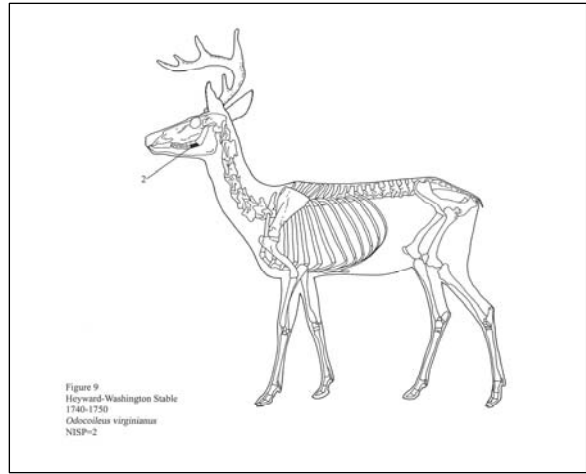
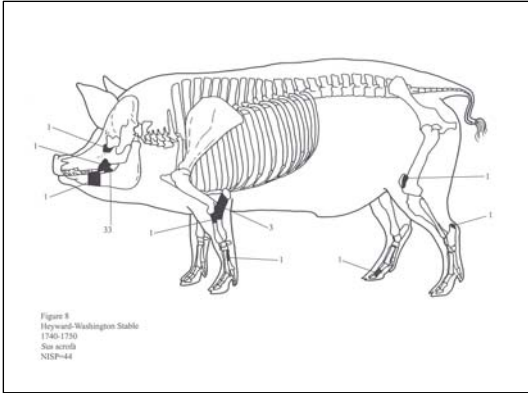
Figures 106-107: element distribution for pig and cattle, 18th century



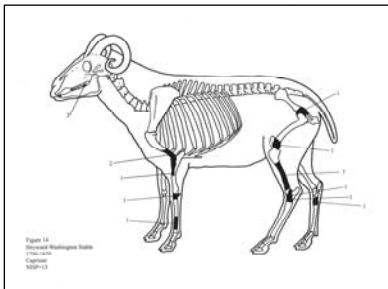
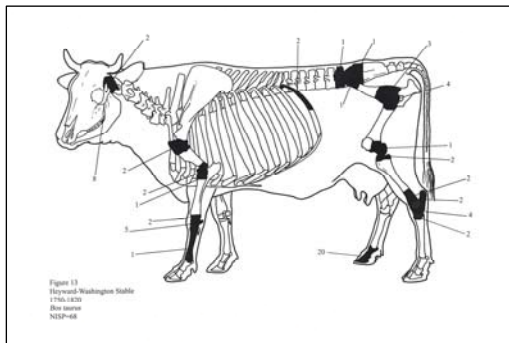
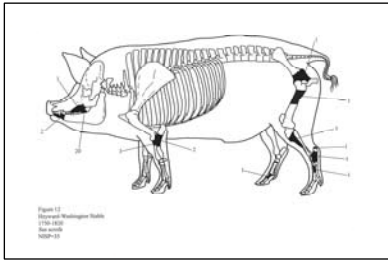
Figures 108-110: elements recovered from 1730-1740 contexts: pig, cattle, caprine



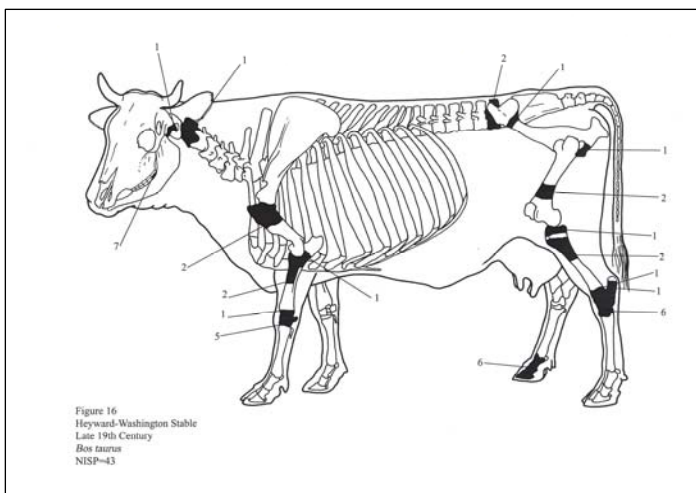
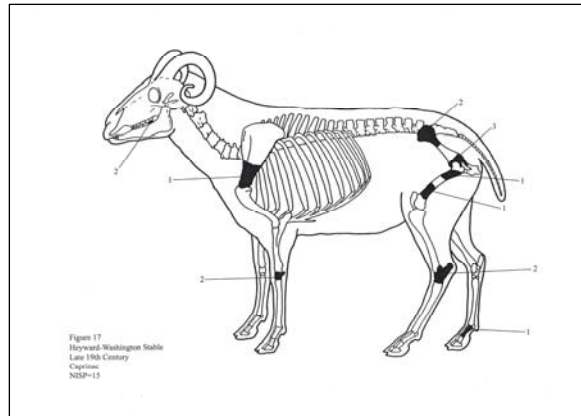
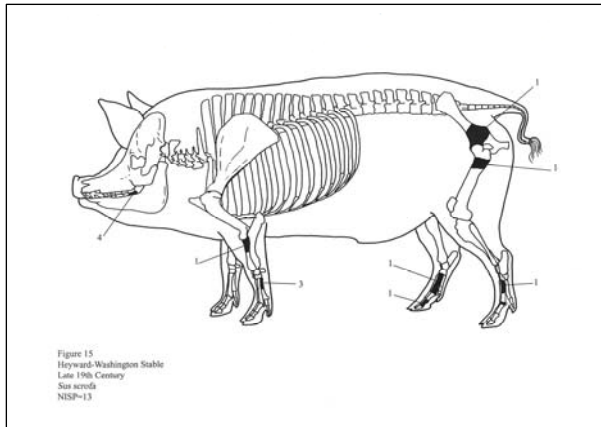
Figures 111-112: Pig and Cow element distribution through time



Figures 113-116: elements recovered from 1740-1750 contexts; pig, deer, cow, caprine



Figures 117-119: elements recovered from 1750-1820 contexts; pig, caprine, cow



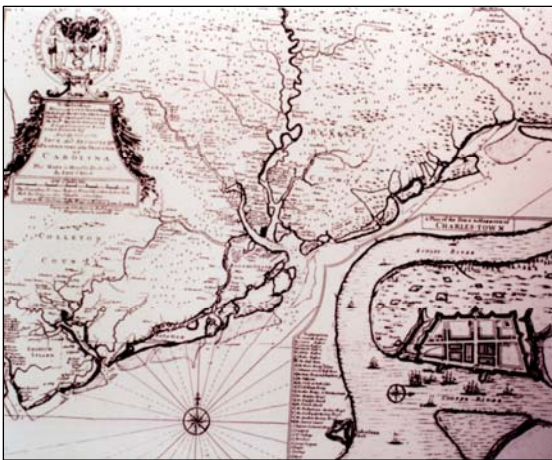
Figures 120-122: elements recovered from late 19th century contexts; pig, caprine, cow

Animal Use and the Urban Environment

Archaeological research in Charleston, SC has a long-standing focus on the urban landscape. This research is based on the concept of land modified for human occupation and use as a shared space, evolving to serve a community. A material culture study of the city moves beyond individual sites and individual actions to an investigation defined by Dell Upton (1992:51): one of reciprocal relations among selves and human alterations of the physical world. We have recently melded our study of diet and foodways with landscape analysis to consider resident animals as landscape components. With few exceptions, an often overlooked aspect of the colonial landscape is the quantity and variety of animals – domestic, commensal, and feral – that shared the city with human residents. Like the people who lived in the city, the activities of these animals shaped, and were shaped by, the urban environment. Many features of the urban environment, from buildings to fences and walls, were designed to accommodate, and restrict, animals living in the city. Unlike other environmental components, though, the animals were

active players in the affairs of daily life, and efforts to control them varied in their success. Two recent excavations, at the Heyward-Washington House and the Beef Market, have resulted in large cultural and faunal assemblages from remarkably preserved, stratified sites. The tightly dated layers allow for a detailed analysis of change through time. These projects, in turn, build on two decades of faunal, cultural, and environmental analysis from over two-dozen sites. Taken together, the Charleston faunal assemblage consists of over 124,000 specimens, representing a minimum of 2,100 individuals. These remains are from a variety of contexts, both residential and commercial, from the first decade of the 18th century through the last decade of the 19th century. Here, we consider both foodways and animal management as reflected in the Charleston faunal record.

Bounty of the Land



When European settlers arrived in Carolina in the late 17th century, they encountered a “Fertile and pleasant land”, teeming with fish, game, and a variety of natural resources (John Archdale, “A New Description..”, 1707, quoted in Edgar 1998:9). Salt marshes, barrier islands, high land dominated by longleaf pine forests, and freshwater hardwood swamps characterized the lowcountry. Numerous rivers traverse the coastal plain, creating natural harbors and transportation routes.

Figure 123: the Carolina coastline in 1711

The subtropical climate of the lowcountry was well suited to the growth of wild foods and the cultivation of crops and livestock, both familiar and exotic. The forests and fields supported a variety of wild game, particularly white-tailed deer. Numerous smaller mammals and birds abound. The rivers and marshes produced an endless bounty of fishes. South Carolina supports 70 species of freshwater fish, 160 species of saltwater fish, 17 species of turtles, and an astounding number of bird species (Edgar 1998; Clowse 1971). The lush forest was not ‘virgin’, though, having been managed for centuries by Native American residents. They burned the forest to reduce undergrowth and drive game, and created openings for agricultural fields (Silver 1990; Lefler 1967). The “openings”, or savannas, favored by newly-arrived European settlers were areas cleared by Native people for agriculture and for efficient hunting. The corns, beans, and squashes cultivated by Native people, as well as game and fish obtained through Native hunting methods, sustained people newly-arrived from Africa and Europe.

A wide range of vegetables – peas, beans, corn, peppers, tomatoes, peanuts – could be grown on the fertile sea islands. Traditional English grains, such as wheat and barley, did not do well here, and Indian corn became the principal grain. A few decades after the colony’s founding, the environmental and economic success of rice made this grain the basis of lowcountry diet and cuisine. The wealth derived from plantation agriculture made accessible a variety of wines, spices, hot drinks, and delicacies through the trans-Atlantic trade.

African American residents were likely the main shapers of coastal Carolina cuisine. They were responsible for most of the cooking in the white kitchens of the 18th and 19th century, as well as their own. While white residents had their roots in the English cuisine, a strong French influence came from subsequent waves of immigrants, from the Huguenots of the early 18th century to the refugees of Santo Domingo a century later. Africans and French Huguenots alike were accustomed to pilau, a mixture of rice, meat or seafood, vegetables, and pepper (Taylor 1992). The cuisine that developed in the lowcountry is a combination of European, African, Native American, and West Indian customs and recipes with foods native to, or successfully cultivated in, the lowcountry. Each group introduced elements, preferences, and preparations into the cuisine

While West Africans traditionally ate little flesh and used it sparingly in stews and pilaufs, European settlers in America came from a long dietary tradition heavily laden with meat. Though the emphasis on meat declined after 1550, Europeans still ate more than other areas of the world; this is particularly true for England, where the tradition of meat consumption continued into the 18th century (Braudel 1979:198; see also Fenton and Kisban 1986, Teuteberg 1986). This tradition carried to Carolina, and is evident in the cookbooks and meal descriptions of colonial Charleston (Grimball Diary; Hooker 1984, 1981).

Shortly after European settlement, it became evident that both the climate and the forage of the lowcountry were ideal for raising beef and pork (Brooks et al. 2000:29; Gray 1932). The first English colonists arrived in Carolina without livestock, but soon purchased cattle from Virginia. The Carolina settlers were dissatisfied with the small size of the Virginia stock, and requested alternate sources, specifying Bermuda or New York. Archaeological data from a century later suggest they were successful, as the cattle in Charleston are significantly larger than those in the Chesapeake (Reitz and Ruff 1994). We have previously suggested an alternate source for the improved breeding stock, namely Spanish cattle from Florida. These are among the spoils of James Moore's raids on St. Augustine and Apalachee in the first decade of the 18th century (Zierden and Reitz 2002).

Like the colonists of the Chesapeake and the Northeast, Carolina settlers adapted a system of animal husbandry different from that of their native England. Cattle and particularly hogs thrived on the forage and mast available in lowcountry woods, and so were turned out to find their own food. Dairy cattle and calves were fenced, the latter to draw the mother home in the evenings. Livestock were often placed on islands, or an area with other natural boundaries, and ownership signified with stock marks (Merrens 1977, Interview with James Freeman, 1712;



Figure 124: Cattle in the lowcountry (Collections of The Charleston Museum)

Anderson 2004:111-117; Walsh et al. 1997). Uncontrolled livestock posed problems, however; they invaded Native woods and gardens; they trampled grasses and other plants, stressing competing native species, such as deer. Cattle and hogs became difficult to control, bred indiscriminately, and went feral.



Figure 125: Hogs foraging on mast in the Carolina woodlands. Courtesy Caw Caw Creek Pastured Pork, St. Matthews, SC.

In his 1712 treatise, “Profitable Advice for Rich and Poor,” Carolina planter James Freeman made the following comments about lowcountry livestock,

“There is beef and pork very plentiful, many thousand barrels thereof sent off yearly to the West-Indiand islands...Our beef is grass fed, and in the latter end of August and September is very fat, at which time we kill, barrel, and sell to the merchants for transportation; but for stall fed beef is not usual, for there is scarce any hay in the country. The pork is, generally, well fed in the winter by acorns, nuts, wild potatoes, and other things with which the woods is well stor’d, but if it proves that they are not so fat as the owner expects them, they are then sty’d up and fed on corn and pease, and is esteem’d to be as good as English, and may be frequently fed for slaughter at any time of the year” (Merrens 1977:38-55).

Soon surplus beef and pork was available for export; Carolina found a ready market in the Caribbean, where sugar production monopolized available land. Cattle ranching remained profitable after rice became the colony’s principal export, but the center of livestock production moved from the coastal plain to the area between Fort Moore on the Savannah River and Orangeburg. Lands previously used for deer hunting by Native residents were transformed into rice fields, while increasing herds of livestock further decimated the grasslands used by deer

(Haan 1982). The resulting Yamassee War of 1714 temporarily halted this expansion, but the defeat of the colony's principal trading partners opened this area for livestock grazing. The task of managing the cowpens and the herds, and driving them to market in Charleston, or along the roads to Philadelphia, fell to newly-arrived Africans. Already familiar with cattle raising in the Senegambian region, African slaves became the first 'cowboys' (Wood 1974; Otto 1986, 1987).

The early trade was described in 1718 by Thomas Nairne as,

“From Jamaica, St. Thomas's, Currasso, Barbadoes, and the Leward Islands we have Sugar, Rum, Molasses, Cotton, Chocolate made up, Cocoa-Nuts, Negroes, and Money. In return whereof we send Beef, Pork, Butter, Candles, Soap, Tallow, Myrtle-Wax Candles, Rice, some Pitch and Tar, Cedar and Pine-Boards, Shingles, Hoop-Staves, and Heads for Barrells (Nairn 1718:15)

Lowcountry residents of all backgrounds took advantage of the bounty of the woods and waters of the coastal plain. A host of wild game, fish, and shellfish formed the basis of many lowcountry dishes. While they voiced preferences, documents and zooarchaeology suggest that lowcountry residents consumed wide range of animals throughout the 18th and 19th centuries. In writing home from Charleston, Huguenot Jean Boyd in 1691 described the taste of bear and tigers (wildcat), as well as stags and wild turkeys. He also listed “quantities of ducks, teal, wild geese, woodcocks, two or three types of snipe, sea larks and cormorant.”, as well as “very good rabbits and hares, and squirrels”. Found “but a little higher up” were wolves, wildcats, leopards, tigers, bears, foxes, raccoons, badgers, otters, beavers and a type of black and white cat which for its only defense pisses on people who pursue it.” (Leland 2006:32-33). Such use of wild species was common in the North American colonies; the Chesapeake residents roasted turkeys, geese, ducks, and any number of wildfowl, including owls and crows. Before 1740, wild species were 40% of the Chesapeake diet (Anderson 2004:65). In Charleston, domestic and wild terrestrial animals contribute 62% of individuals between 1720 and 1760 while fish and turtles contribute 32% of the individuals. Contemporary Spanish colonists in Florida evidently employed a slightly different strategy; in archaeological collections from St. Augustine the land contributes only 28% of the individuals while the sea contributes 66% of the individuals. This preference for marine resources over those from the hinterland persists in St. Augustine through periods of siege and relative prosperity (Zierden and Reitz 2002:123).

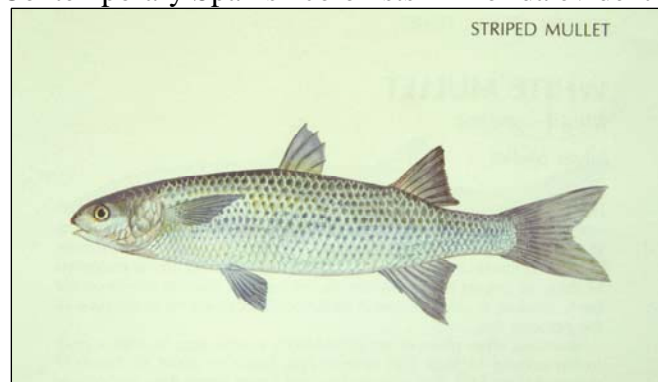


Figure 126: Mullet are common in the faunal record of Spanish St. Augustine, but relatively rare in Charleston (Collections of The Charleston Museum)

Early Carolina residents hired the services of a Native hunter, who often traded casually with plantation residents. Later in the colonial period, African slaves hunted for their masters, or hunted on their own and sold their catch to planters and city residents. Still other wild game was likely obtained from casual traps. This was particularly the case with small mammals that visited garden patches, such as opossums, raccoons, and rabbits. A variety of reptiles were consumed, and these too were likely caught in traps placed in rice fields and left unattended during the

workday. Lowcountry residents consumed a wide range of turtles, as well as alligators. Wild species are 45% of the MNI faunal assemblage from the 1720-1740 period and still 35% MNI for the 1860-1900 period.

Urban Foodways

Using comparative skeletal collections from the University of Georgia, animal remains from 20 residential and commercial sites from the 18th and 19th centuries have been identified and interpreted. These sites were occupied by people with backgrounds as varied as Declaration of Independence signer Thomas Heyward and the urban poor at Lodge Alley. Most of the bones are the debris of residential and commercial food consumption. They contain information on urban diet, slaughter and exchange of meats, animal breeds, animal husbandry practices, as well as the extent to which outlying areas contributed to the urban diet and the urban environment.

