

Archaeology at City Hall: Charleston's Colonial Beef Market

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The Charleston Museum's special exhibition, *Bountiful Coast: Foodways of the South Carolina Lowcountry* derived in large part from the Beef Market project, and contains artifacts and interpretations derived from the decades of archaeological research in Charleston. The museum team that prepared the exhibit included Neil Nohrden, Jan Hiester, Sharon Bennett, Grahame Long, Al Sanders, Will Post, Sean Money, Scott Graham, Will Post, and Rachel Giesy Chesser. Working with this team on the November 2004 exhibit was a second project that was fun and rewarding.

While all of these individuals and institutions helped bring the project to fruition, any errors or omissions remain our own. Thanks to you all for your inspiration and support.



Archaeological and zooarchaeological research, particularly at the Beef Market, provided the basis for the special exhibition, *Bountiful Coast: Foodways of the South Carolina Lowcountry*, which opened November 2004. The exhibition included the official measures of the City of Charleston, 1807. Collections of The Charleston Museum.

Chapter I Introduction

Significance of the Market Site

Renovation of City Hall, the most extensive in over a century, prompted the City of Charleston and the restoration firm of Evans & Schmidt Architects to contact The Charleston Museum about impacts to the archaeological resources. City Hall is located on lands designated as a Civic Square on the 1680s Grand Modell (Poston 1997:155). The lands occupied by City Hall served as the city market through the 18th century. Because of the significance of the site, program of extensive testing, followed by monitoring and salvage during construction, was proposed. Archaeological work focused on the footprint of City Hall, the portion of the site to be impacted by construction. All parties determined that the most prudent approach was to clear the basement and make it available for excavation well in advance of demolition. Excavations were conducted for three weeks in March 2004. Because of the remarkable preservation and clarity of the site, an additional ten days of fieldwork, and extensive special analyses, were approved and funded by the City. The result is an assemblage, and a research project, that has made important contributions to our understanding of foodways and urban life.



Studies of subsistence strategies and analysis of faunal remains have been an important aspect of historical archaeological research in Charleston for over two decades. Faunal remains have been examined from nearly 30 commercial, public, and residential sites since 1982, and the resulting assemblage is the largest in the nation. These 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.

An important aspect of urban subsistence strategies and provisioning is the presence of a market. The way food supplies entered and were distributed within the city will have an impact on what is recovered at archaeological sites. Knowledge of marketing versus household-level production of food is important to the understanding of the faunal assemblage at urban sites. Excavations at a well-preserved market site will make it possible to discuss the role of the market in the distribution of goods and foods in the urban center, and the surrounding region. Studying the archaeological signature of marketing of resources in the city is a key component of this research.



In 1984, Dr. Elizabeth Reitz obtained a modest grant to excavate a single 5' by 10' unit in Washington Square Park, adjacent to City Hall, site of the city's colonial market square. This unit revealed undisturbed stratigraphic deposits from the 1720s through the 1830s. The assemblage, both cultural and environmental, exhibited unique characteristics, capable of defining the site as the market. This small excavation project suggested the site has significant research potential. Because the site was protected from disturbance, no further

excavations were conducted here. Archaeological and zooarchaeological research continued on residential sites in Charleston and the lowcountry, referencing the small, but significant assemblage of animal bones from the market.

Site History

The c. 1800 building that became City Hall in 1818 was built on the site of market square; the northeast corner of Broad and Meeting streets was set out as an informal market square in 1692, across Meeting from the city gates. A market building was constructed in 1739, and replaced in 1760 by a “neat building, supported by brick arches and surmounted by a belfry.” This second building corresponds with a change in name, if not function, from a generalized market to the Beef Market and the construction of additional markets on the waterfront.



Throughout the 18th century, the market square was a commercial and social center. Craftsmen and merchants located their businesses close to this square. The intersection assumed greater social and institutional significance with the additions of St. Michael's Episcopal Church on the southeast corner in 1756 (Poston 1997: 184) and the State House on the northwest corner in 1753 (Lounsbury 2001). The guardhouse and treasury occupied the southwest corner. But in 1774, a visiting Englishman noted that "The fourth corner

does not answer the other three, for it is only a low dirty-looking brick market house for beef" (Merrens 1977: 282).

The market was destroyed in a calamitous fire in 1796. By this time, the area surrounding the Broad and Meeting intersection had changed character, and plans to construct a new market several blocks to the north were underway. This new market followed the newer locations of craftsmen and merchants. Broad Street assumed a more professional role, that continues to the present. The raucous and malodorous Beef Market was no longer suitable, and a new market was built in 1804 on the filled creek of Market Street.

The Beef Market property was conveyed in 1800 (CCRMCO B-7:319) to the Bank of the United States, and the organization built an "an elegant edifice". In 1818 the City Council of Charleston resumed control of the lot and bank building, and the property became known as City Hall square. Ownership and maintenance by the City continues to the present. The building received major renovations in 1868 after the Civil War, in the 1890s following the earthquake of 1886, and in 1938 following a destructive tornado. The present renovation, the first since the early 20th century, is designed to return the building to a pre-1890s configuration, while upgrading the building to support the function of city government.

Previous Archaeological Research

The present project returns The Charleston Museum to excavations at the beef market after a 20-year hiatus. Initiation of long-term zooarchaeological research on Charleston, including the study of marketing strategies, was concurrent with historical research and preparation of an archaeological research design for the city (Zierden and Calhoun 1984; Calhoun et al. 1984). During the course of this documentary study, several 18th century market locations were discovered, including the Fish Market at the foot of Queen Street, the New Market at the foot of Tradd Street, and the Beef Market at the corner of

Broad and Meeting. The sites of both the Fish Market and the New Market are beneath busy city streets, but the Beef Market was located beneath City Hall and the adjacent Washington Square Park. Because of the potential for good site preservation, and access, The Charleston Museum and the University of Georgia received a grant to test the site. A single 5' by 10' unit was excavated in the park in 1984.