For residents of the growing city of Charleston, the public market was one source for the desirable and the necessary foods. Residents of farms and plantations on the coast had ready access to wild and domestic resources, but urban residents were dependent on transportation of provisions from the countryside, and sale of these at market. The public market was a visible symbol of municipal government in action (Walsh et al. 1997:83). The rules of the market ensured that people had access to safe food at an affordable price. Control was necessary to ensure that food moved from producer to consumer without forestalling (selling food outside the market) or engrossing (charging unfair prices or providing substandard quality or quantities of food). The size, number, and quality of the market were one way travelers ranked the quality of a town. Public markets were an important element of the urban landscape. They were also a measure of local agricultural productivity. In their detailed study of provisioning the Chesapeake, Walsh, Martin and Bowen emphasize the close relationship between urban markets and local agriculture during the 18th century. Zooarcheological analysis by Bowen affirms “the local nature of historic market systems” and indicates that colonial markets drew directly from local plantations (Walsh et al. 1997:70).

Charleston’s Market Square was established in 1692, and was likely an open, informal area. Numerous complaints suggest that the market was poorly regulated. Recently discovered documents suggest a second market may have been located on the waterfront at the same time (Nicholas Butler, personal communication 2006). The Charleston market was formalized, both architecturally and administratively, by 1740. Twenty years later the market was again improved, and renamed the Beef Market. Additional markets were constructed along the Bay. This follows a trend noted by Walsh and her colleagues (1997:91); in smaller towns, market placement followed the English custom of central placement; in larger towns, markets were located near water transport. Documentary evidence indicates that the Lower Market, at the foot of Tradd Street, soon became a lively center of exchange, and perhaps usurped the central role long enjoyed by the Beef Market (Zierden and Reitz 2005).

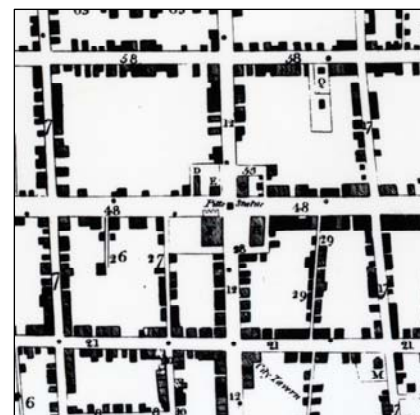


Figure 127: location of the Beef Market in 1778.

Despite its centrality to urban life, little is known about the daily functions of the Charleston market. Who were the vendors, who were the customers, what was sold, and what was the source of the produce? The Williamsburg scholars note that market “producers” can be divided into two groups; those that were formally attached to the market through the rental of stalls (principally butchers), and those that vended other forms of produce such as fruits, vegetables, and poultry. While the first group tended to be wealthy and well-connected enough to gain the stalls and pay rent, the latter group was more likely to be from the “margins” of colonial society (Walsh et al. 1997:84). In Charleston, this group was dominated by black women.

By the early 18th century, street vendors competed with formal markets. Slaves from the countryside sold their own eggs, chickens, and garden produce, and worked for their own wages with permission of their owners. Black women also sold dry goods, cakes, and other baked goods. Philip Morgan notes that Charleston’s large urban market created specialized opportunities for men, as well. There are many references to slaves who were butchers (Morgan 1998:55), though it is unknown if these men simply butchered on plantations for their master, or earned wages as butchers in the city market. John Jackson’s 1790 advertisement for a runaway slave named Peter noted he “is well known in Charleston, having for upwards of four years attended a butcher’s stall in the lower market” (City Gazette and Daily Advertiser, May 22, 1790).

The prevalence of slave vendors is reflected in ongoing legislation regarding slave badges. These copper tags, found only in Charleston, were licenses purchased from the City by slaveowners, allowing their slaves to work for others or without supervision. While laws requiring tickets or badges appear in the statutes as early as 1712, the earliest copper badges that survive in the archaeological record date to 1800. As early as the late 18th century, badges specified for vendors, hucksters, and butchers were the most expensive, and were accompanied by extensive regulation. In 1783, unskilled laborer badges were available for 5 shillings; those for “carpenter, bricklayer, fisherman, blacksmith...gold or silversmith” cost 20 shillings. Singled out for the highest rate, 40 shillings, were badges for “butchers” (Greene and Hutchins 22). Three years later, when fees were reconfigured in American currency, day laborer badges commanded two dollars, while huckster or vender badges were six dollars (Greene and Hutchins 2004:29). Throughout the antebellum period, Huckster or Fruiterer badges remained the most expensive (Greene and Hutchins 2004:66). Those for fishermen (as distinguished from women) were also relatively expensive after 1840 (Greene and Hutchins 2004:49).



Figure 128: example of a slave badge

Most of the fishing, to supply the home and the urban market, was done by African American men. The fishermen's catch was sold by peddlers who hawked fish in the residential areas and by women in the market. The ability to fish was bolstered by the personal time afforded by the task system, and by their de facto ownership of boats and canoes. By the mid-



18th century, African Americans monopolized the urban fishing industry, and as a result readily manipulated supply and price for the Charleston market. When the separate Fish Market was established in 1770, the establishing legislation noted, “The business of Fishing is principally carried on by Negroes, Mulattoes, and Mestizos” (quoted in Morgan 1998:240). Charleston’s famed “Mosquito Fleet” of the late 19th century carried on this tradition.

Figure 129: Charleston’s Mosquito Fleet (Collections of The Charleston Museum)

Many market women were wives of fishermen. African women dominated the market, and their monopoly had a direct effect on supply and price of goods in the city. In 1772, a “Stranger” commented on black women around the Lower Market,

“who are stated there from morn ‘til night, and buy and sell on their accounts... These women have such a connection with and influence on, the country Negroes who come to market, that they generally find means to obtain whatever they choose, in preference to any white person...” (quoted in Morgan 1998:250).

While some hucksters set up at or near the market, others wandered the streets with baskets or carts. Early 19th century legislation allowed for the sale of “milk, grain, fruits, vegetables of all kinds, as well as fresh butter and poultry, through the streets of the city”. Street peddling of these foods, as well as seafood, continued in Charleston into the 20th century.



Figure 130: market vendors

Nearby plantations were also sources of supplies for the Charleston market. A “Farm in Christ Church Parish, about six miles from the city, by water” was advertised for sale in 1795. The advertisement notes that “The vicinity to Charleston makes it an object to any person who may be inclined to supply the markets...” The sale included a “stock of Cattle” (City Gazette and Daily Advertiser, December 8, 1795). Plantations on James Island likewise focused on

provision crops and raised lesser amount of profitable staples such as cotton. Stono plantation, for example, raised vegetables for the Charleston market, as well as indigo, during the colonial period. This continued with the ownership of Captain John Rivers in the early 19th century. In 1850, the 760-acre Stono Plantation produced 35 bales of Sea Island Cotton; but it also produced 1,000 bushels of Indian corn, 80 pounds of wool, 50 bushels of peas and beans; 20 bushels of Irish potatoes, and 2,000 bushels of sweet potatoes. In addition, truck produce produced specifically for the Charleston market was worth \$1,000 (Calhoun 1986). Zooarchaeological remains at Stono plantation include an unusually high number of sea catfish remains, suggesting these may have been caught and cleaned for sale in the urban market (Dukes and Reitz 1994).

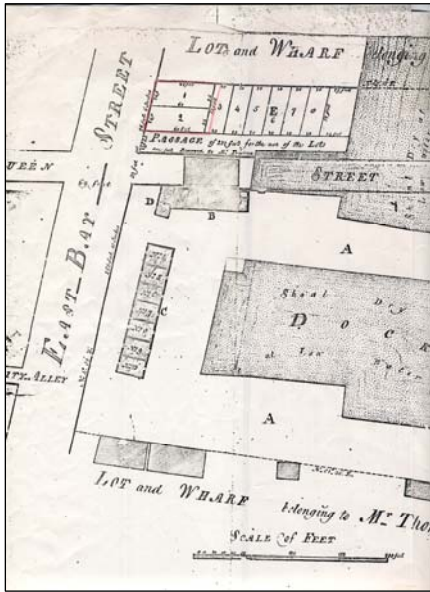


Figure 131: the Lower Market on Tradd St.

Morgan likewise suggests that James Island slaves were an important link in the lowcountry marketing system. He cites several references to James Island slaves who worked the market, and surmises that “an identifiable group of island peddlers had emerged by the late colonial period” (Morgan 1998:251).

The close ties of the Charleston market to individual plantations is underscored by an Ordinance of 1786. Six stalls at the Lower Market on Tradd Street were reserved for “the use of the planters, that bring or send their own stock to market” (Edwards 1802:39, provided by Lounsbury). Such arrangements were again legislated for the new central market in 1807, which provided “for the use of planters bringing or sending meat of their own stock or raising to market, there shall be reserved six stalls in the Centre Market”

Local plantations, and particularly the resident slaves, were the primary producers for the Charleston market. A central issue of the zooarchaeological research surrounding the study of the Beef Market site is the identity of the consumers. Based on examination of colonial cookbooks, which include directions for marketing, Walsh, Martin, and Bowen suggest that women were the principal shoppers. Frequency of shopping is another question. Hayden Smith’s analysis of the Sarah Reeves Gibbes journal of 1807-1809 suggests that daily marketing was common (Smith 2005). Zooarchaeological study of a variety of sites suggests that not all urban residents relied exclusively on the market. Data from the market and from other Charleston sites is difficult to interpret, but it appears that middling to poor residents were the principal customers of the market. Upper status householders probably supplemented their meat purchases through the slaughter of their own livestock, and wild game and produce from their plantations. When they did shop the market, wealthy Charlestonians likely sent their house servants to make the purchases.

What did market customers purchase? Nearly thirty separate faunal studies show that Charleston residents took advantage of the resources available to them by combining meats from domestic animals with those from a wide variety of wild animals in a unique way. Within the general Charleston assemblage, patterns of animal usage vary with location, socioeconomic and ethnic status, temporal change, and functional differences. These variables are complex, though, and patterns have been difficult to define. There are, however, pronounced differences between the diets of urban and rural residents, regardless of the above variables.

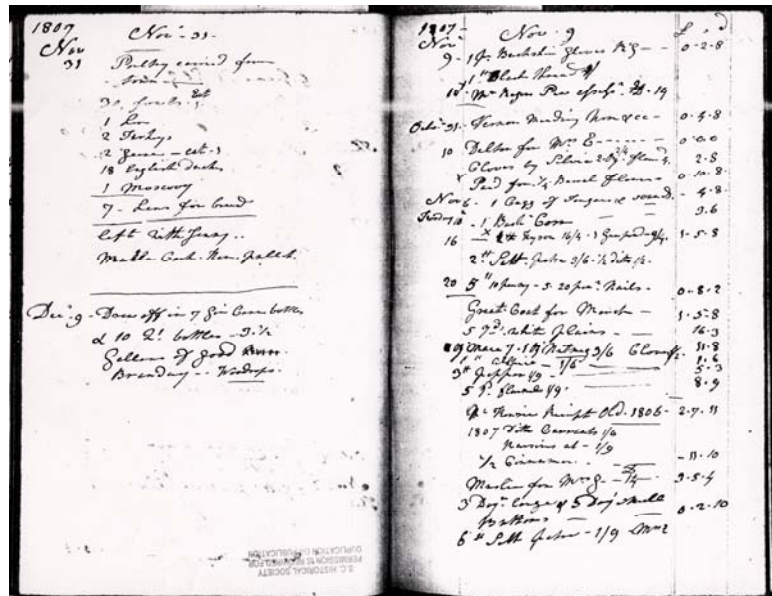


Figure 132: the Sarah Reeves Gibbes memoranda book, listing daily market purchases (South Carolina Historical Society)

Excavation of 18 units inside and around City Hall in 2004 revealed extensive evidence of activities at the Charleston market through the 18th century. Seven successive zone deposits were noted across the site, associated with three successive market events from the 1690s through the 1790s. The site exhibited early soil layers that appear natural, and midden layers that reflect construction and refuse accumulation. The bone refuse was considerably denser than any



other Charleston site, and exhibited unique characteristics.

Figure 133: bone and refuse in the lowest layer of market soils (zone 10)

Architectural evidence revealed the 1760 market foundation. A hard-packed sand surface, surmounted by water-washed sand filled with small fragments of hacked bone, may be an original (unpaved) market surface.

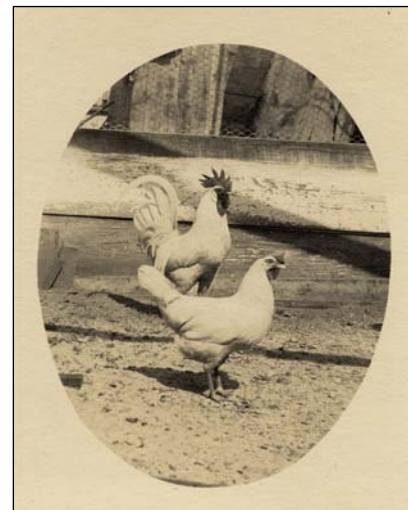
Associated post holes along the center of the market and outside the south wall may have supported a series of hooks and pegs for displaying meats and other produce. Little architectural evidence of the 1739

building was encountered, and no late 17th century structures were revealed. The earliest marketing activities were manifest in a deep zone deposit noteworthy for the dark, organic nature of the soil and large bone fragments throughout; together these appear to be evidence of maintenance of live animals and on-site butchery.

The market evidently sold all types of meats and foodstuffs. A rich array of wild game and fish, as well as the range of domestic mammals, was recovered from the market proveniences. Moreover, the meats available at the market became more diverse even as the market's designation was changed to suggest a narrower role. Data suggest that at least some of these animals, including cattle, were slaughtered on-site. Hacking was the most common way to prepare and sell portions of beef. The intensely organic characteristics of the soil and the very high levels of phosphorous and other chemicals suggest that animals were present at the site and that animal products were key to site formation processes at the site.

Smaller meats, particularly fishes, were sold more frequently at the Market toward the end of its operation. This possibly reflects its central location, where livestock were increasingly unwelcome. Poultry, particularly chickens, become more common in Charleston households through time, though this was not reflected in the market assemblages. It appears that poultry may have been a household production. The Gibbes memoranda book also suggests that poultry was purchased live from the market, meaning that these purchases would not be reflected in the zooarchaeological remains from the market.

Figure 134: poultry



A central issue is whether or not animals, particularly cattle, were slaughtered at the market site. Walsh, Martin and Bowen suggest that butchering usually took place at town edges, in areas convenient for delivery of rural supplies and accessible for grazing. Legislation relating to the Charleston markets through the 18th century suggests that smaller animals were penned and slaughtered at the market throughout its history, and into the 1807 enabling legislation for the new market. These include calves, sheep, goats, and hogs. The butchering of cattle was evidently less common, and by 1783 was prohibited within the city limits (SC Weekly Gazette, October 4, 1783). It seems likely that, in the early 18th century at least, cattle arrived in Charleston on the hoof. The zooarchaeological data, element distribution, and the soil chemistry profiles support on-site butchery for the earliest period. Thereafter, it is more likely that the cattle were slaughtered at a peripheral location, and the quarters brought to the centrally-located market. Such a practice is inferred from legislation that stipulates requirement for covered wagons carrying meats. The Lower Market, located on the waterfront on the edge of the city, evidently operated in a slightly different manner. A 1774 summary in the South Carolina Gazette lists the “Creatures killed and sold in the Lower Market for the previous year: “547 beeves, 2907 Calves, 1994 Sheep, 1503 Lambs, 230 Deer, 797 Hogs, 4053 Shoats” (SC Gazette, October 10, 1774). Though a minority of the total, a considerable number were slaughtered at this site. The waterfront location of the lower market likely meant that the remains were deposited into the harbor. In 1795, the Medical Society of Charleston made a series of recommendations to City Council designed to improve the public health of the town. These

included “that the slaughtering of animals either in Charleston or the vicinity, for market, be prohibited, except in such places as are daily washed by the ebbing and flowing of the tide.” (City Gazette and Daily Advertiser, May 15, 1795)

Once in the butcher stalls, large portions of beef were evidently divided for sale with a cleaver. Hacking is the predominant butchering method reflected in the archaeological record, and this increases through the century. This is reflected most dramatically in the dense layer of small, hacked bone fragments recovered from zone 6 (from the 1760s market). A cleaver was the only butchering tool recovered from the site.

Finally, the zooarchaeological data from the market, and from dozens of residential sites suggests the market, despite its central location and its centrality as an urban institution, was not the only source of meat for urban residents. This is true for both wild resources and domestic meats, including beef. Wild resources could have come from a property owner’s plantation, hunted or trapped by the owner or his resident slaves

The overarching result of the zooarchaeological analysis of Charleston sites – the market, the public establishments, and the homes – is that there was no simple, unidirectional flow of meats from countryside through commercial outlets to residential ones. Instead, meats were acquired, processed, and distributed through several channels.

The Urban Household

Several lines of data, from domestic sites as well as the market site, indicate that Charleston residents maintained a variety of livestock. Managing those animals was a critical part of maintaining a healthy and sanitary household and town. The Heyward Washington house data summarize our current knowledge of animal use in Charleston, as the assemblage expand upon conclusions drawn earlier about domestic life in the city.

The faunal record suggests that city residents dined on meats from their yard, from their plantations, and from the city market. Domestic mammals comprised the majority of the calories. Cattle were the most commonly consumed, followed by pigs. Sheep and goats are consistently present, but were relatively uncommon. Chickens and muscovy ducks are the most common domestic birds. There seems to be little status or ethnic differences in the meats consumed; the elite sites are reflected only in a greater diversity of species used (Reitz 2000).

Domestic mammals as a percentage of all individuals used by city residents decline during the 18th century; this trend is particularly



pronounced for cattle. Nonetheless, beef remains the dominant meat consumed throughout the century. Commensal individuals also increase in relative abundance during the century. Small animals suitable to raising in backyards comprise about a quarter of the individuals at all 18th century components, and their presence in the city increases to approximately one third of the individuals by the end of the 19th century. Chickens, in particular, are more abundant at 19th century residential sites than at 18th century ones. This, in conjunction with the general increase of Old World rats, may indicate an accommodation to and a consequence of the increasingly congested urban environment. The preferential slaughter of juvenile and subadult pigs and cows is evident in the HW assemblage, a preference found in most Charleston

collections. A particularly striking aspect of the Heyward assemblage is the high percentage of specimens that are gnawed, digested, and weathered, indicating that a large quantity of trash accumulated on the floor of the stable and was left there for a considerable amount of time. This is similar to the faunal remains retrieved from other enclosed spaces, such as the crawl space of the Nathaniel Russell kitchen and the stable of the Aiken Rhett house (Zierden 1996; Zierden 2003).

Figure 135: heirloom chickens on a houselot in Williamsburg, Virginia

The urban townhouse sites evidently needed special cleanup efforts, as the faunal record also indicates that maintenance and butchering of cattle was commonplace on these properties. This is seen in the distribution of carcass elements recovered at residential sites when compared to those at the market and at sites patronized by the general public. Further, these data suggest that on-site butchery was more common on elite sites than those of the middle class (Reitz and Zierden 1991; Reitz 1989; Reitz 2000). The c. 1808 Russell house, for example featured a dense deposit of bone beneath the kitchen building, much of which evidenced on-site butchery (Reitz in Zierden 1996).