This preliminary project, viewed as a foundation to long-term research, was designed to test four hypotheses. The first was that some evidence for a market could be found. This assumed that documentary evidence was correct and that 19th and 20th century activities have not displaced earlier deposits. The second was that we would find materials that would be a signature for a market. Extensive excavations on colonial sites in Charleston and elsewhere provide a pattern for the type of 18th century artifacts found on residential or residential/commercial sites. We anticipated that a market assemblage would be different from these. The third hypothesis was that the name “Beef Market” would correspond in some way to the materials recovered: that we would find bone refuse at the site and that this would be primarily from beef cattle. In the absence of public refuse collections at this early date, we suggested that debris would not have been removed, though it was possible that all of the carcasses were sold out of the market, leaving no refuse behind to document the enterprise. The fourth hypothesis was that additional documentary evidence could be found which would specify what was sold in the market. While these hypotheses seem elementary, it must be remembered that urban sites are the scene of many continuous, often large-scale ground-disturbing activities (Staski 1982); in fact, the intensity of occupation is directly reflected in the degree of disturbance and redeposition at urban sites (Honerkamp and Fairbanks 1984). Attempts to associate specific archaeological proveniences with specific activities or occupants have been challenging. Therefore, the ability to pinpoint archaeological proveniences definitely associated with marketing activities was not at all presumed.

The single unit was located eighteen feet east of the southeast corner of City Hall. This unit revealed minimally disturbed stratified deposits from the 1720s through the 1830s. A brick foundation was revealed in the east profile. More significantly, the unit contained a huge amount of animal bone, nearly ten times the quantity recovered from comparable-sized units elsewhere in the city. Faunal analysis indicates the market sold all types of meat, not just beef. Nine zone deposits, and a series of features, were defined in the excavations. Because the site has been protected from disturbance, no further excavations were conducted at the site. A report was prepared, and this document has guided the study of marketing enterprises in the city since that time (Calhoun et al. 1984).



The Present Project

We returned to the Beef Market with several goals. First was retrieval of faunal remains capable of informing on the diet and provisioning system of Charleston and the surrounding lowcountry. Renovations of City Hall by the City of Charleston, and the ground disturbance associated with this enterprise, provides an important opportunity to continue research on the Beef Market, and to recover materials that would be lost during construction. As the renovation is principally concerned with the building itself, and not the surrounding park, the excavations were conducted within the footprint of the building. This meant that units would be excavated inside the basement. At the time the project commenced, the condition of the site within the building footprint was unknown. While excavations outside had revealed intact stratigraphy, blueprints of City Hall suggested a massive structure with extensive foundations. Foundation test pits excavated by the architect revealed that these foundations were over five feet deep. This suggested that the market site beneath the building could be seriously compromised. Despite these concerns, we planned an ambitious excavation project. The 1984 project had successfully demonstrated that this was the market site, and that it possessed a recognizable archaeological signature. Further, the 1800 building should have sealed the 18th century deposits from later disturbance, even if the colonial zone deposits were mixed. Excavation of such deposits, even if mixed, was deemed a fruitful research venture.

We returned to the Beef Market with several archaeological goals. First and foremost was retrieval of faunal remains capable of informing on the diet of lowcountry residents and provisioning of the urban center. Based on the definition in 1984 of a recognizable signature for the market, we determined that excavation of a disturbed market site would still yield data capable of addressing this issue. The second goal was exploration of the architecture of the market buildings. This would only be possible if the site were relatively intact. Cartographic data on the market buildings is limited, and archaeology can provide missing details. Architectural definition was secondary to retrieval of faunal data, however, and excavation units were placed with the first goal in mind. A third goal was exploration of the material culture retrieved for

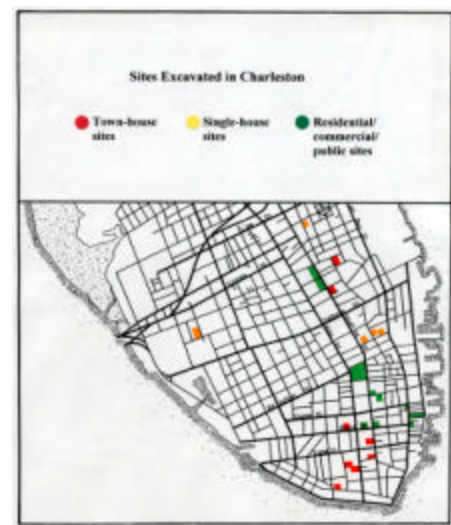
clues to various on-site activities at the market. Taken together, the architectural, faunal, and material data could inform on the daily activities at this. Goals two and three would be achievable only if the site was relatively intact.

As subsequent chapters will demonstrate, though, the site was surprisingly pristine, and well preserved beneath City Hall, and the massive foundations disturbed only a narrow strip of soil around the walls (the builders trench). Based on these discoveries during excavation of the first five units, the City of Charleston appropriated additional funding, to expand the fieldwork from 14 days to 24 days. Funds were also appropriated for analysis by a range of specialists. As the principal intent of the project was to study environmental and subsistence issues, a large portion of the analysis budget was used for faunal, soil, pollen, and parasite analyses. Reports by the various specialists are included in this document, while the results of these studies are synthesized in the interpretations. The present project, then, consisting of 18 separate test units, plus a host of data retrieved during construction activities provides an important body of data on colonial life, layout of the early city, and provisioning strategies for urban dwellers. The site is particularly significant in that it was possible to identify and isolate distinct soil deposits through time and space. The soil stratigraphy spanned a century, but consisted of seven distinct temporal layers that could be tightly dated, and temporally subdivided to study change through time.