Evidence for residential processing, and butchering, of livestock is found in the modifications noted on bone specimens. Based on collections from the market and from the Heyward site, cut marks appear to be markers for household-level processing. In contrast, virtually all of the butchering modifications on Market specimens are hacks, increasing from 78% in the early colonial period to 85% by the end of the 18th century. Cut marks are rare in the Market assemblage. Any significant presence of hack marks at residential sites implies that some butchering is taking place at these sites. Hacking and cutting decline in residential collections, as sawing increases.

The types of animals identified in Heyward assemblage indicate that local resources were an important part of the household diet. Evidence of this choice is found in other residential collections, and indicates that local resources were NOT supplanted by non-local resources. Moreover, extensive use of wild animals persisted through the 19th century. Over

half the animals recovered from Charleston are wild species. These include small mammals such as opossums, rabbits, squirrels, and raccoon. Wild birds include Canada geese, ducks, turkeys, and shore birds. A large variety of turtles were consumed, and often considered a delicacy. Many of the mammals, birds, and fish we no longer consider edible were consumed in great numbers.

Considering its coastal and estuarine location, fish have always been a surprisingly small part of the domestic faunal record. Though the number of samples is still small, there is some evidence for an increased reliance on fishes as the 19th century progresses. This is mirrored in the increased presence of fish at the colonial market site through time. Charleston's 19th century market included a large, elaborate fishpond. This stone enclosure held fish brought live to market by the Mosquito fleet. A few private (household level) fishponds are documented for the 19th century, as well. An increased reliance on all available resources, particularly fish, is especially pronounced among Charleston's elite residents after the Civil War.

The archaeological record, and to a lesser extent the documentary record, suggests that the work yard of domestic townhouses of the 18th and 19th centuries was filled with domestic animals such as cows, pigs, and assorted fowl, maintained for milk and eggs and ultimately destined for the dinner table. Also present were work animals and pets. The maintenance of these animals, their feed, other food stocks, and the resulting refuse, attracted other, unwanted, animals. Just as cattle and pigs were fenced OUT of fields in the countryside, a large part of urban garden and yard maintenance involved keeping chickens and pigs out of the garden, cats out of the well, and rats out of the larder. Charlestonians evidently shared the city with a number of unwanted and uninvited animals. Analysis of the faunal remains from drain fill, trash pits,



Figure 136: rat bones are a common component of Charleston faunal collections

and other work yard middens suggest that such animals as rats, mice, toads, cats and dogs comprise 10.6% of urban assemblage, and only 4.3% of rural faunal assemblages, suggesting that vermin were more closely associated with human activity in the city (Reitz 1986). Further, the remains of these animals are often numerous in enclosed areas, such as stable interiors, and along the wharves (Zierden 2003; Zierden and Reitz 2002). Though it was likely filled with desirable refuse, the Market assemblage contained very few rats; the open-air nature of the building likely discouraged these scavengers.

Among the resident animals considered both friend and foe were dogs. Like the city's enslaved people, dogs were subject to numerous regulations, and were eventually licensed. Beginning in 1798, dogs had to be muzzled, collared, and secured. Dogs being moved through town had to be leashed. African Americans, both slave and free, could only keep a dog if the collar bore the name of "a reputable white person". Still, dogs performed many services and were part of the public milieu. Butcher's dogs had to be secured to carts and were banned from the market. The City Marshall used his dogs "in catching or taking up hogs or goats" about town (Greene and Hutchins 2004:64).

Still other animals counted as food may have been unwanted visitors. The Charleston peninsula was riddled with low-lying areas of marsh, swamps, and creeks. Considered undesirable and a source of ‘bad air’ and the “miasma”, efforts to fill such areas began immediately after colonization and continued for the next three centuries. Still, the colonial and antebellum city contained many unfilled and unimproved wetlands. These are visible on period maps, and their evolution is evident in the pollen record recovered from archaeological sites (Zierden 2001a, 2001b). Many of the townhouse sites that featured a highly formalized front contained unimproved and unbounded lands in the rear of the property. A range of archaeological data from the Miles Brewton House and the adjoining 14 Legare house reveals that such a wetland formed the common rear boundary of the properties into the early 19th century. The swamp remained forested through the 18th century, and weedy and wet through the antebellum period, before the yards were filled and the boundary fenced. Such areas were likely locations for such marginal species as opossums, raccoons, and rodents, who raided the buildings and stocks of the work yard. Though habitat is much reduced, these animals remain players in the city landscape.



Figure 137: raccoon

The urban elite sites, such as 14 Legare and Heyward-Washington, contain a lower percentage of vermin, 7.5% average, possibly indicating some success in sanitizing the urban environment (Reitz 1986), though the otherwise progressive Aiken-Rhett house was full of rats, particularly inside the well-preserved stable. The Horlbeck brothers, successful local contractors, built a brick wall “to keep out the rats” in the early 19th century (Haney 1996). We have further noted a general increase in the quantity of vermin in the city as the 19th century progresses. We believe this is generally related to the amount of food stored on site, or the amount of waste discarded on the property, as well as the quality of storage. The Grimkes, early 19th century owners of the Heyward-Washington house, kept a range of staples in the basement “store room”: inventories list a supply of sugar, salt, lard, coffee, tea, corn, flour, and rice, along with candles, soap, wood, and coal” (McInnis 2005:176). Often, these store were secured from slaves as well as from scavenging animals. In general, maintenance of townhouse lots seems to decline after the economic devastation and social upheaval of the Civil War. The Miles Brewton household, for example, went from three-dozen enslaved household servants before the war to three (Cote 2000). At the same time, the basement storeroom beneath the kitchen filled with sediment and debris to a point where it became unusable.

Animals and the Urban Environment

Recent documentary and architectural research on Charleston’s backbuildings revealed new, dramatic evidence for the keeping of livestock at townhouses (Haney 1996; McInnis 2005:170-176). In 1816, prominent planter Ralph Izard reported, “ I have a cow yard fenced off & a division made for poultry& a fence running across the lot meeting these giving us a tolerably sized garden & a square secured from intrusion for drying clothes” (Ralph Izard, Charleston to Mrs. Alice Izard, Bristol, c. 1816, quoted in Haney 1996:30). Plats of Charleston townhouse lots

from 1750 to 1850 show a great variety of back buildings, including pigeon house, poultry houses, cow houses, and, most telling, slaughter houses. The 1870 correspondence of the Adger family discuss numerous birds kept at 14 Legare: “Everthing looks very well at our house – chickens, ducks, turkeys & dogs all answering quite blithely to roll call (Adger letter 1873).

That the City would be filled with livestock in the early years of colonization and settlement is hardly unexpected. That this trend persisted for centuries may be more surprising. A work yard shared by resident slaves and livestock was common through the 19th century. An 1837 ordinance prohibited the keeping of hogs inside the city limits; cows could remain, however, if kept in a “house floored or paved, and kept constantly free from dirt” (McInnis 2005:174). The maintenance of cattle, particularly dairy cattle, persisted into the 20th century (Rosengarten et al. 1987). Archaeology demonstrates that paving the work yard was an antebellum period activity. At the Miles Brewton house, for example, 2 ½ feet of refuse accumulated before the work yard was paved in the 1830s; thereafter, soil accumulation was limited to less than a foot (Zierden 2001b).

Archaeological evidence has demonstrated that the crowded and messy conditions of the urban work yard was exacerbated by the presence of a host of animals; two decades of zooarchaeological research have further demonstrated the noisy and smell characteristics of this area. The work yard was crowded with debris, livestock, horses, and people. While it may have been visually separated from the formal part of the house and garden, the odors and sounds of livestock, their slaughter, and the discard of rubbish must have been a fairly common phenomenon. Livestock and work animals also filled public spaces, from streets to vacant lots, Vermin made the dark corners and unimproved areas their home, and raided food supplies and refuse with equal vigor. The impact of resident animals on the urban environment was considerable. Moreover, it was long-lasting. Livestock, work animals, pets, assorted fowl, and numerous unwanted visitors remained an integral part of the urban environment until the 20th century.



Figure 138: perhaps a typical Charleston yard in the 19th century (Collections of The Charleston Museum)

Many of the archaeological deposits recovered in Charleston, as in other cities, shows how close trash was discarded to living areas. Many animals lived and died in Charleston’s urban landscape, contributing to a growing health problem as the urban environment became more developed and the amount of garbage grew along with the human and non-human populations. Mixed in with ornamental gardens and fine buildings were kitchen gardens, stables, cattle pens, pig sties, dovecots, chicken coops, and dog pens. There were likely dead animals in the streets, garbage under the houses, rats in the larder, and an increasingly large number of people living in a small urban space.

A few households concentrated these activities and the resulting debris in certain areas, such as the work yard. Such back lots would be a focus of refuse disposal and of many loud, smelly activities. The work yard was crowded with debris, livestock, and people, while it may have been visually separated from the formal part of the house, the odors and sounds of livestock, their slaughter, and the discard of rubbish must have been a very obvious part of even the elite urban landscape. But not every household had a work yard or segregated back lot.

Eventually it was no longer possible to discard debris all over the yard or even in trash pits, drains, wells, and privies. Development of public water supply, sewage projects, and curbside garbage collection were driven by necessity.

Summary

Excavations in the stable building at the Heyward-Washington property provided an opportunity to explore a portion of Charleston occupied from the early 18th century through the present day, and to reconsider the results of Elaine Herold's excavations in the 1970s. The soil deposits and artifacts recovered from the stable were directly relevant to the results of the earlier project. Further, consideration of the Heyward data in relation to two recent Broad Street projects – City Hall and the Charleston Judicial Center – provides new baseline data on the material record of the early 18th century city. Analysis of the faunal remains from Heyward in relation to the market has provided refined data on subsistence strategies in an 18th century urban setting. Together, these studies provide material evidence of Charleston's development as a trans-Atlantic port city.

Appendix I

Data Tables:

Animal Remains from the Heyward-Washington Stable

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Table 1. Summary Data for Charleston, Excluding 1984 Beef Market Data.

11/06/05	1720-1740		1720-1740		1740-1760		1740-1760		1860-1900		1860-1900	
General Categories	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%
Domestic Mammal	19	37.3%	34	29.6%	66	25.3%	66	25.3%	66	25.3%	66	25.3%
Domestic Bird	4	7.8%	15	13.0%	7	2.7%	7	2.7%	7	2.7%	7	2.7%
Wild Terrestrial Mammal	2	3.9%	5	4.3%	25	9.6%	25	9.6%	25	9.6%	25	9.6%
Wild Bird	3	5.9%	13	11.3%	14	5.4%	14	5.4%	14	5.4%	14	5.4%
Turtles	6	11.8%	8	7.0%	46	17.6%	46	17.6%	46	17.6%	46	17.6%
Sharks, Rays, Fishes	12	23.5%	33	28.7%	37	14.2%	37	14.2%	37	14.2%	37	14.2%
Commensal Taxa	5	9.8%	7	6.1%	261		261		261		261	
Total	51		115									
Domestic Individuals	23	45.1%	49	42.6%	132	50.6%	132	50.6%	132	50.6%	132	50.6%
Wild Terrestrial	5	9.8%	18	15.7%	32	12.3%	32	12.3%	32	12.3%	32	12.3%
Wild Aquatic	18	35.3%	41	35.7%	60	23.0%	60	23.0%	60	23.0%	60	23.0%
Specific Taxa	1720-1740	1720-1740	1740-1760	1740-1760	1740-1760	1740-1760	1860-1900	1860-1900	1860-1900	1860-1900	1860-1900	1860-1900
Old World rats	4	7.8%	6	5.2%	23	8.8%	23	8.8%	23	8.8%	23	8.8%
White-tailed deer	2	3.9%	4	3.5%	2	0.8%	2	0.8%	2	0.8%	2	0.8%
Canada geese/turkey	3	5.9%	8	7.0%	13	5.0%	13	5.0%	13	5.0%	13	5.0%
Pig	5	9.8%	13	11.3%	27	10.3%	27	10.3%	27	10.3%	27	10.3%
Sheep and/or goats	3	5.9%	6	5.2%	14	5.4%	14	5.4%	14	5.4%	14	5.4%
Chicken	4	7.8%	12	10.4%	63	24.1%	63	24.1%	63	24.1%	63	24.1%
Cow	11	21.6%	15	13.0%	25	9.6%	25	9.6%	25	9.6%	25	9.6%
Modifications	1720-1740	1720-1740	1740-1760	1740-1760	1740-1760	1740-1760	1860-1900	1860-1900	1860-1900	1860-1900	1860-1900	1860-1900
Hacked	112	45.3%	78	26.9%	99	10.0%	99	10.0%	99	10.0%	99	10.0%
Cut	51	20.6%	122	42.1%	156	15.8%	156	15.8%	156	15.8%	156	15.8%
Sawed/Clean-cut	18	7.3%	21	7.2%	515	52.0%	515	52.0%	515	52.0%	515	52.0%
Burned	64	25.9%	56	19.3%	102	10.3%	102	10.3%	102	10.3%	102	10.3%
Rodent-gnawed	1	0.4%	4	1.4%	74	7.5%	74	7.5%	74	7.5%	74	7.5%
Carnivore-gnawed	1	0.4%	9	3.1%	44	4.4%	44	4.4%	44	4.4%	44	4.4%
Total	247 (Total NISP=2321)		290 (Total NISP=5182)		990 (Total NISP=7722)		990 (Total NISP=7722)		990 (Total NISP=7722)		990 (Total NISP=7722)	

Table 1. Summary Data for Charleston, Excluding 1884 Beef Market Data. (cont.)

Number of Taxa	1720-1740		1740-1760		1860-1900	
	1720-1740	1720-1740	1740-1760	1740-1760	1860-1900	1860-1900
Domestic Mammal	4	16.7%	3	7.7%	3	5.6%
Domestic Bird	1	4.2%	3	7.7%	2	3.7%
Wild Mammal	1	4.2%	2	5.1%	4	7.4%
Wild Bird	2	8.3%	5	12.8%	10	18.5%
Turtles	5	20.8%	4	10.3%	8	14.8%
Sharks, Rays, Fishes	8	33.3%	18	46.2%	17	31.5%
Commensal Taxa	3	12.5%	4	10.3%	10	18.5%
	24		39		54	

Note: The 1720-1740 data are from First Trident (Zierden, Calhoun, and Pinckney 1983), McCrady's Tavern & Longroom (Zierden, Reitz, Trinkley, and Paysinger 1982), Powder Magazine (Zierden 1997, 2000), and Russell House (Zierden 1996a; Zierden and Reitz 1995). The 1740-1760 data are from Brewton House (Zierden 2001a), Exchange & Customs House (Reitz 1988; Zierden and Hacker 1986), First Trident (Zierden, Calhoun, and Pinckney 1983), Lodge Alley (Zierden, Calhoun, and Paysinger 1983), Powder Magazine (Zierden 1997, 2000), and Rutledge House (Zierden and Grimes 1989). The 1860-1900 data are from Aiken-Rhett House (Zierden 2003; Zierden, Calhoun, and Hacker 1986), Powder Magazine (Zierden 1997, 2000), President Street (Zierden and Raynor 1988), Russell House (Zierden 1996a; Zierden and Reitz 1995), 14 Legare (Zierden 2001b), 70 Nassau Street privy (Reitz 1990; Ruff and Reitz 1992; Zierden 1990), and 72 Anson Street (Reitz and Dukes 1993; Zierden and Anthony 1993).

Table 2. Beef Market Data, Includes 1984 Data.

11/06/05	1692-1739		1692-1739		1739-1760		1739-1760		1760-1796		1760-1796	
General Categories	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%
Domestic Mammal	6	54.5%	11	30.6%	10	23.8%						
Domestic Bird	1	9.1%	4	11.1%	4	9.5%						
Wild Terrestrial Mammal			3	8.3%	1	2.4%						
Wild Terrestrial Bird	1	9.1%	5	13.9%	4	9.5%						
Turtles/Alligator	1	9.1%	2	5.6%	2	4.8%						
Sharks, Rays, Fishes	1	9.1%	9	25.0%	16	38.1%						
Commensal Taxa	1	9.1%	2	5.6%	5	11.9%						
Total	11		36		42							
Domestic Individuals	7	63.6%	15	41.7%	14	33.3%						
Wild Terrestrial	1	9.1%	8	22.2%	5	11.9%						
Wild Aquatic	2	18.2%	11	30.6%	18	42.9%						
Specific Taxa	1692-1739	1692-1739	1739-1760	1739-1760	1760-1796	1760-1796						
Old World rats	MNI	MNI%	MNI	MNI%	MNI	MNI%						
White-tailed deer	1	9.1%			3	7.1%						
Canada geese/turkey	1	9.1%										
Pig	2	18.2%										
Sheep and/or goats	1	9.1%										
Chicken	1	9.1%										
Cow	3	27.3%										
Modifications	1692-1739	1692-1739	1739-1760	1739-1760	1760-1796	1760-1796						
Hacked	NISP	NISP%	NISP	NISP%	NISP	NISP%						
Cut	47	78.3%	878	84.8%	787	84.8%						
Sawed/Clean-cut	5	8.3%	23	2.2%	42	4.5%						
Burned/Calcined	5	8.3%	16	1.5%	29	3.1%						
Rodent-gnawed	3	5.0%	116	11.2%	69	7.4%						
Camivore-gnawed			2	0.2%	1	0.1%						
Total	60 (Total NISP=1377)		1035 (Total NISP=13007)		928 (Total NISP=15949)							

Table 2. Charleston City Hall/Beef Market Project Summary. (cont.).

Number of Taxa	1692-1739		1739-1760		1760-1796	
	1692-1739	1739-1760	1739-1760	1760-1796	1760-1796	1760-1796
Domestic Mammal	3	37.5%	3	13.0%	3	13.0%
Domestic Bird	1	12.5%	1	4.3%	1	4.3%
Wild Mammal			3	13.0%	1	4.3%
Wild Bird	1	12.5%	3	13.0%	3	13.0%
Turtles/Alligator	1	12.5%	2	8.7%	2	8.7%
Sharks, Rays, Fishes	1	12.5%	9	39.1%	10	43.5%
Commensal Taxa	1	12.5%	2	8.7%	3	13.0%
Total	8		23		23	

Table 3. Age Summary for Pigs in the 1700s.

4/15/06	Time Period	Juvenile	Subadult	Adult	Indeterminate	Total MNI	Reference
18th-century sites							
Atlantic Wharf	1790s-1820s	1	2	1		4	Zierden and Reitz 2002
Brewton	1750-1770	1	1	1		3	Zierden 2001a
Exchange	1750-late 19th cent	1	1		1	3	Reitz 1988; Zierden and Hacker 1986
First Trident	1740s				1	1	Zierden, Calhoun, and Pinckney 1983
First Trident	Colonial	1			1	2	Zierden, Calhoun, and Pinckney 1983
Lodge Alley	18th-19th century	1	4	1		6	Zierden, Calhoun, and Paysinger 1983
McCrary's	1720-1750				1	1	Zierden, Reitz, Trinkley, and Paysinger 1982
Tavern/Longroom	1770s-1780s	1	2	1	1	5	Zierden, Reitz, Trinkley, and Paysinger 1982
Post Office/McKenzie	1725-1769	2	2	1		5	Reitz and Ruff 1987
Powder Magazine	1712-1750	1		1		3	Zierden 1997, 2000
Powder Magazine	1751-1820	1	1		2	4	Zierden 1997, 2000
Russell House	1730-1810	2			1	3	Zierden 1996a; Zierden and Reitz 1995
Rutledge	1730s-post 1820s	4	2		3	9	Zierden and Grimes 1989
Total		16	15	6	12	49	
Percentages		32.7%	30.6%	12.2%	24.5%		
Beef Market							
Percentages		20.0%	10.0%	10.0%	60.0%	10	Zierden and Reitz 2005
Heyward-Washington							
1730-1740		1			1	2	this report
1740-1750		1	1			2	
1750-1820			1	1	1	3	
Total		2	2	1	2	7	
Percentages		28.6%	28.6%	14.3%	28.6%		

Table 4. Age Summary for Cows in the 1700s.

4/15/06	Time Period	Juvenile	Subadult	Adult	Indeterminate	Total MNI	Reference
18th-century sites							
Atlantic Wharf	1790s-1820s	1	5	1		7	Zierden and Reitz 2002
Brewton	1750-1770	1	1		1	3	Zierden 2001a
Exchange	1750-late 19th cent		1		2	3	Reitz 1988; Zierden and Hacker 1986
First Trident	1740s		1		1	2	Zierden, Calhoun, and Pinckney 1983
First Trident	Colonial	1	2		1	4	Zierden, Calhoun, and Paysinger 1983
Lodge Alley	18th-19th century	1	2		4	7	Zierden, Calhoun, and Paysinger 1983
McCrady's	1720-1750				1	1	Zierden, Reitz, Trinkley, and Paysinger 1982
Tavern/Longroom	1770s-1780s	3	1		1	5	Zierden, Reitz, Trinkley, and Paysinger 1982
Post Office/McKenzie	1725-1769	4	5	5	3	17	Reitz and Ruff 1987
Powder Magazine	1712-1750	1	2	1		4	Zierden 1997, 2000
Powder Magazine	1751-1820	1		1		2	Zierden 1997, 2000
Russell House	1730-1810	1	2	2	3	8	Zierden 1996a; Zierden and Reitz 1995
Rutledge	1730s-post 1820s	1	4	2	3	10	Zierden and Grimes 1989
Total		15	26	12	20	73	
Percentages		20.5%	35.6%	16.4%	27.4%		
Beef Market							
Percentages		23.1%	38.5%	30.8%	7.7%		13 Zierden and Reitz 2005
Heyward-Washington							this report
1730-1740		1	1		1	3	
1740-1750		1	1		1	3	
1750-1820		1	2	1	1	5	
Total		3	4	1	3	11	
Percentages		27.3%	36.4%	9.1%	27.3%		

Table 5. Regression Formulae Used.

Taxon	N	Slope (b)	Y-Intercept (loga)	r2
Mammal	97	0.90	1.12	0.94
Bird	307	0.91	1.04	0.97
Turtle	26	0.67	0.51	0.55
Chondrichthyes	17	0.86	1.68	0.85
Osteichthyes	393	0.81	0.90	0.80
Siluriformes	36	0.95	1.15	0.87
Serranidae	18	1.08	1.51	0.85
Sparidae	22	0.92	0.96	0.98
Sciaenidae	99	0.74	0.81	0.73
Pleuronectiformes	21	0.89	1.09	0.95

Note: $Y=ax^b$ where Y is biomass or meat weight; x is bone weight; a is the Y-intercept; and b is the slope.
N is the number of observations (Reitz and Wing 1999:221-231).

Table 6. Heyward-Washington Stable, 1730-1740: Species List.

Taxa	MNI			Weight, g	Biomass, kg
	NISP	#	%		
Osteichthyes	9			2.25	0.057
Indeterminate bony fish					
<i>Bagre marinus</i>	1	1	6.3	0.22	0.005
Gafftopsail catfish					
Sciaenidae	1	1	6.3	0.28	0.015
Drums					
Testudines	1			0.27	0.013
Indeterminate turtle					
<i>Deirochelys reticularia</i>	1	1	6.3	1.49	0.041
Chicken turtle					
<i>Malaclemys terrapin</i>	2	1	6.3	0.83	0.028
Diamondback terrapin					
Aves	31			12.22	0.199
Indeterminate bird					
Anatidae	1	1	6.3	0.71	0.015
Ducks and geese					
Galliformes	1			0.42	0.009
Gallinaceous birds					
<i>Gallus gallus</i>	1	1	6.3	0.24	0.006
Chicken					
<i>Meleagris gallopavo</i>	1	1	6.3	0.29	0.007
Turkey					
Mammalia	516			1163.82	15.112
Indeterminate mammal					
Rodentia	1			0.09	0.003
Rodents					
<i>Rattus</i> spp.	2	1	6.3	0.27	0.008
Old World rats					
<i>Procyon lotor</i>	1	1	6.3	1.13	0.029
Raccoon					

Table 6. Heyward-Washington Stable, 1730-1740: Species List. (cont.)

Taxa	MNI			Weight, g	Biomass, kg
	NISP	#	%		
Artiodactyla	11			46.18	0.828
Even-toed ungulate					
<i>Sus scrofa</i>	9	2	12.5	62.29	1.084
Pig					
<i>Bos taurus</i>	12	3	18.8	673.30	9.234
Cow					
Caprinae	4	2	12.5	61.45	1.071
Sheep and goat					
Vertebrata				48.53	
Indeterminate vertebrate					
Total	606	16		2076.28	27.764

Table 7. Heyward-Washington Stable, Late 1730-1740: Summary Table.

	MNI		Biomass	
	#	%	kg	%
Fishes	2	12.5	0.020	0.2
Turtles	2	12.5	0.069	0.6
Wild birds	2	12.5	0.022	0.2
Domestic birds	1	6.3	0.006	0.1
Wild mammals	1	6.3	0.029	0.3
Domestic mammals	7	43.8	11.389	98.7
Commensal taxa	1	6.3	0.008	0.1
Total	16		11.543	

Table 8. Heyward-Washington Stable, 1730-1740: Element Distribution.

	Pig	Cow	Sheep/Goat
Head	6	1	
Vertebra/Rib			
Forequarter	2	5	2
Hindquarter		3	
Forefoot		1	1
Hindfoot		1	
Foot	1	1	1
Total	9	12	4

Table 9. Heyward-Washington Stable, 1730-1740: Epiphyseal Fusion for Pig (*Sus scrofa*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal			
Acetabulum			
Metapodials, proximal			
1st/2nd phalanx, proximal	1		1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal	1		1
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
Total	2		2

Table 10. Heyward-Washington Stable, 1730-1740: Epiphyseal Fusion for Cow (*Bos taurus*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		1	1
Scapula, distal			
Radius, proximal		1	1
Acetabulum		1	1
Metapodials, proximal			
1st/2nd phalanx, proximal		1	1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal		1	1
Metapodials, distal			
Late Fusing:			
Humerus, proximal	1		1
Radius, distal	2		2
Ulna, proximal			
Ulna, distal			
Femur, proximal	1		1
Femur, distal			
Tibia, proximal			
Total	4	5	9

Table 11. Heyward-Washington Stable, 1730-1740: Epiphyseal Fusion for Sheep/Goat (Caprinae).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal			
Acetabulum			
Metapodials, proximal			
1st/2nd phalanx, proximal		1	1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
Total		1	1

Table 12. Heyward-Washington Stable, 1730-1740: Modifications.

Taxon	Hacked	Clean	Cut	Cut	Burned	Calcined	Rodent gnawed	Carnivore gnawed	Weathered
Indeterminate bony fish									2
Indeterminate bird	1	1						1	
Gallinaceous birds								1	
Chicken									
Indeterminate mammal	29	4	18	10	11	3	4		13
Raccoon					1				
Even-toed ungulate			1						4
Pig	3		1						
Cow	2	2							2
Sheep and goat	1		2						2
Indeterminate vertebrate	5	1			8	1			3
Total	41	8	22	10	20	4	6		26

Table 13. Heyward-Washington Stable, 1740-1750: Species List.

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Carcharhiniformes	4	1	2.9	1.49	0.177
Sharks					
Osteichthyes	134			54.09	0.748
Indeterminate bony fish					
<i>Lepisosteus</i> spp.	3	1	2.9	0.59	0.021
Gar					
<i>Arius felis</i>	3	1	2.9	0.43	0.009
Hardhead catfish					
<i>Bagre marinus</i>	2	1	2.9	1.43	0.028
Gafftopsail catfish					
Serranidae	1			0.05	0.001
Groupers and sea basses					
<i>Centropristis</i> spp.	2	1	2.9	0.46	0.008
Sea basses					
<i>Archosargus probatocephalus</i>	1	1	2.9	0.52	0.009
Sheepshead					
Sciaenidae	1			0.75	0.031
Drums					
<i>Pogonias cromis</i>	20	1	2.9	18.50	0.337
Black drum					
<i>Mugil</i> sp.	1	1	2.9	0.14	0.006
Mullet					
Bothidae	1	1	2.9	0.28	0.008
Flounder					
Testudines	43			18.93	0.227
Turtle					
Emydidae	8			7.35	0.120
Pond turtle					
<i>Malaclemys terrapin</i>	12	1	2.9	10.82	0.156
Diamondback terrapin					

Table 13. Heyward-Washington Stable, 1740-1750: Species List. (cont.)

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
<i>Trachemys scripta</i>	1	1	2.9	4.12	0.082
Slider					
Chelonidae	1	1	2.9	1.56	0.043
Sea turtle					
Aves	184			69.76	0.972
Indeterminate bird					
Anatidae	9	1	2.9	9.73	0.162
Ducks and geese					
Galliformes	8			14.06	0.226
Gallinaceous birds					
<i>Colinus virginianus</i>	1	1	2.9	0.07	0.002
Bobwhite					
<i>Gallus gallus</i>	15	3	8.8	9.04	0.151
Chicken					
<i>Meleagris gallopavo</i>	4	1	2.9	9.22	0.154
Turkey					
Mammalia	1635			2933.10	34.722
Indeterminate mammal					
<i>Didelphis virginiana</i>	2	2	5.9	2.84	0.067
Opossum					
Rodentia	7			1.14	0.030
Rodents					
<i>Rattus</i> spp.	24			7.80	0.167
Old World rats					
<i>Rattus norvegicus</i>	1	1	2.9	0.46	0.013
Norway rat					
<i>Rattus rattus</i>	4	2	5.9	1.40	0.036
Black rat					
<i>Ursus americanus</i>	1	1	2.9	1.23	0.032
American black bear					

Table 13. Heyward-Washington Stable, 1740-1750: Species List. (cont.)

Taxa	MNI			Weight, g	Biomass, kg
	NISP	#	%		
Canidae	1	1	2.9	2.89	0.068
Coyote, dog, fox, and wolf					
<i>Felis domesticus</i>	3	1	2.9	2.74	0.065
Domestic cat					
Artiodactyla	46			139.43	2.238
Even-toed ungulate					
<i>Sus scrofa</i>	44	2	5.9	104.94	1.733
Pig					
<i>Odocoileus virginianus</i>	2	1	2.9	1.87	0.046
White-tailed deer					
<i>Bos taurus</i>	47	3	8.8	1112.15	14.506
Cow					
Caprinae	19	2	5.9	162.99	2.576
Sheep and goat					
<i>Ovis aries</i>	1	(1)		27.27	0.515
Sheep					
Vertebrata				184.31	
Indeterminate vertebrate					
Total	2296	34		4919.95	60.492

Table 14. Heyward-Washington Stable, 1740-1750: Summary Table.

	MNI		Biomass	
	#	%	kg	%
Fishes	9	26.5	0.603	2.9
Turtles	3	8.8	0.281	1.4
Wild birds	3	8.8	0.318	1.6
Domestic birds	3	8.8	0.151	0.7
Wild mammals	4	11.8	0.145	0.7
Domestic mammals	7	20.6	18.815	91.8
Commensal taxa	5	14.7	0.182	0.9
Total	34		20.495	

Table 15. Heyward-Washington Stable, 1740-1750: Element Distribution.

	Pig	Deer	Cow	Sheep/Goat
Head	36	2	15	6
Vertebra/Rib			2	
Forequarter	4		4	3
Hindquarter	1		7	2
Forefoot	1		6	1
Hindfoot	1		5	4
Foot	1		8	4
Total	44	2	47	20

Table 16. Heyward-Washington Stable, 1740-1750: Epiphyseal Fusion for Pig (*Sus scrofa*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		1	1
Acetabulum			
Metapodials, proximal		1	1
1st/2nd phalanx, proximal	1		1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal	2		2
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
Total	3	2	5

Table 17. Heyward-Washington Stable, 1740-1750: Epiphyseal Fusion for Cow (*Bos taurus*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		1	1
Acetabulum	1		1
Metapodials, proximal		1	1
1st/2nd phalanx, proximal		3	3
Middle Fusing:			
Tibia, distal		1	1
Calcaneus, proximal		1	1
Metapodials, distal			
Late Fusing:			
Humerus, proximal	1		1
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal	1		1
Femur, distal			
Tibia, proximal	1		1
Total	4	7	11

Table 18. Heyward-Washington Stable, 1740-1750: Epiphyseal Fusion for Sheep/Goat (Caprinae).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		1	1
Scapula, distal		1	1
Radius, proximal			
Acetabulum	1		1
Metapodials, proximal		1	1
1st/2nd phalanx, proximal		3	3
Middle Fusing:			
Tibia, distal		1	1
Calcaneus, proximal	1		1
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal			
Total	2	7	9

Table 19. Heyward-Washington Stable, 1740-1750: Modifications.

Taxon	Pathological	Hacked	Sawed	Clean Cut	Cut	Burned	Calcined	Rodent gnawed	Carnivore gnawed	Digested	Weathered	Worked
Shark												
Indeterminate bony fish				2								
Hardhead catfish											1	
Indeterminate turtle											2	
Indeterminate bird		2		5			2	6	7		7	
Ducks and geese				2				1			1	
Gallinaceous birds									1		1	
Chicken				1	1				2		2	
Turkey				1							1	
Indeterminate mammal		99	10	14	65	8	24	24	7	1	53	
Opossum								1				
Rodents											1	
Even-toed ungulate		1			3			1			3	
Pig		3			2						1	
Cow	1	6		3	9			1	1		4	
Sheep and goat		2		1	3						2	
Indeterminate vertebrate		4		1	14	2	5	1	3		2	1
Total	1	117	10	19	107	11	31	35	21	1	81	1

Table 20. Heyward-Washington Stable, 1750-1820: Species List.

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Carcharhiniformes	3	1	2.2	0.96	0.122
Sharks					
Osteichthyes	127			45.50	0.650
Indeterminate bony fish					
<i>Lepisosteus</i> sp.	1	1	2.2	0.24	0.010
Gar					
Ariidae	3			0.49	0.010
Sea catfishes					
<i>Arius felis</i>	4	1	2.2	1.34	0.026
Hardhead catfish					
<i>Bagre marinus</i>	4	1	2.2	0.39	0.008
Gafftopsail catfish					
Serranidae	1			0.28	0.005
Groupers and sea basses					
<i>Centropristis</i> spp.	6	1	2.2	1.71	0.033
Sea basses					
Sciaenidae	1			3.20	0.092
Drums					
<i>Pogonias cromis</i>	3	1	2.2	1.36	0.049
Black drum					
<i>Sciaenops ocellatus</i>	2	1	2.2	1.65	0.056
Red drum					
Bothidae	3			0.90	0.024
Flounder					
<i>Paralichthys</i> sp.	1	1	2.2	0.37	0.011
Flounder					
Reptilia	1			0.17	0.010
Reptile					
Testudines	23			17.01	0.211
Indeterminate turtle					

Table 20. Heyward-Washington Stable, 1750-1820: Species List. (cont.)

Taxa	MNI			Weight, g	Biomass, kg
	NISP	#	%		
Kinosternidae	1			0.61	0.023
Mud and musk turtle					
<i>Kinosternon</i> sp.	1	1	2.2	0.24	0.012
Eastern mud turtle					
Emydidae	5			4.15	0.082
Pond turtle					
<i>Malaclemys terrapin</i>	8	1	2.2	7.83	0.121
Diamondback terrapin					
<i>Trachemys scripta</i>	1	1	2.2	1.34	0.038
Slider					
Aves	251			116.22	1.547
Indeterminate bird					
Podicipedidae	1	1	2.2	0.28	0.006
Grebes					
Anatidae	13			10.02	0.166
Ducks and geese					
<i>Anas</i> sp.	1	1	2.2	1.70	0.033
Duck					
Anserinae	1	1	2.2	0.98	0.020
Geese and swans					
Galliformes	10			14.00	0.225
Gallinaceous birds					
<i>Gallus gallus</i>	30	4	8.7	32.27	0.482
Chicken					
<i>Meleagris gallopavo</i>	8	1	2.2	21.47	0.333
Turkey					
Scolopacidae	1	1	2.2	0.41	0.009
Sandpiper					
<i>Columba livia</i>	4	1	2.2	0.95	0.019
Rock dove					

Table 20. Heyward-Washington Stable, 1750-1820: Species List. (cont.)

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Mammalia	1606			3908.14	44.956
Indeterminate mammal					
<i>Didelphis virginiana</i>	2	1	2.2	0.61	0.017
Opossum					
Rodentia	19			2.47	0.059
Rodents					
<i>Rattus</i> spp.	92			21.20	0.411
Old World rats					
<i>Rattus norvegicus</i>	3	2	4.3	0.64	0.018
Norway rat					
<i>Rattus rattus</i>	14	8	17.4	6.08	0.134
Black rat					
Carnivora	1			1.13	0.029
Carnivores					
<i>Canis familiaris</i>	2	2	4.3	31.77	0.591
Dog					
<i>Procyon lotor</i>	1	1	2.2	6.71	0.146
Raccoon					
<i>Felis domesticus</i>	1	1	2.2	0.24	0.007
Domestic cat					
<i>Equus</i> sp.	1	1	2.2	27.89	0.526
Mule or horse					
Artiodactyla	52			287.29	4.290
Even-toed ungulate					
<i>Sus scrofa</i>	35	3	6.5	210.99	3.250
Pig					
<i>Bos taurus</i>	68	5	10.9	1663.27	20.838
Cow					

Table 20. Heyward-Washington Stable, 1750-1820: Species List. (cont.)

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Caprinae	13	1	2.2	113.81	1.865
Sheep and goat					
Vertebrata				197.55	
Indeterminate vertebrate					
Total	2429	46		6767.83	81.571

Table 21. Heyward-Washington Stable, 1750-1820: Summary Table.

	MNI		Biomass	
	#	%	kg	%
Fishes	8	17.4	0.315	1.1
Turtles	3	6.5	0.171	0.6
Wild birds	5	10.9	0.401	1.4
Domestic birds	5	10.9	0.501	1.7
Wild mammals	2	4.3	0.163	0.6
Domestic mammals	9	19.6	25.953	90.2
Commensal taxa	14	30.4	1.276	4.4
Total	46		28.780	

Table 22. Heyward-Washington Stable, 1750-1820: Element Distribution.