Research Considerations

The present project has focused on a number of research topics, revised from those explored in the 1984 project. Research on these topics has been ongoing, as several public, commercial, and residential sites have been excavated in the subsequent decades. Likewise, a large body of data from a variety of urban and rural sites is available for comparative analysis. The market site is central to the understanding of commerce, commodity exchange, and provisioning in the colonial city.

The first broad topic to be considered is site formation processes, the physical actions that result in the transformation of a living culture into an archaeological site (Schiffer 1977). An archaeological site, whether urban or rural, consists of a natural setting altered by the humans who occupied that site. Artifacts are introduced into the ground by a variety of methods, including discard, loss, destruction, and abandonment. Once in the ground, artifacts 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. Most significant to archaeologists are those activities that introduce materials into the ground and reorganize them after deposition. Understanding the site formation processes is an essential first step in archaeological site interpretation. Consideration of the Beef Market will include how the site was made, how it changed during occupation, and how it survived.



We will next consider the role of the Beef Market in the evolution of the urban landscape. This ongoing study encompasses a number of topics, including terrain alteration, architectural developments, health and sanitation, and changing ideology. Documents as well as archaeology will be examined for information on the architecture of the beef market and the landscape of the market square. This 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 dimensions. People created and used these landscapes in a planned and orderly manner for everything from food procurement to formal design to explicit statements about their position in the world. The intersection of Broad and Meeting streets was planned as a civic square, with two-acre plots on each of the four corners. Archaeology of Washington park and City Hall, as well as the extensive excavations at the Charleston Judicial Center site, the northwest corner of the intersection (Hamby and Joseph 2004) provide a complementary body of data to investigate the evolution of this central area through the 18th century. Documents suggest that the site began as an informal, open area, followed by two building episodes, prior to construction of City Hall. Excavations should provide details on the market structures, as well as ancillary features such as fences, spatial divisions, and activity areas, and changes to these through time. Further, analysis of floral and pollen remains should provide data on environmental changes related to the process of urbanization. Faunal analysis also contributes to study of the urban environment, through analysis of commensal animals, those unwanted animals associated with sites of human habitation.

The artifact assemblage will be used to study the issues of commodity exchange and consumerism, including the issues of artifact patterning, social stratification, and ideology. 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 these 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 (Zierden 1993, 1994) has provided more details on proportions of consumer goods and their use by lowcountry residents.

Study of both retail and commercial sites have revealed aspects unique to Charleston and speak to the flow of goods and people in this transatlantic colonial city. As a market site, and one evolving in level of specificity, the City Hall assemblage is expected to be unique among the Charleston assemblages. The market square has been interpreted as a central place for the sale of a variety of goods by a variety of people. Of particular interest are the vendors of African or Native descent, and their wares. Documents suggest these people frequented, and often dominated, the urban market. Colono wares, locally made pottery produced and used in large measure by African-American and, to a lesser extent, Native American people, are analyzed according to a variety of criteria (Anthony 1986, 2002). This pottery may be used to measure the impact of disenfranchised people on the urban market system.

Finally, analysis of the faunal remains recovered from the site will contribute to recent research on a number of issues concerned with the production and consumption of foods in the colonial city. Baseline

data on the meats sold in the market are critical to this study. Associated issues include the source and use of specific domestic animals such as cows and pigs. Recent studies by Elizabeth Reitz, for example, have demonstrated that cattle were maintained and slaughtered on townhouse sites, despite the presence of the market (Reitz and Zierden 1991; Reitz and Ruff 1994). Zooarchaeological research has also explored the role of wild animals, such as small mammals, birds, fishes, and reptiles in the lowcountry diet. Differences between urban and rural consumption of these foods is also considered. These issues are part of a study of what Chesapeake researchers term the “provisioning system” (Walsh, Martin and Bowen 1997). Included in their definition is local production of food and fuel, importation of foods and fuels from other regions, transportation of these goods to market, food processing by intermediaries, distribution to consumers, and the social connections that facilitated economic exchange” (Walsh et al. 1997:5; see also Anderson 1971). Analysis of food remains from the Beef Market site, coupled with data from a host of residential sites, both urban and rural, lays the groundwork for study of provisioning systems in colonial Charleston.

Description, analysis, and interpretation of the Market site are divided into several sections. Chapter II discusses documentary evidence for the Beef Market site and marketing practices in Charleston and in the broader transatlantic world. Chapter III describes the fieldwork procedures, placement of excavation units, and deposits identified. Chapter IV discusses analytical procedures and describes in detail the recovered artifacts. Analysis of the vertebrate faunal remains is discussed in Chapter V, and analysis of environmental data (by various scholars) is found in Chapter VI. Detailed analysis and interpretation of all data classes is contained within discussion of the research issues in Chapter VII.