	Pig	Cow	Sheep/Goat
Head	23	10	2
Vertebra/Rib		3	
Forequarter	5	7	3
Hindquarter	3	14	3
Forefoot		6	2
Hindfoot	3	8	2
Foot	1	20	1
Total	35	68	13

Table 23. Heyward-Washington Stable, 1750-1820: Epiphyseal Fusion for Pig (*Sus scrofa*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		3	3
Acetabulum		1	1
Metapodials, proximal		1	1
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal	1		1
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal		1	
Femur, distal			
Tibia, proximal			
Total	1	6	6

Table 24. Heyward-Washington Stable, 1750-1820: Epiphyseal Fusion for Cow (*Bos taurus*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		1	1
Scapula, distal			
Radius, proximal		1	1
Acetabulum		2	2
Metapodials, proximal		1	1
1st/2nd phalanx, proximal	1	12	13
Middle Fusing:			
Tibia, distal	1	1	2
Calcaneus, proximal	2		2
Metapodials, distal		1	1
Late Fusing:			
Humerus, proximal	1		1
Radius, distal	1	1	2
Ulna, proximal			
Ulna, distal			
Femur, proximal	4		4
Femur, distal	1		1
Tibia, proximal	2		2
Total	13	20	33

Table 25. Heyward-Washington Stable, 1750-1820: Epiphyseal Fusion for Sheep/Goat (Caprinae).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal		1	1
Scapula, distal			
Radius, proximal		1	1
Acetabulum		1	1
Metapodials, proximal		1	1
1st/2nd phalanx, proximal			
Middle Fusing:			
Tibia, distal	1		1
Calcaneus, proximal			
Metapodials, distal	1		1
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal	1		1
Tibia, proximal			
Total	3	4	7

Table 26. Heyward-Washington Stable, 1750-1820: Modifications.

Taxon	Pathological	Hacked	Sawed	Clean Cut	Cut	Burned	Calcined	Rodent gnawed	Carnivore gnawed	Digested	Weathered	Worked
Red drum					1							
Indeterminate turtle											2	
Diamondback terrapin												
Slider				1								
Indeterminate bird				9	2	2	7	14			11	
Ducks and geese				2			1	1			3	
Geese and swans				1								
Gallinaceous birds							2				4	
Chicken				4			1	2			3	
Turkey				2			2	1			1	
Indeterminate mammal		117	25	9	68	6	19	38	35	1	50	1
Old World rats	1							1	1	1	3	
Carnivores											2	
Mule or horse								1			1	
Even-toed ungulate		5		2	7			2	3		8	
Pig		4			2						3	
Cow		5	1	5	4			5	1		18	
Sheep and goat		3			2				1		3	
Indeterminate vertebrate		2		3	6	1	4	17	2		2	
Total	1	136	26	19	109	9	25	77	61	2	114	1

Table 27. Heyward-Washington Stable, Late 19th Century: Species List.

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Osteichthyes	123			16.91	0.292
Indeterminate bony fish					
Siluriformes	1	1	2.9	0.12	0.003
Catfishes					
<i>Salmo</i> sp.	1	1	2.9	0.34	0.012
Salmon and trout					
<i>Centropristis</i> spp.	3	2	5.7	1.48	0.028
Sea Basses					
Sparidae	1			0.28	0.005
Porgies					
<i>Archosargus probatocephalus</i>	2	1	2.9	1.88	0.028
Sheepshead					
Sciaenidae	2			0.77	0.032
Drums					
<i>Micropogonias undulatus</i>	1	1	2.9	0.42	0.020
Atlantic croaker					
<i>Pogonias cromis</i>	1	1	2.9	0.60	0.027
Black drum					
<i>Sciaenops ocellatus</i>	3	1	2.9	2.22	0.070
Red drum					
Bothidae	1			0.38	0.011
Flounder					
<i>Paralichthys</i> sp.	1	1	2.9	0.17	0.005
Flounder					
Testudines	10			7.77	0.125
Indeterminate turtle					
Emydidae	4			3.76	0.077
Pond turtle					

Table 27. Heyward-Washington Stable, Late 19th Century: Species List. (cont.)

Taxa	MNI			Weight, g	Biomass, kg
	NISP	#	%		
<i>Malaclemys terrapin</i>	4	1	2.9	5.77	0.102
Diamondback terrapin					
Chelonidae	4	1	2.9	8.41	0.132
Sea turtle					
Aves	175			72.13	1.002
Indeterminate bird					
Anatidae	19			10.62	0.175
Ducks and geese					
<i>Anas</i> spp.	3	1	2.9	1.55	0.030
Duck					
Phasianidae	1			0.18	0.004
Fowls, pheasants, and quails					
Galliformes	15			19.48	0.304
Gallinaceous birds					
<i>Colinus virginianus</i>	1	1	2.9	0.09	0.002
Bobwhite quail					
<i>Gallus gallus</i>	45	6	17.1	74.23	1.029
Chicken					
<i>Meleagris gallopavo</i>	4	2	5.7	11.12	0.183
Turkey					
Columbidae	1			0.26	0.006
Doves and pigeons					
<i>Columba livia</i>	1	1	2.9	0.31	0.007
Rock dove					
Mammalia	927			2033.69	24.973
Indeterminate mammal					
<i>Didelphis virginiana</i>	1	1	2.9	1.51	0.038
Opossum					
Rodentia	12			2.32	0.056
Rodents					

Table 27. Heyward-Washington Stable, Late 19th Century: Species List. (cont.)

Taxa	NISP	MNI		Weight, g	Biomass, kg
		#	%		
Muridae	1			0.09	0.003
Rats and mice					
<i>Rattus</i> spp.	31			7.95	0.170
Old World rats					
<i>Rattus norvegicus</i>	1	1	2.9	0.61	0.017
Norway rat					
<i>Rattus rattus</i>	3	3	8.6	1.29	0.033
Black rat					
<i>Felis domesticus</i>	1	1	2.9	1.30	0.033
Domestic cat					
Artiodactyla	27			129.60	2.096
Even-toed ungulate					
<i>Sus scrofa</i>	13	2	5.7	59.62	1.042
Pig					
<i>Bos taurus</i>	43	3	8.6	788.55	10.645
Cow					
Caprinae	15	2	5.7	120.82	1.968
Sheep and goat					
Vertebrata				110.02	
Indeterminate vertebrate					
Total	1502	35		3498.62	44.785

Table 28. Heyward-Washington Stable, Late 19th Century: Summary Table.

	MNI		Biomass	
	#	%	kg	%
Fishes	9	25.7	0.193	1.2
Turtles	2	5.7	0.234	1.5
Wild birds	4	11.4	0.215	1.4
Domestic birds	7	20.0	1.036	6.7
Wild mammals	1	2.9	0.038	0.2
Domestic mammals	7	20.0	13.655	88.4
Commensal taxa	5	14.3	0.083	0.5
Total	35		15.454	

Table 29. Heyward-Washington Stable, Late 19th Century: Element Distribution.

	Pig	Cow	Sheep/Goat
Head	4	8	2
Vertebra/Rib		3	
Forequarter	1	6	1
Hindquarter	2	8	7
Forefoot	3	5	2
Hindfoot	1	7	2
Foot	2	6	1
Total	13	43	15

Table 30. Heyward-Washington Stable, Late 19th Century: Epiphyseal Fusion for Pig (*Sus scrofa*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		1	1
Acetabulum			
Metapodials, proximal		4	4
1st/2nd phalanx, proximal		1	1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal	1		1
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal	1		1
Femur, distal			
Tibia, proximal			
Total	2	6	8

Table 31. Heyward-Washington Stable, Late 19th Century: Epiphyseal Fusion for Cow (*Bos taurus*).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal			
Radius, proximal		2	2
Acetabulum		1	1
Metapodials, proximal			
1st/2nd phalanx, proximal		2	2
Middle Fusing:			
Tibia, distal		1	1
Calcaneus, proximal	1		1
Metapodials, distal			
Late Fusing:			
Humerus, proximal	1		1
Radius, distal	1		1
Ulna, proximal			
Ulna, distal			
Femur, proximal			
Femur, distal			
Tibia, proximal	2		2
Total	5	6	11

Table 32. Heyward-Washington Stable, Late 19th Century: Epiphyseal Fusion for Sheep/Goat (Caprinae).

	Unfused	Fused	Total
Early Fusing:			
Humerus, distal			
Scapula, distal		1	1
Radius, proximal			
Acetabulum		3	3
Metapodials, proximal			
1st/2nd phalanx, proximal		1	1
Middle Fusing:			
Tibia, distal			
Calcaneus, proximal			
Metapodials, distal			
Late Fusing:			
Humerus, proximal			
Radius, distal			
Ulna, proximal			
Ulna, distal			
Femur, proximal	1		1
Femur, distal			
Tibia, proximal			
Total	1	5	6

Table 33. Heyward-Washington Stable, Late 19th Century: Modifications.

Taxon	Pathological	Hacked	Sawed	Clean	Cut	Cut	Burned	Calcined	Rodent gnawed	Carnivore gnawed	Digested	Weathered	Worked
Indeterminate bony fish												1	
Indeterminate turtle	2												
Diamondback terrapin													
Indeterminate bird			1	5					15	5		2	
Ducks and geese	1		1	1					2	1			
Duck										1			
Gallinaceous birds	1			1					1			1	
Chicken	1		1	6					6	2		3	
Turkey	1											1	
Pigeons and doves													
Indeterminate mammal		56	48	5	38	1	8		44	22		19	2
Old World rat	1												
Even-toed ungulate		5	1		1		1		4			5	
Pig		1			1				1				
Cow		4	7	2	8				4			9	
Sheep and goat		3			1				1			2	
Indeterminate vertebrate		1	5	4	4	2	2		16	4	1	2	1
Total	1	76	61	10	66	1	11	94	35	1	45	3	3

Table 34. Heyward-Washington Stable and Carriage House Summaries.

4/15/2006	1730-1740		1740-1750		1750-1820		late 1800s	
General Categories	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%
Domestic Mammal	7	43.8%	7	20.6%	9	19.6%	7	20.0%
Domestic Bird	1	6.3%	3	8.8%	5	10.9%	7	20.0%
Wild Terrestrial Mammal	1	6.3%	4	11.8%	2	4.3%	1	2.9%
Wild Bird	2	12.5%	3	8.8%	5	10.9%	4	11.4%
Turtles	2	12.5%	3	8.8%	3	6.5%	2	5.7%
Sharks, Rays, Fishes	2	12.5%	9	26.5%	8	17.4%	9	25.7%
Commensal Taxa	1	6.3%	5	14.7%	14	30.4%	5	14.3%
Total	16		34		46		35	
Domestic Individuals	8	50.0%	10	29.4%	14	30.4%	14	40.0%
Wild Terrestrial	3	18.8%	7	20.6%	7	15.2%	5	14.3%
Wild Aquatic	4	25.0%	12	35.3%	11	23.9%	11	31.4%
Specific Taxa	1730-1740	1730-1740	1740-1750	1740-1750	1750-1820	1750-1820	late 1800s	late 1800s
Old World rats	MNI	MNI%	MNI	MNI%	MNI	MNI%	MNI	MNI%
White-tailed deer	1	6.3%	3	8.8%	10	21.7%	4	11.4%
Canada geese/turkey	1	6.3%	1	2.9%	1	2.2%	2	5.7%
Pig	2	12.5%	2	5.9%	3	6.5%	2	5.7%
Sheep and/or goats	2	12.5%	2	5.9%	1	2.2%	2	5.7%
Chicken	1	6.3%	3	8.8%	4	8.7%	6	17.1%
Cow	3	18.8%	3	8.8%	5	10.9%	3	8.6%
Modifications	1730-1740	1730-1740	1740-1750	1740-1750	1750-1820	1750-1820	late 1800s	late 1800s
Hacked	NISP	NISP%	NISP	NISP%	NISP	NISP%	NISP	NISP%
Cut	41	36.9%	117	33.3%	136	29.4%	76	21.5%
Sawed/Clean-cut	22	19.8%	107	30.5%	109	23.6%	66	18.6%
Burned/Calched	8	7.2%	29	8.3%	45	9.7%	71	20.1%
Rodent-gnawed	30	27.0%	42	12.0%	34	7.4%	12	3.4%
Carnivore-gnawed	4	3.6%	35	10.0%	77	16.7%	94	26.6%
Total	6	5.4%	21	6.0%	61	13.2%	35	9.9%
	111 (Total NISP=606)		351 (Total NISP=2296)		462 (Total NISP=2429)		354 (Total NISP=1502)	

Table 34. Heyward-Washington Stable and Carriage House Summaries.

Number of Taxa	1730-1740	1730-1740	1740-1750	1740-1750	1750-1820	1750-1820	1750-1820	late 1800s	late 1800s
Domestic Mammal	3	25.0%	3	11.5%	3	10.7%	3	13.6%	3
Domestic Bird	1	8.3%	1	3.8%	2	7.1%	2	9.1%	2
Wild Mammal	1	8.3%	3	11.5%	2	7.1%	1	4.5%	1
Wild Bird	2	16.7%	3	11.5%	5	17.9%	3	13.6%	3
Turtles	2	16.7%	3	11.5%	3	10.7%	2	9.1%	2
Sharks, Rays, Fishes	2	16.7%	9	34.6%	8	28.6%	8	36.4%	8
Commensal Taxa	1	8.3%	4	15.4%	5	17.9%	3	13.6%	3
Total	12		26		28		22		22

Appendix A. Heyward-Washington Stable: Proveniences Studied.

1730-1740	1740-1750	1750-1820	Late 19th Century	Samples studied:	Not reported
66	32	29	26		40
67	44	30	27		75
70	48	31	28		89
73	50	34	33		92
95	53	35	41		93
103	55	36	71		106
118	57	37	78		117
126	58	38	81		139
127	59	42	84		162
130	60	45	86		164
131	64	46	104		
157	65	47	110		
160	68	49	129		
165	72	51	141		
166	80	52	142		
167	83	54	144		
168	88	56	146		
169	90	62	159		
171	91	63			
173	99	69			
174	108	74			
175	109	85			
176	113	87			
177	114	94			
178	115	96			
179	116	97			
180	120	98			
181	121	100			
182	140	102			
183	151	105			
	152	107			
	154	111			
	158	112			
	172	119			
		132			
		135			
		136			
		143			
		145			
		147			
		148			
		149			
		150			
		153			
		155			
		156			
		161			
		163			

Appendix B. Heyward-Washington Stables: Measurements.

Taxon	Element	Dimension	Measurement, mm
<i>Canis familiaris</i>	Atlas	LAd	19.82
<i>Sus scrofa</i>	R radius	Bp	28.76
<i>Bos taurus</i>	L Astragalus	GLI	71.7
<i>Bos taurus</i>	L Astragalus	GLm	65.4
<i>Bos taurus</i>	L Astragalus	Bd	44.5
<i>Bos taurus</i>	R Metacarpal	Bd	67
<i>Bos taurus</i>	R Metacarpal	SD	38.74
<i>Bos taurus</i>	R Metacarpal	GL	195
<i>Bos taurus</i>	L Metacarpal	Bp	33.84
<i>Bos taurus</i>	L Tibia	Bd	70.1
<i>Bos taurus</i>	1st phalanx	SD	18.93
<i>Bos taurus</i>	2nd phalanx	SD	19.99
<i>Bos taurus</i>	2nd phalanx	Bd	22.45
<i>Bos taurus</i>	2nd phalanx	Bp	29.71
<i>Bos taurus</i>	2nd phalanx	SD	23
<i>Bos taurus</i>	2nd phalanx	GL	39.15
Caprinae	R Astragalus	GLI	29.5
Caprinae	R Astragalus	GLm	30.9
Caprinae	R Astragalus	Bd	18.7
Caprinae	L Astragalus	GLI	31.1
Caprinae	L Radius	Bp	33.84

Appendix II

Data Tables: Pollen Analysis from the Heyward-Washington Stable

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Table 1
Pollen Proveniences and Counts from the Heyward-Washington Stable Site

Sample	Provenience	Preservation	Concentration
1	FS# 50, Unit 1 Zone 5	Fair	5513
2	FS# 64, Unit 1 Feature 119	Poor	0
3	FS# 77, Unit 1 Zone 6	Poor	0
4	FS# 84, Unit 3 Feature 122	Poor	0
5	FS# 87, Unit 3 Zone 5	Poor	0
6	FS# 127, Unit 4 Zone 6a	Fair	1629

Table 2
Pollen Taxa Identified in the Heyward-Washington Stable Samples

Taxon	Common Name
Apiaceae	Parsley or Umbel Family
Low Spine Asteraceae	Ragweed or Goldenrod Group
Liguliflorae	Dandelion Group
Brassicaceae	Mustard Family
Cheno-Am	Goosefoot, Pigweed
Cyperaceae	Sedge Family
<i>Fagopyrum</i>	Buckwheat
<i>Plantago</i>	Plantain
Poaceae	Grass Family
Polygonaceae	Knotweed Family
<i>Trifolium</i>	Clover
<i>Typha</i>	Cattail
Cerealea	Domesticated Old World Grain
<i>Zea mays</i>	Corn or Maize
<i>Acer</i>	Maple
<i>Carpinus</i>	Hornbeam
<i>Carya</i>	Hickory
<i>Castanea</i>	Chestnut
Fabaceae	Bean or Legume Family
<i>Liriodendron</i>	Tuliptree
<i>Morus</i>	Mulberry
<i>Myrica</i>	Wax Myrtle
<i>Pinus</i>	Pine
<i>Platanus</i>	Sycamore
<i>Prunus</i>	Cherry, Plum
<i>Quercus</i>	Oak
<i>Rhus</i>	Sumac, Poison Ivy
<i>Salix</i>	Willow
TCT	Juniper, Arbor Vitae, Bald Cypress
<i>Tsuga</i>	Hemlock
Indeterminate	Too poorly preserved to identify

Table 3
Pollen Counts and Percentages from the Heyward-Washington Stable Sediments

Taxon	Provenience	
	Sample 1 FS#50	Sample 6 FS#127
Apiaceae	1 (0.5)	
Low Spine Asteraceae	5 (2.5)	3 (1.5)
Liguliflorae	2 (1.0)	2 (1.0)
Brassicaceae	3 (1.5)	1 (0.5)
Cheno-Am	130 (65.0)	47 (23.5)
Cyperaceae	9 (4.5)	11 (5.5)
<i>Fagopyrum</i>	1 (0.5)	3 (1.5)
<i>Plantago</i>	1 (0.5)	6 (3.0)
Poaceae	14 (7.0)	20 (10.0)
Polygonaceae	5 (2.5)	6 (3.0)
<i>Trifolium</i>		1 (0.5)
<i>Typha</i>		1 (0.5)
Cerealea	3 (1.5)	
<i>Zea mays</i>		1 (0.5)
<i>Acer</i>		1 (0.5)
<i>Carpinus</i>		4 (2.0)
<i>Carya</i>		8 (4.0)
<i>Castanea</i>	1 (0.5)	8 (4.0)
Fabaceae		2 (1.0)
<i>Liriodendron</i>	1 (0.5)	1 (0.5)
<i>Morus</i>		1 (0.5)
<i>Myrica</i>		2 (1.0)
<i>Pinus</i>	9 (4.5)	18 (9.0)
<i>Platanus</i>	1 (0.5)	
<i>Prunus</i>		1 (0.5)
<i>Quercus</i>	3 (1.5)	22 (11.0)
<i>Rhus</i>		1 (0.5)
<i>Salix</i>	5 (2.5)	
TCT		5 (2.5)
<i>Tsuga</i>		1 (0.5)
Indeterminate	6 (3.0)	23 (11.5)
Total	200 (100)	200 (100)
Concentration Value (Grains/ml)	5513	1629

Appendix III

Analysis of Soil Samples from the Heyward-Washington and Beef Market Sites

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**ANALYSIS OF SOIL SAMPLES FROM THE BEEF MARKET SITE AND THE
HAYWARD WASHINGTON HOUSE IN CHARLESTON, SOUTH CAROLINA**

September 30, 2005

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INTRODUCTION

Soil chemical analysis has been useful in archaeological studies in determining the location and level of habitation at sites and also in evaluation of the general use of an area. Although some of these studies date back to the 1950's and earlier, most of the previous emphasis was placed on the key element phosphorus (P). Phosphorus is an excellent selection because of the amount of this element associated with human activity and its minimal mobility in most soils. In the past three decades more emphasis has been placed on heavy metal pollutants (e.g. Pb) at archaeological sites. Lead has been especially interesting because of the heavy use during early Roman times, during the Industrial revolution, and the continued use to the present time. Thus, this element provides an index of pollution during a wide time frame. Continued improvement in the methods for soil chemical analysis, especially the ICP (inductively coupled plasma-atomic emission spectrometer) has also aided in the more common use of this type of analysis to evaluate archaeological sites. Other elements commonly used to evaluate archaeological sites are Ca, Cu, Zn, As, K, Mg, and Mn.