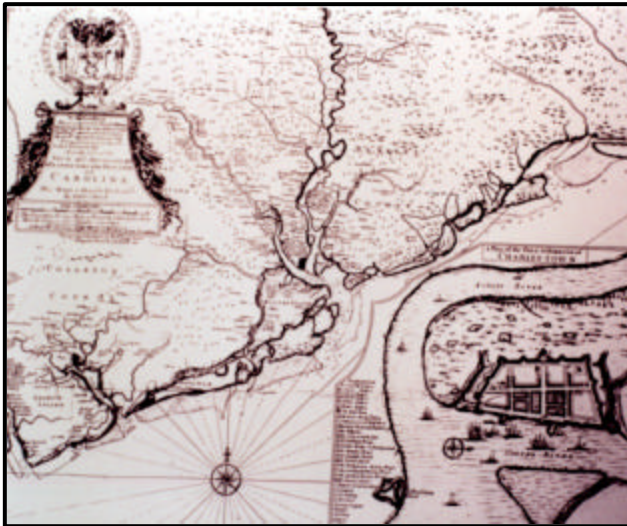
Chapter II Charleston and the Market

The Settlement of Charleston and the Early Market Square

Charleston, the first English settlement in the Carolina colony, is well known as the social and intellectual center of a flourishing plantation economy. That the final stage of eighteenth century development would be Charleston's economic domination of the south Atlantic seaboard would seem unlikely to the settlers a century earlier who feared their position "in the very chaps of the Spaniard" (Joseph Dalton to Lord Ashley, September 9, 1670 in Crane 1981:3; Cheves 1897, v.183).

In April 1670 three English ships sailed into Charleston Harbor to claim by occupation lands awarded to eight British noblemen. Though the English viewed Carolina as a southern extension of Virginia, the Spaniards viewed the same lands as part of La Florida. Spanish occupation began immediately south of Charleston: a chain of missions, each protected by a presidio, extended from St. Helena (Port Royal) to St. Augustine and westward from there through northern Florida to the Apalachicola River (Worth 1995). The treaty of Madrid, concluded in 1670 between Spain and England, though, bestowed right of possession upon effective occupation (Crane 1981:9).

Well aware of their tenuous hold on the new colony, the settlers chose a readily-defensible location on the Ashley River; indeed, the settlement was threatened by a



Edward Crisp's 1704 map of Carolina

combined Indian-Spanish assault that first year. Two years later, Native Americans spying for the Spanish reported thirty small houses on the bank of the Ashley and four on the east bank of Oyster Point, the peninsula formed by the confluence of the Ashley and Cooper rivers (Andrews 1938:203n; Stoner and South 2001:3-17). The colony included 268 men, 69 women, and 59 children, and African slaves were already part of the population (Fraser 1989:4).

Ten years later, the Proprietors moved to colony to Oyster Point, which they deemed more defensible and "well situated for trade" (Salley 1928:105; Mathews 1954:153). But historian Robert Weir notes that the peninsular location was not without its shortcomings (Weir 2002:66); indeed, the town's survival was questionable through the end of the century. The bar at the harbor entrance was shallow, making entry into the

harbor difficult for larger vessels. The water table on the low-lying peninsula was high, so that underground cellars were impractical and wells were shallow, compromising the quality of drinking water. Mortality rates were high, and population growth was slow. Food supplies were relatively plentiful, however, and by the end of the first decade of settlement, the colony was supplying food to Barbados and other islands in the West Indies (Weir 2002:69). Foodstuffs and deerskins were the colony's first lucrative trade item.

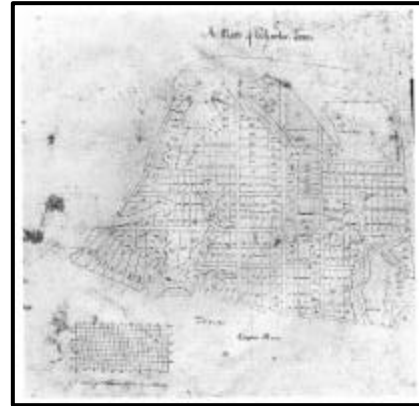
Intimately linked to rivalry with the Spanish was control of the Native American population, principally through trade relations. Control of the Indians was pursued relentlessly by the English, French, and Spanish as a result of the Europeans' desire for animal skins and Indian slaves. South Carolina was the most heavily involved of any of the colonies in the Indian slave trade (Snell 1973; see also Gally 2002). Although this trade was condemned by the Lords Proprietors, it was profitable for the colonists, and a large number of enslaved people were shipped to the Caribbean and to northern colonies.

The principal item of trade, though, was not slaves but animal skins. The main animal pursued by Native people, and desired by European merchants, was the white tailed deer. The Indians depended on these animals for a significant portion of their food, and they artificially increased deer herds in the wild by firing the woods (Cronon 1983; Lefler 1967; Silver 1990). Deerskins soon became the colonists' most profitable export. The earliest trade was a secondary small-scale pursuit of individual planters. Some of these entrepreneurs hired an Indian hunter to supply them with skins; others traded in more haphazard fashion (Crane 1981:118). By the mid 18th century dressed deer skins accounted for 16% of the colony's exports, and tanning was the city's most important industry (Bridenbaugh 1955:76). The defeat of the Indian alliance in the Yamasee War of 1714 changed the mechanics of this trade as the defeated tribes moved inland. Those involved in the fur trade now required storage facilities to support their long-distance enterprise. Soon the trade was transformed from one operated on a small scale by individuals to a capital-intensive industry controlled and dominated by Charleston's mercantile community. These merchants established credit relations with British businessmen, enabling them to procure and finance the trading goods necessary for the exchange conducted with Indian suppliers. The wealthy and standing acquired by these merchants led to diversification, into commodities such as naval stores, provisions, rice, and African slaves (Calhoun 1986; Calhoun et al. 1982; Earl and Hoffman 1977:37). By the 1690s rice and naval stores were added as profitable staples. These exports, in turn, stimulated other economic activity and the city began to stabilize and grow (Weir 2002:70).

The early plan of Charleston, devised in 1672, was known as the Grand Modell. Utilizing the central square commonly identified with Philadelphia, this plan divided the peninsula into the deep, narrow lots characteristic of 17th century British colonial towns (Reps 1965:177) and guided development of city lots until the second quarter of the 18th century (Poston 1997:48). Pennsylvania and Carolina were settled about the same time, and the proprietors of both colonies believed that cities increased security, provided opportunities for trade, and promoted civilization (Weir 2002:67). Like Philadelphia,

Charleston's plan featured broad streets and lots reserved for a church, town house, and other 'public structures' (Thomas Ashe in Bridenbaugh 1938:10), including a public market.

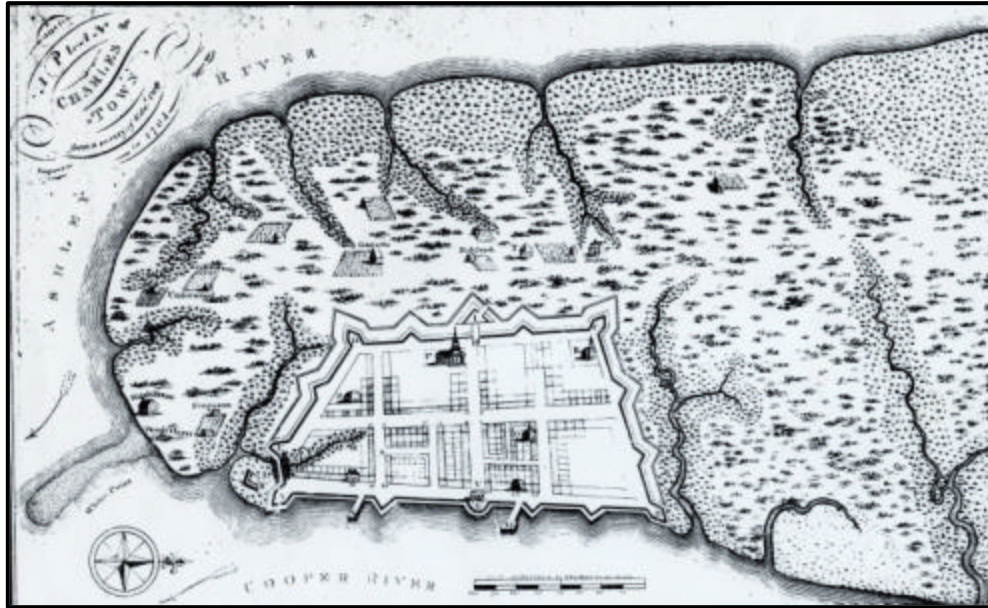
As Katherine Saunders has noted, the plan on paper had to be adapted to the realities of the terrain of the peninsula (Saunders 2002:200). The highest land, between Vanderhorst's and Daniel's creek, was chosen, as was the section of the Cooper River where the deepest water and narrowest marsh was found. By 1680 the four principal streets had been laid out and the space reserved for public structures.



Redrawn version of the Grand Mode11 (from Poston 1997)

From 1673, the future site of City Hall and the park to its north and east was made up of common lands, as well as lots that were never built upon, which gradually came to be recognized as a public square. In 1692, the South Carolina Assembly made permanent the act that, in 1690, had established a temporary market at the corner of Broad and Meeting Streets (Bridenbaugh 1938:193). This was reconfirmed in 1710 and 1736 (Childs 1981:24; McCord 1840: 2/ 73, 2/351, 3/458, 3/516). This location, though, was not central during the early decades of the 18th century; rather, it was nestled behind the city gates and drawbridge on the western edge of town.

Defense - against the Spanish, the French, Native Americans, and pirates - remained a concern of Carolina colonists. The earliest settlement at Albemarle Point featured a double palisade line (Saunders 2002; Stoner and South 2001); the defenses for the peninsula were professionally designed and implemented. Saunders' reexamination of the paltry data suggests that it was not until 1697 that the plans were implemented. Work on the fortifications was delayed by a series of catastrophes, including a fire in 1698, a yellow fever epidemic in 1699, and a hurricane in 1700. Work was bolstered by the declaration of war among the European powers in 1702. Though the 1704 map of Edward Crisp (figure) suggests the wall was completed by this time, Saunders proposes this as an idealized view. The brick seawall along East Bay Street was complete by 1706.



The interior walls were evidently constructed gradually, and from less durable materials. An entrenchment, and embankment of reinforced earth has been inferred from references to frequent repairs. The corner bastions, as well as the ravelin and drawbridge at the landward entrance to town, were likely constructed of wood. Evidence for the moat and ravelin were encountered during archaeological excavations at the state house (Joseph and Elliott 1994; Saunders 2002). Though the 1739 map of Charleston by Bishop Roberts and W.H. Toms suggests that the interior walls were demolished by 1720, new evidence suggests the process was much more gradual. The ravelin, drawbridge, and city gates at Meeting and Broad were not removed until 1750, when construction began on the State House, across from the market (Saunders 2002; see Lounsbury 2001, Poston 1997).

Market Square soon became fixed in the minds of Charlestonians as a central landmark, even if it remained unimproved. Mary Crosse's 1698 will referred to her "three town lots situate near ye Market Place in Charles Town...(Charleston County Wills Book 1:71). Her lots bordered the north side of the market, and were later incorporated into the square (Childs 1981). The early market probably began as a gathering of wagons manned by farmers and slaves bringing produce from the surrounding country. As the town stabilized, crude stalls may have been built and occupied by vendors.