Samples were obtained in this study from various levels of the excavations at the Beef market Site and the Hayward Washington House in Charleston, South Carolina for soil chemical analysis. One profile was excavated outside the City Hall on March 22, 2005 to determine the morphological and chemical characteristics of a soil outside the major excavations. This would also provide somewhat of a background value for soil elemental composition of the soils.

The objectives of this research project were (1) determine the elemental composition of the various zones identified at the Beef Market and Hayward Washington House and (2) derive any inferences as to the past utilization and history of the sites based on soil elemental composition and in conjunction with the archaeological evidence.

METHODS

The soil samples taken during the archaeological excavations and samples outside the City Hall were air dried and then passed through a 10-mesh sieve (2-mm openings). The coarse fragments collected on the sieve were weighed and the percentage of coarse fragment was calculated. The soil pH and elemental analysis were run on the < 2 mm fraction.

The extraction solution used in determining the elemental composition was the so-called "archaeological extract." The solution is a combination of HCl and HNO₃ acid with a molarity of 0.61 and 0.16, respectively (Lewis et al. 1993). A Thermal Jerrall Ash ICAP 61, ICP-AES was used to determine the following elements: Se, Mo, Cd, As, Ba, Cr, Cu, Ni, Pb, Sr, Zn, Co, B, Na, Mg, Si, S, K, Ti, Fe, Zr, Al, Ca, P, and Mn. The extractant used at the University of Delaware was Mehlich III; this is a combination of acetic acid, ammonium nitrate, ammonium fluoride, nitric acid and EDTA. Soil pH was

determined by an ion electrode meter with a standard soil to water ratio and then with a salt solution.

RESULTS AND DISCUSSION

Soil Morphology

Table 1 provides a description of Trench No. 18 that was located outside the city hall. The soil had numerous discontinuities that indicated disturbance (especially additions) during the development of the profile. The dark colors from 0 to 17 inches, 26-28 inches, and 35-47 inches indicate surface soils that accumulate organic matter and subsequently color the soil with the dark humus. Normally, the surface soil in this area would be a few inches in thickness; the dark surface soil from 0-17 inches indicates additions of sediment over time that has been incorporated into the surface soil. The soil is generally well drained and no evidence of mottling or gleying was encountered until depths of 64 to 87 inches were reached; the water table occurred at the 87 inch depth.

Table 2 gives a general description of the soil samples analyzed at the Beef Market Site and the Hayward Washington House. The soils sampled at the Beef Market site generally showed evidence that they were associated with prior surfaces, especially in zones 10 and 11. Zones 7 and 9 were probably the least influenced by surface soils because of less organic matter resulting in lighter colors. The samples in Zones 5 and 6 at the Hayward Washington House were similar in morphology with dark brown colors (10YR 3/3) and fine sandy loam textures. The dark colors represent surface soils, although not quite as dark colored as those from the Beef Market site. The soils in Feature 128 had some mixing with surface horizons, but Feature 144 appeared to be more characteristic of subsoils.

Particle Size Analysis

Beef Market Site

The dominant soil texture in the samples analyzed at the Beef Market Site was a fine sandy loam; however, in Zone 11 a loam-clay loam to silty clay textures were encountered. Zone 10 in Unit 8 also had a finer-textured matrix. The reason for the finer-textured zones (10 and 11) is probably related to (1) the original sediment being higher in clay or (2) the increased clay could have resulted from areas occurring in lower portions of the landscape collecting water and sedimentary fines (clay and silt). If Zone 11 has silty clay loam textures throughout the site (not just in Units 8, 11, and 14), then it seems the original sediment was fine textured. Soil texture is difficult to change through ordinary production practices or through use for pasture. Unit 4 in Zone 7 had more medium and coarse sands than the remaining samples, and this sample was yellowish brown in color and partially cemented with some stratification noted.

The coarse fragments (> 2 mm) are concentrated mainly in the upper zones with trace amounts in Zones 10 and 11. Most of the coarse fragments were a combination of shells, mortar, brick, bone,, and cemented sands. Zone 7 at the Beef Market Site had the greatest concentration of the cemented sands, with shells incorporated into the matrix in

some instances. Zone 9 also had some cemented sand fragments. Occasional charcoal, glass, and ceramics occurred in a number of zones at both sites.

Hayward Washington House

The dominant soil texture at the Hayward Washington House was a fine sandy loam. The samples were quite uniform in texture and contained 1.9 to 9.9% coarse fragments. The coarse fragments were mainly shells, mortar, and small pieces of brick. The feature in Unit 7 was coarser textured than the remaining samples, and only trace amounts of coarse fragments were noted in features 128 and 144

Elemental Analysis

Trench 18

Trench 18 was sampled and described outside the Beef Market Site to provide some background information on the elemental composition of the local soils, especially of the lower zones. Table 3 shows the distribution of elements with depth in Trench 18. The upper zones 1, 4, 7, and 10 show major increases in nearly all elements, especially Pb, Zn, Cu, Ca, Mn, Ba, Mg, P, and Fe. The increase in Pb, Zn, and Cu is related to typical elements associated with pollutants in urban environments. The Pb, Zn, and Cu are dramatically reduced in zones 11 and 11b as result of less contamination of these elements during the early 1700's.

The Ca increase in zones 1-10 is derived mainly from shells incorporated in the soils; fewer shells were noted in zones 11 and 11b and this is reflected in the lower Ca values in these zones. Some leaching of Ca from horizons above zones 11 and 11b are partially responsible for still elevated Ca levels in these zones.

Phosphorous levels are very high in zones 1, 4, 7, and 10. The additions of P in urban environments are typical with P contributions made through waste products, bones, burning, food stuffs, shells, and others. The P levels in zones 11 and 11b are still elevated compared to normal background values and thus indicate human activity in this zone as well as in those zones above.

The increased levels of Mn, Ba, and Mg in zones 1, 4, 7, and 10 are probably related to recycling of these elements by decomposing vegetation. Increased levels of As and Se are observed in zones 11 and 11b; the cause of this increase is not known although levels of As and Se have been associated with animal waste burning of coal, or pesticides.

Soil pH of the profile is alkaline except for zone 1 at the surface. The major influence on pH has been the deposition of shells and other materials contributing bases (Ca) to the soil system.

Beef Market Site

Soil pH values for all samples were alkaline, with zones 7 and 9 having the highest pH values (>8.0). These high pH values result from the addition of shells and mortar to the various zones and also may be influenced by additional Na (See Appendix for Na values). The Na content was generally higher in zones 7 and 9 as compared to zones 10 and 11 and probably account for the higher pH values.

In general the Beef Market Site had elevated levels of most of the elements examined. The major elemental increases of the various zones were Ca, P, and Pb with other lesser increases above background included Zn, Cu, Mn, As, K, and Fe. The large calcium increases result mainly from shells, mortar and bones. Additions of Pb could have been derived from numerous sources but probably included paints, building materials (e.g. lead pipes), insecticides, crude oil, and burning of coal. Phosphorous levels in all zones are many-fold above the expected background values. Again the sources of P can include a wide array of human activities.

As each zone has its characteristic level of pollutants, it is difficult to draw many firm conclusions on the source of elemental constituents. However, there are some striking similarities in the respective zones and levels of pollutants. The groupings below indicate some of the similarities in zones and chemical composition.

Similar relationships: Groups 1-3

Group 1	As	10>11>9>7
	Se	10>11>7>9
	K	10>11>7>9
	Ba	10>11>9>7

It seems that As, Se, K and Ba additions have a similar history in zones 10, 11, 9, and 7

Group 2	Ca	9>7>10>11
	Zn	9>10=7>11
	Cu	9>10>7>11

Ca, Zn, and Cu have a similar history of additions in zones 9, 10, 7, and 11

Group 3	Mn	11>10>9>7
	Fe	11>10>9>7

Mn and Fe show similarities in these respective zones

Group 4 Individual groupings

The Pb, P, and Mg elemental composition of the various zones appear to be unrelated to the other elements

Pb	7>10>9>11
P	10>9>11>7
Mg	10>7.>9.11

Thus, it appears that the source of the pollutants had some commonality in observing the similarities above. The history of the additions of As, Se, K, and Ba of the respective zones should be analyzed from the archaeological viewpoint. What artifact

distribution characteristics do zones 10, 11, 9, and 7 have in common? The facts that lower zones 10 and 11 both have high values for As, Se, K, and Ba should provide some clue as to the history of elemental contamination of these two zones. The high Ba values can be explained by zones 10 and 11 having been surfaces for considerable time and recycling of Ba is common and can accumulate in older surfaces. The As and Se, however, seem to be related to additions of some chemical compound (perhaps and insecticide) or perhaps resulting from animal waste.

Hayward Washington House

Table 3 gives the elemental composition of the soils sampled at the Hayward Washington House. Increases in major elements above background values in Units 5 and 6 were similar to those found at the Beef Market Site. Unit 5 had higher values of most contaminants than unit 6; this is especially evident in the content of Pb, Zn, Cu, Ca, Mn, Mg, K, and P. Increased amount of Ba, Mg, Zn, and P were observed in soils of unit 5 as compared to the upper levels of soils at the Beef Market site. Some of this increase could be related to recycling of nutrients from decomposed vegetation in the garden.

Zone 6, unit 1 was quite different in elemental composition of Pb, Zn, Cu, Ca, Mn, and P in comparison to other zone 6 units (4 and 6). Perhaps this unit (Zone 6, unit 1) might also show some differences in artifact numbers or composition in comparison to other unit 6 zones.

SUMMARY

Soil chemical analysis of samples at the Beef Market Site and the Hayward Washington House in Charleston, South Carolina showed dramatic increases of certain elements in contrast to background values. The present-day surface (0-26 inches) outside the city hall (Trench 18) had increased levels of normal urban pollutants such as Pb, Cu, Zn, As, and P. The high levels of Ca in same zones (1 and 4) are mainly the result of shell additions to surfaces. The high levels of Ca occurred throughout zones 7, 9, and 10 at the Beef Market Site and still somewhat elevated in zone 11. Bones and mortar could also contribute Ca to the soil system.

The high levels of Ba, Mn, and Mg in zones 7, 9, and 10 are partially related to these surfaces accumulating organic materials and subsequently some of the elements that are biocycled. The extensive high values of P throughout most of the zones relate to the numerous sources of this element in urban settings and also where animals may influence the soil chemistry. Increased levels of As and Se and perhaps Mn in zone 9 and 10 could also be related to animal activity.

The increased Pb content in surface zones 1 and 4 can possibly be related to gasoline, crude oil, paints, insecticides, or burning fossil fuels. Lower in the profiles in zones 7, 9, 10, and 11 the increased Pb could result from insecticides (also As), waste products, or fossil fuels. Lead has the ability to be fixed in the soil so accumulation from a number of sources would result in high values over time.

Soil chemical analysis of samples from the Hayward Washington House was in general similar to those analyzed from the Beef Market Site. Differences in chemical composition were noted between zones 5 and 6, however.

A major point should be made in regard to soil chemical analysis; one can expect a large variation in the composition of similar stratigraphic zones. In this study, a minimum of three samples were analyzed from each zone, but even then the variations were quite large for some elements. Also, background values for elemental composition of soils in the region should be taken outside the urban area. However, we have analyzed a large number of samples from other parts of South Carolina and, thus, feel that the values of most elements in the Charleston region were many fold higher than comparable soils in agricultural areas.

Table 1 Morphology of soil profile at Trench No. 18 at Beef Market site in Charleston, South Carolina.

Horizon	Depth, inches	Color	Text	Struct.	Consist.	Boundary Zone	
Ap	0-8.5	10YR 2/1	fsl	1mpl.	fr	as	1
A1	8.5-11	10YR 3/2	fsl	1fgr	vfr	cs	
A2	11-14	10YR 3/2,3/3	fsl	1mpl	vfr	as	
A3	14-17	10YR 4/3,3/2	fsl	0m	vfr	as	
C1	17-22	10YR 5/3, 3/2 10%	fsl	1mpl	vfr	cs	4
C2	22-26	10YR 5/2, 3/3 15%	fsl	1mpl	vfr	as	6
2Ab	26-28	7.5YR 3/3-3/3	fsl	1fpl	fr	as	7
3C3	28-35	10YR 5/4, 3/2	fel	1mpl	fr	as	
4Ab1	35-38	10YR 3/1,4/2	fsl	1mpl	fr	as	
5Ab2	38-41.75	10YR 2/1	sl	1mpl	vfr	cs	10
5Ab3	41.75-47	10YR 2/1	fel	1mabk	vfr		11
5A/C	47-53	7.5YR 3/3-3/3	fsl				
5C4	53-64	10YR 5/2-5/3	fel				
5C5	64-87	10YR 5/2	fsl				
		Mottled, 7.5YR 5/8					

Comments: Auger was used to describe profile below a depth of 41.75 inches; water table near 87 inches; 15% shells in A1 horizon

Table 2 Laboratory numbers and brief description of soil samples at archaeological sites in Charleston, SC

Lab. No.	Description of sample	Color	Beef Market	Texture	Co. Frag. %
1	Zone 1, Trench 18	10YR 2/1	fsl	fine sandy loam	4.6
2	Zone 4, Trench 18	10YR 5/3, 3/2	10%	fine sandy loam	13.8
3	Zone 7, Trench 18	7.5YR 3/2-3/3		fine sandy loam	16.7
4	Zone 10, Trench 18	10YR 3/1, 4/2		fine sandy loam	3.3
5	Zone 11, Trench 18	10YR 2/1		sandy loam	tr
6	Zone 11b, Trench 18	10YR 2/1		sandy loam	tr
7	Zone 7, Unit 6 FS#187	10YR 4/2		fine sandy loam	22.1
8	Zone 7, Unit 8, FS#166	10YR 4/2, 3/2		fine sandy loam	13.8
9	Zone 7, Unit 4, FS#85	10YR 5/4, 5/8		sandy loam, m-co sands	28.1
10	Zone 9, Unit 6, FS#197	10YR 4/2-4/3		fine sandy loam-sandy loam	30.9
11	Zone 9, Unit 5, FS#108, Lev. 2	10YR 4/2-4/3		fine sandy loam	8.9
12	Zone 11, Unit 11 FS#269	10YR 2/1		loam	1.8
13	Zone 11, Unit 8, FS#189	10YR 2/1		clay loam-silty clay loam	tr
14	Zone 11, Unit 14, FS#271	10YR 2/1		clay loam-silty clay loam	tr
15	Zone 10, Unit 3, FS#62	10YR 2/2		fine sandy loam	tr
16	Zone 10, Unit 4, FS#110	10YR 3/2		fine sandy loam	5.4
17	Zone 10, Unit 8, FS#181	10YR 3/2		silt loam (light silty clay loam)	tr
18	Zone 9, Unit 8, FS#178	10YR 4/3, 4/3	5%	loamy sand-sandy loam	11.6
Hayward Washington House					
19	Zone 5A, Lev. 2, Unit 7, FS#150	10YR 3/3		fine sandy loam	9.9
20	Zone 5, Unit 1, FS#50	10YR 3/3		fine sandy loam	5.9
21	Zone 6, Unit 4, FS#118	10YR 3/3, 5/6	3%	fine sandy loam	1.9
22	Zone 5, Lev. 2, FS#154	10YR 3/3, 5/6	3%	fine sandy loam	8.6
23	Zone 6, Unit 6, Lev. 1 FS#157	10YR 3/3, 5/2	5%	fine sandy loam	3.2
24	Zone 6, Unit 1, FS#77	10YR 3/3, 5/4	5%	fine sandy loam	8.3
25	Unit 3, Fea 128, Lev. 3 FS#136	10YR 5/4, 3/3		fine sandy loam	tr
26	Unit 7, Fea 144, Lev. 7, FS#181	10YR 4/3, 5/6	20%	sandy loam	tr

tr= trace amounts

Table 3 Chemical characteristics of soil profile in Trench 18 at the Beef Market Site and Hayward Washington House

Horizon Zone	Depth (in)	pH	Pb	Zn	Cu	Ca mg/kg	Mn	Ba	Mg	As	K	Se
A	1 0-9.5	6.7	609	141.1	37.8	7890	83.6	76.9	213	18.3	273	5.75
C1	4 17-22	7.9	261.7	13.8	23.3	24791	42.6	36.7	181	8.9	214	3.34
C2	7 22-26	7.9	156.4	38.5	49.2	55148	57.9	77.8	400	11.5	250	6.2
4Ab	10 35-38	7.7	218.2	7.3	12	14612	32	51.5	141	11	220	5.8
5Ab1	11 38-41.75	7.5	9.7	0.7	1	2162	8.6	12.1	56	11.4	199	4.27
5AB2	11b 41.75-47	7.5	10.1	0.9	0.5	3849	2.5	7.3	106	70.4	225	17.71
Beef Market Site												
7, Unit 6		8.3	117.6	22.2	29.2	41454	57	65	511	10.94	510	5.87
7, Unit 8		8.2	423.8	12.4	26.1	15180	27.9	24.3	335	9.78	493	4.8
7, Unit 4		8.1	14	2.3	2.9	3830	7.5	7	164	7.88	442	3.82
9, Unit 6		8.3	183.6	28.3	51	40794	52.3	59.3	410	10.9	461	5.13
9, Unit 5		8.2	67.8	24.1	28.8	21516	27.9	26.7	191	7.6	321	3.46
9, Unit 8		8.2	71.9	13	18.9	21298	31.6	29.3	259	6.3	337	2.78
10, Unit 3		7.6	33.6	4.3	27.4	3199	14	28.5	141	15.2	436	4.67
10, Unit 4		7.7	104.2	7.6	18.8	9169	22.9	42.5	144	13.9	505	4.77
10, Unit 8		7.7	246.6	25.2	44.7	28006	97.5	116.5	737	35.4	1220	10.56
11, Unit 11		7.7	72.4	8.3	11.8	5681	46.2	48.8	174	16.8	526	5.15
11, Unit 8		7.6	45.7	3.7	4.8	8920	47.9	42.5	394	20.9	840	6.82
11, Unit 14		7.8										
Hayward Washington House												
5A, Unit 7		7.6	223.2	36.6	28.6	31947	101.4	105.8	495	18.8	325	6.37
5, Unit 1		8	225.2	59.9	39.2	56511	180	170.4	1182	19.1	849	7.76
5, Lev. 2		8.7	135.6	34.2	38.5	21267	97.2	86.1	491	18.6	936	6.03
6, Unit 4		8.2	43.8	12.3	12.8	12856	55.7	135.2	312	19.3	735	4.94
6, Unit 6		8.1	98.7	23.3	29.3	13849	61	91.1	401	18.3	543	5.62
6, Unit 1		8	8	3	5.9	2372	28.2	64	227	23.8	439	6.49
f128, Unit 3		7.7	37.3	5.1	5.5	11745	32.4	55.8	299	15.3	330	4.81
f144, Unit 7		7.6	14.8	4.5	4.9	2463	16.1	18.5	91	11.5	242	4.11

P	Fe
1228	956
1581	433
2391	537
788	728
171	151
448	39
1415	479
1073	390
237	236
1206	457
1261	416
831	321
652	820
871	861
3068	2052
970	1798
961	1401
2467	921
2158	945
1698	821
1242	693
1540	746
623	1138
615	644
440	485

Sample Name	Se_196 mg/kg	Mo_202 mg/kg	Cd_214 mg/kg	As_193 mg/kg	Ba_455 mg/kg	Cr_267 mg/kg	Cu_324 mg/kg	Ni_231 mg/kg
Foss # 1	5.75	0.84	0.82	18.27	76.90	6.30	37.80	2.46
Foss # 2	3.34	0.70	0.26	8.94	36.72	0.70	23.34	0.84
Foss # 3	6.20	0.96	0.36	11.48	77.82	0.94	49.20	1.34
Foss # 4	5.80	0.81	0.30	10.98	51.47	0.81	11.96	0.94
Foss # 5	4.27	0.69	0.23	11.44	12.11	0.71	1.01	0.63
Foss # 6	17.71	2.49	0.83	70.44	7.29	3.26	0.49	0.73
Foss # 7	5.87	0.88	0.32	10.94	65.01	0.85	29.18	1.20
Foss # 8	4.80	0.75	0.26	9.78	24.26	0.80	26.07	1.00
Foss # 9	3.82	0.62	0.23	7.88	7.04	0.62	2.95	0.69
Foss # 10	5.13	0.83	0.32	10.91	59.26	0.85	51.02	1.18
Foss # 11	3.46	0.67	0.24	7.59	26.73	0.70	26.78	0.81
Foss # 12	5.15	0.91	0.41	16.75	48.80	1.50	11.60	0.91
Foss # 13	6.82	0.99	0.41	20.88	42.52	1.73	4.79	0.95
Foss # 15	4.67	0.72	0.28	15.22	28.51	1.12	27.39	0.65
Foss # 16	4.77	0.76	0.31	13.93	42.46	1.30	16.61	0.63
Foss # 17	10.56	1.59	0.65	35.41	116.48	3.41	44.65	1.37
Foss # 18	2.78	0.56	0.23	6.28	29.25	0.59	18.89	0.75
Foss # 19	6.37	1.01	0.39	18.80	105.84	1.21	28.64	1.35
Foss # 20	7.74	1.18	0.46	19.14	170.42	1.49	39.16	1.98
Foss # 21	4.94	0.92	0.34	19.26	135.18	0.99	12.77	0.91
Foss # 22	6.03	1.02	0.39	18.58	86.12	1.45	38.45	1.14
Foss # 23	5.62	0.91	0.33	18.30	91.12	0.96	29.30	0.90
Foss # 24	6.49	0.96	0.37	23.79	64.00	1.13	5.98	0.64
Foss # 25	4.81	0.77	0.29	15.30	55.78	0.93	5.45	0.70
Foss # 26	4.11	0.67	0.24	11.52	18.54	0.70	4.66	0.59

K_766	Ti_323	Fe_262	Zr_339	Al_394	Ca_183	P_177	Mn_259
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
272.70	5.64	956.00	0.36	1219.00	7690.00	1228.00	83.60
214.67	5.36	433.04	0.37	535.47	24791.06	1581.15	42.59
250.30	4.30	537.62	0.49	536.63	55148.51	2391.09	57.92
220.39	3.46	728.64	0.30	543.73	14612.69	788.61	32.00
199.01	1.29	151.14	0.23	687.44	2162.22	171.22	8.60
225.12	2.84	38.77	1.22	5960.59	3849.26	448.18	2.48
510.49	3.63	478.97	0.42	547.58	41454.37	1415.32	57.00
493.00	3.20	390.40	0.36	483.90	15180.00	1073.00	27.96
442.33	2.52	236.31	0.40	391.71	3830.29	237.59	7.50
461.14	3.06	457.17	0.43	538.96	40794.04	1206.95	52.31
321.36	2.54	415.47	0.33	406.79	21516.97	1261.48	27.66
526.21	3.83	1798.30	0.39	1143.29	5681.48	970.54	46.19
640.00	3.79	1401.00	0.41	1556.00	8920.00	981.00	47.91
436.38	2.35	820.08	0.36	1109.34	3199.80	652.09	14.01
505.44	3.00	861.52	0.39	985.16	9169.14	871.41	22.93
1220.19	4.27	2052.45	0.71	2742.21	28005.94	3068.78	97.48
337.56	2.39	321.80	0.30	352.03	21298.32	831.52	31.62
324.77	5.05	921.04	0.49	1397.74	31947.03	2467.88	101.42
848.16	4.94	945.45	0.47	1212.78	56511.06	2158.23	159.61
735.18	2.90	693.68	0.36	1526.68	12855.73	1242.09	55.73
935.66	6.56	820.51	0.48	1336.24	21267.54	1688.44	97.24
543.40	2.96	746.44	0.31	1390.88	13849.93	1539.97	61.01
439.16	3.72	1137.85	0.32	1902.58	2372.14	623.48	28.18
330.29	3.09	844.12	0.36	1071.57	11745.10	615.69	32.42
241.56	2.10	485.31	0.29	816.18	2463.54	440.46	16.09

Pb_220	Sr_407	Zn_213	Co_230	B_249.67	Na_589	Mg_285	Si_251	S_180
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
609.00	23.73	141.10	1.31	2.75	168.50	213.30	288.80	162.10
281.71	74.44	13.84	0.85	2.58	236.93	181.83	195.24	400.58
156.44	177.82	36.54	1.21	5.50	491.19	400.59	171.29	903.96
218.19	71.36	7.27	0.87	3.80	183.31	140.63	165.52	264.47
9.72	12.14	0.72	0.58	0.47	136.30	55.89	203.86	37.85
10.06	28.55	0.88	0.81	1.75	143.15	108.21	2255.17	94.78
117.62	135.19	22.15	1.10	5.35	547.58	510.49	191.12	712.54
423.80	51.10	12.42	0.92	2.56	383.50	334.70	203.20	363.90
13.97	14.22	2.32	0.82	0.87	220.33	164.48	130.54	92.35
183.62	129.63	28.34	1.21	4.59	499.26	410.22	187.20	704.71
67.76	59.68	24.09	0.79	1.87	333.33	190.62	128.24	382.34
72.39	29.58	8.30	0.76	2.39	377.43	173.74	322.12	193.91
45.72	36.60	3.73	0.75	2.77	527.00	384.20	455.80	327.50
33.63	15.78	4.27	0.58	1.30	252.98	141.45	273.76	96.62
104.15	37.87	7.57	0.73	1.96	292.09	144.21	314.14	223.64
246.61	125.98	25.16	1.21	8.63	892.63	737.26	915.39	753.09
71.85	67.79	13.00	0.82	1.80	384.62	259.27	128.94	421.70
223.15	132.32	36.64	0.94	6.64	251.01	495.34	385.38	489.95
225.16	285.50	59.85	1.38	13.34	630.96	1161.67	451.11	905.16
43.77	58.20	12.33	0.70	3.97	289.33	311.76	432.61	230.34
135.56	96.86	34.32	0.87	7.11	438.03	491.53	497.34	368.26
98.68	61.70	23.84	0.66	3.80	191.86	400.88	437.76	234.13
7.99	15.44	3.02	0.61	1.34	219.29	227.08	621.53	52.41
27.26	49.12	5.05	0.65	2.42	171.27	289.51	321.47	187.06
14.62	11.19	4.50	0.55	0.56	145.25	91.11	218.88	44.54

University of Delaware Soil Testing Program
 Analysis Report for Data Set: 05FOS001

Client: John Fosse
 Soils International, Inc
 Knoxville, Tennessee

UDSTP Lab#	ID	pH	Buffer pH	M3-P (mg/kg)	M3-K (mg/kg)	M3-Ca (mg/kg)	M3-Mg (mg/kg)	M3-Mn (mg/kg)	M3-Zn (mg/kg)	M3-Cu (mg/kg)	M3-Fe (mg/kg)	M3-B (mg/kg)	M3-S (mg/kg)	M3-AI (mg/kg)
13053	1	6.7	7.69	267.85	128.56	3318.08	135.70	6.90	83.71	20.73	160.76	1.38	27.63	847.79
13054	2	7.9	7.91	233.81	39.97	4165.25	64.46	8.72	6.15	10.54	84.81	0.37	20.81	46.17
13055	3	7.9	7.92	230.46	51.70	11152.12	112.95	13.42	12.07	16.49	78.60	0.60	50.51	18.38
13056	4	7.7	7.89	199.54	42.28	3647.40	75.93	5.82	3.30	5.22	170.96	0.48	20.14	73.86
13057	5	7.5	7.88	148.16	51.20	1834.71	52.18	5.57	0.26	0.67	72.85	0.33	11.48	635.36
13058	6	7.5	7.74	96.92	66.52	3112.15	67.65	1.69	0.24	0.72	13.14	0.56	18.35	1306.35
13059	7	8.3	7.94	228.40	334.38	9718.84	206.89	16.49	11.71	18.98	89.63	1.06	73.28	6.69
13060	8	8.2	7.95	225.75	345.99	3477.88	198.82	10.70	6.82	13.42	90.39	0.76	103.27	45.23
13061	9	8.1	7.89	138.24	557.00	1575.12	183.82	7.24	0.67	1.52	84.86	0.51	34.60	496.36
13062	10	8.3	7.94	218.65	260.63	6424.19	136.39	14.84	13.63	25.66	84.66	0.66	41.73	16.44
13063	11	8.2	7.94	305.10	165.19	3684.47	90.10	10.70	13.52	15.86	129.21	0.54	51.68	17.59
13064	12	7.7	7.86	379.27	454.33	3562.51	136.21	3.06	4.07	4.44	263.83	0.97	119.25	600.32
13065	13	7.6	7.84	398.31	539.18	4466.94	287.65	4.55	1.79	2.26	261.04	1.61	206.86	655.79
13066	14A	7.8	7.87	270.66	381.73	2454.97	174.51	3.07	0.79	1.71	235.05	0.75	36.15	846.97
13067	14B	7.8	7.88	270.22	386.66	2538.41	175.98	3.05	0.80	1.83	234.74	0.79	36.30	863.04
13068	15	7.6	7.84	407.39	425.64	2436.12	135.72	2.11	2.53	23.67	239.87	1.04	56.55	784.29
13069	16	7.7	7.86	292.89	442.64	4762.45	96.58	4.09	3.81	8.23	190.18	0.60	82.30	504.99
13070	17	7.7	7.77	498.11	1085.37	11082.93	448.37	8.79	10.74	15.41	226.65	2.65	289.67	408.31
13071	18	8.2	7.95	180.95	165.88	5820.31	116.28	10.21	6.48	8.96	96.91	0.49	71.53	2.72
13072	19	7.6	7.85	666.43	121.45	5524.28	211.79	22.55	17.42	14.44	189.72	1.17	22.22	386.27
13073	20	8	7.89	519.79	552.81	8076.00	385.46	30.51	31.96	14.04	158.70	2.41	69.83	281.59
13074	21	8.2	7.89	510.37	682.42	6571.94	182.85	16.32	5.24	5.34	170.91	1.68	28.88	627.67
13075	22	8.7	7.93	496.38	756.59	5611.04	225.08	19.95	15.91	15.53	153.01	2.71	22.84	488.08
13076	23	8.1	7.90	428.10	365.44	5111.82	200.17	13.00	10.93	13.66	154.06	1.25	14.59	566.90
13077	24	8	7.86	369.08	328.29	1812.31	175.14	8.60	0.87	2.96	207.73	1.04	11.65	953.06
13078	25	7.7	7.86	265.88	156.18	3619.23	173.93	10.87	1.79	2.41	144.28	0.70	9.43	605.85
13079	26	7.6	7.87	236.15	96.98	1719.67	65.04	10.96	2.22	3.24	155.42	0.54	9.65	702.68

Appendix IV

Faunal Remains from the Heyward-Washington Site, 1982

**Bruce L. Manzano
University of Tennessee**

ABSTRACT

Approximately 1952 bone fragments dated from the mid-seventeenth to the mid-eighteenth centuries were identified from two features excavated at the Heyward-Washington Site, Charleston, South Carolina. Animal species identified consist of food species frequently recovered from southeastern historical sites. Major points of interest are the frequencies of cow to pig remains, chicken leg elements, saw cut bone sections and the occurrence of domestic pet remains.

INTRODUCTION

The following report concerns the identification and description of a sample of animal remains recovered from the Heyward-Washington site located in Charleston, South Carolina. Site excavations were conducted intermittently between August 1973 and December 1977 under the direction of Dr. Elaine B. Herold. The animal remains examined for this study were recovered from two separate feature pits labeled feature 166 and square II. Feature 166 is believed to be a refuge dump area that predates a 1740 fire on the property. This feature was well defined and can be attributed to a gunsmith family named Milner who lived on the site, and may have occasionally taken in boarders. All the remains from this feature were assigned the same provenience and constitute some of the oldest historic faunal material yet recovered in Charleston.

The second feature, square II (sqII), was named after the excavation unit in which it was located. This feature was once a privy or necessary constructed sometime between 1740 and 1772. It was excavated in ten levels, plus an area at the bottom labeled B. The faunal remains examined from this feature were recovered from levels six through nine. Chronologically, level nine dates to the second half of the eighteenth century coinciding, at least in part, with when the Thomas Heyward family lived at the site, between 1773 to 1794. Material from level eight most likely dates to the turn of the eighteenth century, possibly covering a period when the site was occupied by the Grimke household, between 1794 to 1803. Later, but sometime prior to 1818, the property was turned into a boarding house. Remains from levels seven and six were deposited during this "boarding house" period and date between 1820 to 1850.

METHODS

Most feature fill was troweled through, as well as dry screened through, half inch wire mesh. Fill from sqII was very wet during excavations; so instead, it was water screened through half inch wire mesh. When possible, all recovered faunal remains were identified to the lowest taxonomic unit. Identification was based on comparison to specimens from the zooarchaeological collections housed at the Department of Anthropology, University of Tennessee, Knoxville.

All faunal remains from feature 166 and sqII, level nine (here after referred to only as level nine) were quantified following methods put forth by Chaplin (1971). Bone characteristics, such as mature or immature, burnt, saw or knife cut, hacked, etc., were also recorded (see table 1 and 2). Remains from levels six, seven and eight of sqII, however, were not examined in such detail. These remains were scanned only to identify species not identified from feature 166 or level nine of sqII. Bone characteristics were not quantified either. Therefore, the identified material from these three levels are used with some caution in an overall discussion on how the Heyward-Washington faunal remains reflect dietary habits and/or social economic conditions of people who once occupied the site.

DISCUSSION

All together, approximately 1952 bone fragments were identified from feature 166 and level nine. A total of 1053 fragments or 91.2% of the recovered remains from feature 166 were mammal bone. In contrast, level nine contained 491 mammal remains, approximately 61.5% of all remains recovered from the level. As expected, most of the mammal remains are those of domestic animals but, a number of bird, reptile, fish and invertebrate remains were also recovered (see table 4).

Recently, Reitz and Honerkamp (1983) presented data defining a "regional pattern of animal utilization" for people who occupied eighteenth century colonial sites in the southern United States. Five distinctive characteristics of this subsistence pattern were identified:

1. "Dominance of cattle and, to a lesser extent, hogs among domestic species;
2. Heavy reliance on wild terrestrial or estuarine species;
3. Occasional use of wild birds and aquatic species;
4. The virtual absence of caprines and deep sea marine species; and
5. A characteristic butchering technology emphasizing chopping/cutting techniques" (Reitz and Honerkamp 1983:22).

Collectively, this pattern is thought to reflect an adaptation to the southern coastal plain "focusing on wild resources, cattle and transcending ethnic affiliation" (Reitz and Honerkamp 1983:4). Although the identified Heyward-Washington material is only a sample of what was recovered, the overall assemblage generally follows Reitz's and Honerkamp's subsistence model. For example, most historical studies on food patterns in the southern United States during the eighteenth and nineteenth century report that swine was used more for meat than

cattle. Archaeological data, on the other hand, suggests that the reverse was actually true; beef was the major source of meat (Reitz and Honerkamp 1983:22). Interestingly, cow "out paced" pig in minimum number of individuals (MNI) and in the quantity of recovered elements for both feature 166 and level nine. Because a large number of cow and pig cranial and postcranial elements were recovered, it seems likely that these animals were butchered at or near the site. Whether the under-representation of pig remains at this site is due to meat selection or possibly to various meat processing methods used by the inhabitants on pork that either destroys bone elements or at least makes them unrecognizable (Reitz 1982:199), is debatable. Nevertheless, the ratio of cow to pig remains, though smaller in level nine than in feature 166, is dominated by cow.

A low amount of sheep/goat (Capra/Ovis sp.) remains were recovered from level nine and feature 166. This follows a similar pattern identified by Reitz and Honerkamp (1983) in which remains of caprines were also recovered. In their report, the low number of sheep/goat remains indicates that either these animals were a high status food item and/or the environment was unfavorable for caprines (Reitz and Honerkamp 1983:21). Possibly, similar circumstances may have resulted in the low amount of recovered sheep/goat remains from the Hegward-Washington site.