If food was plentiful after the first few years of settlement, it was not always the most desired. Town dwellers, in particular, experienced some scarcities. Thomas Newe boasted to his father in 1682 that the town now had about a hundred houses. He went on to complain, however, that,

"All things are very dear in the Town; milk 2d a quart, beefe 4d a pound, pork 3d...Severall in the Country have great stocks of Cattle and they sell so well to new

comers that they care not for killing, which is the reason provision is so dear in the Town, whilst they in the Country are furnisht with Venison, fish, and fowle by the Indians for trifles, (Sally 1939:181-182).

The early American colonists found many of the English fruits, such as apples, plums, pears, cherries, peaches, apricots and quinces, readily available. In Carolina, they also discovered a plentiful supply of figs, oranges, and pomegranates. Peaches were so plentiful in the southern colony that one traveler reported “the principal use made of them was to feed them to the hogs” (Adams 1971:27). The colonists were eager to retain as much of their traditional foodways as possible. Many of them were dissatisfied with American equivalents and attempted to import English foodstuffs. In 1702, Elizabeth Hyrne wrote to her brother in England,

“If you can spare the mony send me one frail of (ma)ligo raisons and some corranes, for I have had but two plum puddings since I came hither; also some raisons of the sun, some brown and white sugar candy which is not to be had here and is very usefull in this country diseases. Otemeal is very usefull in a voyage, which is not to be had here, as likewise pees, bacon, rice, butter and chees; if you can send me som of Jer. Landys best cheeses it will doe me a kindness, this country being so hot that chees made here will not keep well...Here wants most sorts of English plants and seeds, hesre being no plenty of English frutes, but peaches and melons. Here is one sort of mulberys good for silkworms, elce very infearer to the English. Her is also a sort f stayberys much like the English. Therefore send me all sorts of frute trees that is not here and all sorts of garden seeds” (Merrens 1977:19-21).

Whether many of the early colonists shared Ms. Hyrne’s dissatisfaction with local foods remains unknown. Some foods that were readily available in Carolina soon became highly desirable in England and in other English colonies.

Hogs and cattle were imported into Carolina in the 1670s from Virginia and the West Indies, and their numbers increased rapidly. From its founding in 1670 to the Yamassee War of 1714, the lowcountry was the scene of a significant cattle ranching industry. Carolina shipped barrels of salt beef to Barbados and other British West Indian colonies. This cash crop transformed the economy of colonial South Carolina (Otto 1986:117). Livestock herding, primarily a frontier activity, was focused initially in Colleton County and the areas south and west of Charles Town. The animals foraged untended in the forests and the savanna grasslands of the coastal plain. Once a year, the cattle were herded into cowpens, which were formed by fencing off an area between forks of a stream or by bounding an open area with ditches or fences of brush and logs. Here the stock was branded to protect ownership, and saleable animals were selected from the herd. These were driven to market by drovers, either to Charles Town or, later in the colonial period, sometimes directly to Philadelphia. Enslaved African Americans also played a central role in the production of cattle, both for the home and likely for the market. Early cattle roamed freely and were kept and herded by black slaves; black cattle herders in colonial Carolina may have been the source of the term “cowboy” (Weir 1983:174; Wood 1975).

Domestic livestock flourished in the lowcountry, and the surplus soon became a valuable staple. In his 1712 treatise, "Profitable Advice for Rich and Poor", Carolina planter James Freeman noted,

"There is beef and pork very plentiful, many thousand barrels thereof sent off yearly to the West-Indian 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 unusual, for there is scarce any hay made 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).

Export of salted beef and pork probably began a decade after settlement. Visitors to Carolina in the early 1680s reported large herds of cattle, and an act to regulate the livestock trade was offered in the Colonial Assembly in 1691. Exports were principally to the West Indies. The success of the livestock industry was related to the colony's mild climate, its extensive empty land, the industry's generally low capital-investment needs, and a seasonal labor demand that complemented that of the labor-intensive crops. The Yemassee War of 1714-1715 had a devastating impact on the livestock trade, as many herds were destroyed. When the industry did rebuild, the geographical focus shifted to the interior of the colony, and eventually to upper Piedmont, as it accompanied the expanding frontier (Kovacik and Winberry 1987:71). Still, cattle ranching for the urban market remained an important enterprise of many location plantations through the 18th century (Maag 1964:41).

In an attempt to be at least partially self-sufficient, many colonial Charlestonians raised a few animals, such as poultry, hogs, goats and an occasional cow, for their own use. Even in the early town, crowded conditions evidently made the maintenance of these animals a nuisance to the other inhabitants. As early as 1692, an act was passed to prevent swine from running loose in the streets. In 1698 a statute indicated that the residents must remove slaughterhouses, hog, cattle and sheep pens from the town proper (Waring 1964:15). A 1704 Statute (#235) referenced damage to the evidently earthen fortifications on the landward side of the walls in outlawing free range cattle in the city (Shields 2003:3). Slaughtering animals for the early markets took place in the streets or in the ditches outside the walls of town. This too was soon deemed a public nuisance and the legislature banned the practice in 1704 (Weir 2002:72). Under this scenario, the Charleston Judicial Center site, along Broad Street just outside the City gate, would be a likely location for early slaughterhouses, but archaeological excavations at the site of the Charleston Judicial Center produced no evidence of such (Hamby and Joseph 2004:229); indeed, the site revealed very little evidence of occupation of this area during the first decades of the 18th century. Presumably, cattle were driven into the city along the Broad Path (King Street), the road from the city to the interior, and slaughtered along the way.

Regulation of the market was a problem in Charleston as it was virtually everywhere in both the Old and New Worlds. For a while, control of prices, weights, and measures, forestalling and other abuses, was not even attempted in Charleston; this lack of control was denounced by the governor in 1706 as “ a living sin” (Bridenbaugh 1938:193). In a vain attempt at control, a woefully inadequate law was passed in 1710. Under this act, royal placemen were appointed by the Duke of Newcastle to serve as market clerks. These men remained in England and authorized clerks to perform the actual work in Charleston. The deputies of the absentee market officials had little motivation to be conscientious in their duties. Their negligence forced consumers to suffer from a lack of regulation which the Grand Jury decried in 1735 as an “intolerable hardship” (Bridenbaugh 1938:351-352).

Economic and Physical Expansion

Beginning in the 1690s the production of rice and naval stores brought economic stability to Carolina and, with it, increases in the population of the city. With the development of rice as a profitable export came the importation of Africans as enslaved laborers, many of whom contributed knowledge and skills to growing and harvesting the grain (Weir 2002:70; Carney 2001). By 1708, the majority of Carolinians were black (Wood 1975). These productive economic ventures led to the development of additional plantations in the country and additional support services in the town. Artisans, craftsmen, merchants and professionals added to the swelling ranks of urban dwellers. When royal rule replaced the inefficient Proprietary government in 1729, following a revolt by the settlers, Charleston entered the mainstream of the colonial economy. The development of outlying communities along a fluid and permeable frontier brought an influx of products from the interior.

The earliest towns were the product of a plan by the Lords Proprietors to lessen the threat of Native American and Spanish attacks from the interior. These efforts were formalized by Governor Robert Johnson in 1730, with his “Scheem ...for Settling Townships”. His proposal to the Board of Trade in 1730 (known as the Township Plan) proposed eleven townships located sixty miles inland on the colony’s principal rivers (Edgar 1998:53). Nine were established by 1759 and another three more were settled by the end of the colonial period. Many of these were ethnic enclaves, and the result was a distinctly heterogeneous population by the middle of the 18th century; French, German, Swiss, Dutch, English, and Caribbean settlers, remnant Native Americans, and enslaved Africans all lived in Carolina (Joseph and Zierden 2002). Religious groups such as Sephardic Jews, Quakers, and dissenters added additional diversity.

As the colony began to prosper, merchants emerged as a distinct social and economic group. They began to invest their earnings in the local economy, instead of returning to England after making their fortunes (Rogers 1980; Stumpf 1971). They, and the planters of the lowcountry, 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. A strong tie to the country is part of Charleston’s historical identity (Goldfield 1982).



Bishop Roberts and W. H. Toms, *Ichnography of Charles-Town at High Water*, 1739

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 (Roberts and Toms 1739). The city spread 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 (Calhoun et al. 1985). The 1739 map of the town and engraving of the waterfront painted the same year by Bishop Roberts and engraved by W.H. Toms show a city filled with Jacobean and post-medieval style multi-story buildings, and densely packed with storehouses, dwellings, and shops (Lounsbury 2001:11). Merchants clustered on Bay Street and on three principal east-west thoroughfares leading from the waterfront; Broad, Elliott and Tradd streets. In the 1730s, 20% of the advertising merchants were located on Broad Street; the thoroughfare retained this prominence throughout the colonial period. Nearly 26% of the merchants advertising in the South Carolina Gazette operated shops on East Bay, and another 14% eventually maintained shops directly on wharves (Calhoun et al. 1985). Following the fire of 1740, the southern portion of the city was rebuilt in a diverse architectural style, one typical of English port and market towns (Herman 1997:38). Both row houses and Georgian townhouses combined commerce and residence in a single dwelling. Herman notes that the most common form included street-level shop in front, with general living spaces behind and ‘best’ rooms above. (AC30)

The market was formalized and construction began on a brick market building at this time. In 1739, an act was passed, “for the establishing of a market in the parish of St. Phillip, Charlestown; and for preventing engrossing, forestalling, regrating, and unjust exactions in the said town and Market.” It legislated,

“That a public market shall be held and kept in Charleston, on every day of the week (Sundays excepted) as the place whereon a new Market-house has been lately built, which is commonly reputed to be the place appointed, established and laid out for a market place in the original plot or model of Charlestown” (McCord 1840:403).



The Roberts and Toms map shows the new market building as a large brick structure on the southwest corner of the square. Various referred to as the New, Upper, or Beef Market, it was reputed to be “well regulated and plentifully supplied with provisions” (Bridenbaugh 1955:82). Being well-regulated was evidently a chronic problem for urban markets. Vendors from the countryside frequently attempted to forestall the market by selling before the opening bell was rung; townsmen often tried to monopolize the market by buying up quantities of goods in advance with the intention of profiting from

the subsequently inflated prices. Unloading spoiled or otherwise poor quality perishables was a constant complaint (Bridenbaugh 1955:82). The law of 1739 attempted to prevent these practices by declaring,