Deer remains, although scarce, were identified from both proveniences. Only postcranial elements, particularly limbones, were recovered. Such a pattern suggests, as in Reitz (1983:197), that these animals were butchered elsewhere and most likely were obtained from vendors on the street or in the market.

The remaining identified feature 166 mammal elements were from species of horse, dog, rat and elk/cow. Level nine, in contrast, lacked elements of dog or horse but contained several cat elements. Most likely, the mammal elements identified as elk/cow from feature 166 are cow but this is questionable since these particular remains fall within the overlapping size range of comparative elements belonging to elk and cow skeletons examined at The University of Tennessee.

The recovered bird remains from feature 166 and level nine were mainly those of chicken (Gallus gallus), although elements of turkey (Meleagris gallopavo) and waterfowl were also recovered (see table 1 and 2). Level nine contained the remains of at least fourteen chickens while feature 166 contained the remains of only three chickens. Interestingly, lower leg bones (eg. tibiotarsus and tarsometatarsus) were the most frequent chicken bones recovered. Since these elements contain little in the way of meat, they are more likely to be discarded soon after butchering than most other chicken elements and hence, more likely be recovered archaeologically.

Collectively, level nine contained a greater amount of identified bird remains; however, feature 166 contained more variety of identified species. For instance, in addition to chicken and turkey remains, both proveniences contained remains of ducks (Anas sp.) while level nine contained elements of a blue winged teal (Anas discors) and two specimens of geese (Anserinae).

Although feature 166 contained the only remains of freshwater turtle, tentatively identified as either a *Chrysemy* sp. or a *Graptemys* sp., elements of marine turtle and fish were common in both

proveniences. Interestingly, one plastron fragment of the freshwater turtle shows hacked marks on the bridge (the area where the plastron and corapace join) which indicates that this specimen most likely was butchered. Remains of sea turtle (Chelonidae/Dermochelidae) were found in both proveniences, one carapace fragment from level nine and one humerus fragment from feature 166. These animals are noted to be rich in protein (Weiss 1980:66) and were obtained as a delicacy during the eighteenth and nineteenth century (Armitage and McCarthy 1980: 13-14). Recovered fish remains are from marine species commonly found in estuarine and inshore environmental zones along the Atlantic seaboard (see table 1 and 2). Reitz and Honerkamp (1983:21) report a similar assemblage of marine fish from several eighteenth century British and Spanish sites, concluding that such zones were commonly fished by colonial fishermen. Approximately 46% of the fish bone from level nine were burnt while no burnt fish bones were recovered from feature 166.

Invertebrate remains were also obtained from the Heyward-Washington site. Both proveniences contained remains of marine crab (suborder Brachyura) and oyster (Crassostrea sp.). Feature 166 contained four wulk shells (three Bucyon sp., one cf. Bucyon sp.) while shell remains of barnacles (subclass Cirripedia) were recovered from level nine.

The animal remains recovered from levels six, seven, and eight of square II (hereafter called by level number only) were not quantified, as noted above, but only scanned for species not common in feature 166 or level nine. Remains of cow, pig, cat, chicken, turkey and waterfowl were identified in all three levels. Several cow and pig

elements from these three levels exhibited a butchering pattern not noted for remains from feature 166 or level nine. In particular are the scapula/innominate and longbone elements saw-cut into sections approximately three fourths to three inches thick. These bone sections appear to be remains of meat portions such as soup bones, round cuts and possibly roasts. The occurrence of sectioned bone in levels six, seven, and eight indicates that changes had taken place in meat processing, meat selection and/or bone disposal patterns after level nine materials were deposited. Such changes may reflect, at least in part, the shift in housing that occurred by 1818 when the Heyward-Washington site, formerly a private residence, was turned into a boarding house. Most likely, these sectioned meat portions were obtained at local markets although the recovery of mandible, vertebrae, and rib elements exhibiting butchering marks suggest that some meat processing may have occurred at the site.

Several animal species either uncommon or not found in feature 166 and level nine were identified in remains recovered from levels six, seven, and eight. For example, sea urchin (Echinoidea), marine snail (Gastropoda), and quahog (Mercenaria mercenaria) remains (the last of which most likely represents a food item) were recovered from level eight. Remains of freshwater turtle (cf. Chrysemy sp./Graptemys sp.) were recovered from all three levels. In fact, one plastron fragment recovered from level seven has hack marks at the "bridge" similar in placement as on the plastron fragment from feature 166. Only one diamond-back terrapin remain, a plastron fragment from level six, was identified in the Heyward-Washington faunal material. This follows a similar low occurrence as reported by Reitz (1982:196) in

which she noted a total absence of Malaclemys remains from units excavated in 1981 at the Charleston Center Site, South Carolina.

Turning to marine turtles (Chelonidae/Dermochelidae), three sea turtle skulls (one almost complete) along with three mandibles and one longbone element were recovered from level six. Sea turtles, as mentioned above, were considered a delicacy in the eighteenth and nineteenth centuries. Generally, the "baked belly and carapace made one dish, a stew prepared from the fins and guts another, while the head and lights made an excellent soup" (Armitage and McCarthy 1980:12). Given the kinds of sea turtle remains from level six, it is quite possible that turtle soup was an occasional meal enjoyed by the boarding house residents. ✓

Also recovered from level six was one skull element from a species of sea catfish (Ariidae). The only other Ariidae remains identified in the Heyward-Washington faunal material are from level nine. Few wild mammal remains were recovered from the unquantified levels; in fact, only two were identified, both from level six. One is a femur section from a white tail deer (Odocoileus virginianus), the other is a mandible from an immature rabbit (Sylvilagus floridanus), the only rabbit remain identified in all the Heyward-Washington material. It is possible that the Heyward-Washington inhabitants viewed rabbits more as pets than as meals; otherwise, a greater number of rabbit remains would have been recovered.

At least two individual specimens of rock dove or domestic pigeons (Columbia livia) were recovered from level six. Today these birds commonly live within city limits and during the nineteenth century, the approximate deposition time of level six, feral pigeons

undoubtedly inhabited urban areas. Many, however, were also probably kept as pets.

Whether the recovered pigeon remains represent feral or domesticated pigeons is not certain. A few animal remains recovered from level 6, however, do indeed represent animal species commonly viewed as pets. In particular are the recovered remains of a parrot (Psittacidae) and a guinea pig (*Cavia* sp.). The identified parrot remains are a sternum, a furculum and a right tibiotarsus. Remains identified as guinea pig are a skull, both innominates plus a humerus, a femur and a tibia. Unfortunately, at the time of this study a limited number of parrot specimens were available in the zooarchaeological collection used which prevented species identification of the parrot remains. Based on comparisons of parrot bone sizes in the collection, however, the recovered specimen is between a macaw (*Ara* sp.) and a white-fronted parrot (*Amazona albifrons*). Although historic archeological parrot remains are rare, such a recovery should be expected from a sea-faring city as Charleston was in the mid-nineteenth century (Elizabeth Reitz, personal communication). Interestingly, advertisements for parrot cages in Charleston newspapers are known as early as the eighteenth century (Elaim B. Herold, personal communication).

Guinea pig remains are also rare from southeastern historic archaeological sites. In fact, preliminary research indicates that these remains may be some of the first reported from southern United States. Historically a native of Southern America, guinea pigs were viewed both as food and fancy animals in many parts of the Spanish

Colonial Empire. Towards the end of the sixteenth century, species of *Cavia* were introduced to Europe and later to the British Isles. Once in Europe, the acceptance of guinea pig as a food source dwindled and instead, they were bred only for show and as fancy pets. Surprisingly, guinea pigs first reached the United States early in the seventeenth century as pets, via Europe (Wagner 1976:2).

No butchering marks were found on any of the identified guinea pig or parrot bones. Most likely, therefore, these remains represent pets that were possibly owned by residents of the Heyward-Washington house. Such a unique recovery aids to visualize life in nineteenth century Charleston.

CONCLUSION

In summary, the identified Heyward-Washington faunal remains are generally similar in the species of food animals represented (eg. cows, pigs, sheep/goat, deer, chicken, geese/duck and marine fish) regardless of the time period considered. This core assemblage closely follows the one described by Reitz and Honerkamp (1983) for recovered faunal remains from eighteenth century Spanish and British colonial sites. Major contrasts that exist within the Heyward-Washington faunal material are between feature 166 and level nine remains compared to remains from level six, seven, and eight. In particular is the occurrence of saw cut bone sections in levels six, seven, and eight which are uncommon if at all found in level nine and feature 166. The occurrence of these remains suggest that a change in meat processing, meat selection or bone deposial patterns had occurred. Finally, the recovery of parrot and guinea pig remains from nineteenth century context documents the emerging cosmopolitan image of Charleston not previously seen in remains from temporally earlier feature 166 or level nine.

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I am, of course, responsible for any misinterpretations given in this paper.

Table 1. Faunal remains from the Heyward-Washington House Site, feature 166.

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/Subadult	% Immat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
<u>Bos taurus</u> , Cow	14	left humerus, left radius(immat.)	694	97.8	2.2	-	10.7	2.6	2.6	-	-
<u>Sus scrofa</u> , Pig	5	left tibia, right tibia (immat.)	70	88.5	11.4	-	1.4	1.4	4.2	-	-
<u>Equus caballus</u> Horse	1	1st phalanx	1	100.0	-	-	-	-	-	-	-
<u>Ovis aries</u> , Sheep	1	left femur	3	100.0	-	-	-	-	-	-	-
cf. <u>Capra hirc</u> , Goat	2	right ilium	3	100.0	-	-	-	-	-	-	-
<u>Odocoileus virginianus</u> , Deer	1	right humerus	7	100.0	-	-	-	14.2	-	-	-
<u>Ovis sp./Capra sp.</u> , Sheep/Goat	-	-	14	92.8	7.1	-	-	-	-	-	-
<u>Artiodactyla</u> , Sheep/ Goat/Deer	-	-	8	100.0	-	-	-	-	-	-	-
<u>Artiodactyla</u> , Pig/ Sheep/Goat/Deer	-	-	43	95.3	4.6	-	2.3	6.9	2.3	-	-
<u>Artiodactyla</u> , cf. Elk/Cow	1	left radius	6	100.0	-	-	50.0	16.6	16.6	-	-

Table 1. (continued).

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Immat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
Indet. Bone cf. Cow	-	-	172	100.0	-	-	-	-	-	-	-
<u>Rattus</u> sp., Old World Rat	1	left humerus	1	100.0	-	-	-	-	-	-	-
<u>Canis familiaris</u> , Dog	1	left scapula	1	100.0	-	-	-	-	-	-	-
Indet. Mammal	-	-	30	96.7	3.3	-	-	-	-	-	-
Total Mammal	27	-	1053	97.4	2.6	-	7.5	2.5	2.0	-	-
<u>Gallus gallus</u> , Chicken	3	left tibio-tarsus	9	100.0	-	-	-	-	-	-	-
<u>Meleagris gallopavo</u> , Turkey	1	right coracoid	1	100.0	-	-	-	-	-	-	-
<u>Anas discors</u> , Blue-Winged Teal	1	right humerus	1	100.0	-	-	-	-	-	-	-
<u>Anas</u> cf. <u>platyrhynchos</u> / <u>rubripes</u> , Mallard/Black Duck	1	right humerus	1	100.0	-	-	-	-	-	-	-
cf. <u>Chen</u> sp., Snow Goose	1	right tibi-otarsus	1	100.0	-	-	-	-	-	-	-

Table 1. (continued).

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Immat.	% Burnt	% Cut	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
Anserinae, cf. Domestic Goose	1	right scapula	1	100.0	-	-	-	-	-	-	-	-
Indet. Bird cf. Chicken	-	-	5	60.0	40.0	-	-	-	-	-	-	-
Indet. Bird	-	-	3	100.0	-	-	-	-	-	-	-	-
Total Bird	8	-	22	90.9	9.1	-	-	-	-	-	-	-
Chelonidae/Dermochelidae, Sea Turtle	1	left humerus	1	100.0	-	-	-	-	-	-	-	-
<u>Chrysemys</u> sp./ <u>Graptemys</u> sp., Painted/Map Turtle	1	carapace frags.	9	100.0	-	-	-	-	-	1.1	-	-
Total Reptile	2	-	10	100.0	-	-	-	-	-	1.1	-	-
cf. <u>Pogonius cromis</u> , Black Drum	3	right maxilla	12	100.0	-	-	-	-	-	-	-	-
cf. <u>Sciaenops ocellata</u> , Red Drum	1	right maxilla	2	100.0	-	-	-	-	-	-	-	-
Indet. Fish, cf. Marine	-	-	47	100.0	-	-	-	-	-	-	-	-

Table 1. (continued).

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Inmat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
Total Fish	4	-	61	100.0	-	-	-	-	-	-	-
Crustacea, Indet. Marine Crab	1	pincer/ claw	2	100.0	-	-	-	-	-	-	-
<u>Crassostrea virginica</u> , Common Oyster	2	shell valve	2	100.0	-	-	-	-	-	-	-
<u>Buscyon cf. carica</u> , Knobbed Whelk	3	shell	3	100.0	-	-	-	-	-	-	-
Marine Gastropod, cf. <u>Buscyon</u> sp. Whelk	1	shell	1	100.0	-	-	-	-	-	-	-
Total Invertebrate	7	-	8	100.0	-	-	-	-	-	-	-
TOTAL	48	-	1154	97.5	2.5	-	6.8	2.3	1.9	-	-

Table 2. Faunal remains from the Heyward-Washington House Site, feature II, level 9.

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Inmat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
<u>Bos taurus</u> , Cow	6	right mandible	234	80.7	19.3	8.1	11.9	5.1	2.6	0.4	-
<u>Sus scrofa</u> , Pig	4	right tibia	16	68.8	31.2	-	-	-	-	-	-
<u>Ovis aries</u> , Sheep	2	right innominate	6	100.0	-	33.3	-	-	-	-	-
<u>Ovis sp./Capra sp.</u> , Sheep/Goat	-	-	16	93.7	6.2	6.2	-	6.2	6.2	-	6.2
<u>Odocoileus virginianus</u> , Deer	1	right femur	1	100.0	-	100.0	-	-	-	-	-
<u>Artiodactyla</u> , Pig, Sheep, Goat, Deer	-	-	46	100.0	-	2.1	10.8	-	-	-	-
<u>Felis domesticus</u> , Cat	1	right humerus	23	100.0	-	-	-	-	-	-	-
<u>Rattus sp.</u> , Old World Rat	1	right mandible	4	100.0	-	-	-	-	-	-	-
Indet. Large Mammal, cf. Cow	-	-	139	99.3	0.7	-	-	-	-	-	-
Indet. Mammal	-	-	6	100.0	-	-	-	-	-	-	-
Total Mammal	15	-	491	89.4	10.6	7.7	6.7	2.6	1.4	0.2	0.2

Table 2. (continued).

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Immat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
<u>Gallus gallus</u> , Chicken	14	right metatarsus	79	100.0	-	2.5	-	-	-	-	-
<u>Meleagris gallopavo</u> , Turkey	3	right ulnas	27	100.0	-	14.8	-	3.7	-	-	-
Galliformes, Chicken, Guinea Fowl, Pheasant	-	-	73	34.2	65.8	-	-	-	-	-	-
<u>Anas</u> cf. <u>platyrhynchos/rubripes</u> , Mallard/Black Duck	2	skull	10	100.0	-	-	-	-	-	-	-
Anatinae, Wild/ Domestic Duck	-	-	6	100.0	-	-	-	-	-	-	-
Anserinae, Wild/ Domestic Goose	2	right car- pometacarpus	14	100.0	-	-	-	-	-	-	-
Indet. Bird, cf. Chicken, Turkey Goose, Duck	-	-	56	98.2	1.8	-	-	-	-	-	-
Total Bird	21	-	265	81.6	18.4	2.2	-	0.4	-	-	-
Chelonidae/Dermoche- lidae, Sea Turtle	1	coracoid	1	100.0	-	-	-	-	-	-	-
Total Reptile	1	-	1	100.0	-	-	-	-	-	-	-

Table 2. (continued).

Species	Min. No. of Ind.	Id. Element	No. of Elements	% Adult/ Subadult	% Immat.	% Burnt	% Saw Cut	% Knife Cut	% Hack Marked	% Rodent Gnawed	% Dog Gnawed
Ariidae, Sea Catfish	1		3	100.0	-	-	-	-	-	-	-
<u>Pargus sedecim</u> , Red Porgy	1	right premaxilla	1	100.0	-	-	-	-	-	-	-
<u>Sciaenops ocellata</u> , Red Drum	1	right maxilla	1	100.0	-	100.0	-	-	-	-	-
Sciaenidae, Marine Drum	-	-	5	100.0	-	100.0	-	-	-	-	-
Indet. Fish, cf. Marine	-	-	24	100.0	-	33.3	-	-	-	-	-
Total Fish	3	-	34	100.0	-	41.2	-	-	-	-	-
Crustacea, Marine Crab	1	pincer/claw	2	100.0	-	-	-	-	-	-	-
Cirripedia(subclass), Barnacle	2	shell	2	100.0	-	-	-	-	-	-	-
Marine Bivalve, cf. Oyster	1	shell	3	100.0	-	33.3	-	-	-	-	-
Total Invertebrate	4	-	7	100.0	-	14.3	-	-	-	-	-
Total	44	-	798	87.3	12.7	7.2	4.0	1.7	0.8	0.1	0.1

Table 3. Additional faunal remains identified from Square II.

Level	Species	Id. Element	Min. No. of Ind.
6	<u>Odocoileus virginianus</u> , White-tailed Deer	femur	1
	<u>Sylvilagus floridanus</u> , Cottontail Rabbit	left mandible (immature)	1
	<u>Cavia</u> sp., Guinea Pig	skull	1
	<u>Columbia livia</u> , Rock Dove	coracoid	2
	Psittacidae, Parrot	sternum	1
	<u>Chrysemys</u> sp./ <u>Graptemys</u> sp., Painted/Map Turtle,	plastron	2
	<u>Malaclemys</u> sp., Diamond Back Terrapin	plastron	1
	Chelonidae/Dermochelidae, Sea Turtle	skull/mandible	3
	Ariidae, Sea Catfish	skull	1
	-----	-----	-----
7	<u>Chrysemys</u> sp./ <u>Graptemys</u> sp., Painted/Map Turtle	carapace frag.	1
	-----	-----	-----
8	<u>Chrysemys</u> sp./ <u>Graptemys</u> sp., Painted/Map Turtle	carapace frag.	1
	Gastropoda, Indet. Marine Snail	shell	1
	<u>Mercenaria mercenaria</u> , Quahog	shell valve	1
	Echinoidea, Sea Urchin	shell frag.	1

Table 4. Contribution by class of quantified animal remains from the Heyward-Washington Site.

Class	Feature 166		Square II, level 9	
	%	# of elements	%	# of elements
Mammal	91.2	1053	62.0	491
Bird	2.0	22	33.2	265
Reptile	0.01	10	0.001	1
Fish	6.0	61	4.3	34
Invertebrate	0.01	8	0.01	7
Total	99.22	1154	99.51	798

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