“An all and every Butcher and Butchers, Poulterer and Poulterers, Country Planter, Victualer, Lader, Kidder, or other Person whatsoever, shall and may there sell, utter and put to open Shew or Sale, his or their Beef, Mutton, Veal, Lamb, Pork or other Butchery Wares, Poultry, Fish and other Provisions whatsoever, upon every Day of the Week, except Sundays, from the Rising of the Sun all the Year long, as long as he or they shall furnish the said Market, with good and wholesome Flesh and other Provisions, and if any Person or Persons whatsoever, shall sell, or offer to Sale any Manner of Butchery or Poultry Ware or other Provisions in the said Market or other Place in Charlestown aforesaid, before the ringing of the Market Bell at Sun rising in the Mornings respectively, every such Person or Persons offending and being convicted before the Commissioners or any three of them herein after mentioned, on the Oath or solemn Affirmation of any one or more Person or Persons, shall forfeit the Meat so expos'd to Sale, and pay the Sum of 2 [pounds] current Money for every such Offence, one Moiety thereof to the Use of the Informer, the other to the Poor of the said Parish of St. Philips Charles-Town, to be recovered by Warrant under the Hands and Seals of any three of the said Commissioners” (South Carolina Gazette December 8-15, 1739).

Officials were also constantly worried about unscrupulous or merely careless vendors whose weights and measures were inconsistent, or worse. In 1744, the Grand Jury in South Carolina complained that “due regulation of weights and measures throughout (the) province (is) not being observed” (South Carolina Gazette, November 5, 1744). Officials also found it very difficult to enforce reasonable standards of quality, and the sale of tainted meat was a constant concern of both officials and customers. A Grand Jury Presentment made in 1744 protested the

“disregard of...proclamation in having drove, and still driving, distempered cattle through other peoples’ plantations, pastures, stocks, and lands, and even down to Quarter House [located on Charleston Neck] where several have died lately; and people who have killed sick cattle and sold them at market; and people who have left their dead cattle unburied on their lands and marshes” (South Carolina Gazette, November 5, 1744).

Most of the cattle destined for the Charleston market were evidently raised nearby. Cattle were raised on the coastal islands and in the region near Charleston throughout the 18th century. In his study of cattle ranching in colonial South Carolina, James Maag notes that as line of frontier settlement moved west, cattle raisers “remained numerous behind that line”. Large numbers of cattle and abundant grazing lands remained in the area through the Revolution. Carolinians evidently followed the British tradition of driving cattle to market on hoof, and then fattening them on grazing lands close to market (Armitage 1978); a Charleston butcher advertised “pasturage at the new race grounds” (likely Hampton Park) in 1791 (City Gazette and Daily Advertiser, August 18, 1791).

Slaughter pens and houses were evidently located on the edge of town. Legislation was passed repeatedly to keep these facilities out of the cities, but they remained annoying to neighbors, nonetheless. A grievance filed in 1764 complained that two men

“having Slaughter-pens and killing cattle, in and about Ansonburgh; to the great annoyance of the neighborhood, by the filth and stench of their pens, and to the endangering the lives of passengers passing and re-passing on the public road” (quoted in Maag 1964:70).

A year later, a more elaborate grievance was filed,

“We present as a grievance, the bad custom of butchers shooting cattle in or near Charles-Town, whereby many, who are near their pens, are in danger of their lives; and also, their bringing meat to market in very filthy carts, either uncovered or so exposed to the sun and dust, or covered with very dirty blankets or cloths, to the endangering the healths of the people of this town” (South Carolina Gazette, June 8, 1765 quoted in Maag 1964:71).

Butchery of cattle in close proximity to urban residents evidently remained a problem. A 1783 ordinance again banned the killing of cattle within the city limits, now

located at Calhoun Street (SC Weekly Gazette, October 4, 1783). Construction of the Charleston Visitor's Center in revealed a former creek filled with butchering remains, particularly the horn core of a variety of cattle. This location was a few blocks outside of the 1783 city limits and located on King Street, then known as the Great Path (Reitz 2004; Rietz and Ruff 1994). The recovery of horn cores suggests that the horns were also being processed for use, and possible export. Maag (1964:76) records the export of some 10,000 in the 1760s. The external sheaths of cattle horns were used for a variety of products (Armitage 1990).



Transportation of cattle to market was evidently an expensive and difficult task, and factored into the price of meat at market. Before 1760, a good bit of the cattle transported to Charleston were destined for the export market, principally to the West Indies. The export industry was limited by the availability of high-quality salt for curing both beef and pork. Live cattle and hogs were occasionally shipped from the colony. While shipping records document the amounts of beef and pork exported, there is no comparable record for domestic consumption (Maag 1964:72-80).

Regulation was made even more difficult by the number and variety of people who sold goods at market. Slaves, from both the city and the countryside, made up a large portion of the vendors. These vendors huckstered a variety of items, both for their own benefit and that of their masters. Maurie McInnis notes that the practice of provisioning themselves and the urban market was encouraged by most planters. She notes that slaves brought their wares to the market on Saturday nights (McInnis 2005:184). Slaveowner Adele Allston described gardens on her husband's plantation,

“Each person has a garden, poultry-house, and hog-pen. These are at a distance from their houses & a man is employed to watch these night & day. Each person has also a piece of rice-land. I calculate the crop of each at about 4 bushels, some making more, some none at all. I think that each of my Negroes above 16 has, at least 1 hog, many 3 or 4.” (Adele P. Allston, miscellaneous papers in McInnis 2005:184).

Bondsmen and women from the countryside sold their own eggs, chickens, and garden produce. 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.

Bondsmen from the countryside who spilled into the city selling provisions were often the object of rancor and legislation. In 1744, the South Carolina Gazette printed the following grievance,

“We present, as a grievance, Negroes being allowed to go from Town into the Country, under Pretence of picking Myrtle berries &c and who at the same time carry Rum and other Goods to trade with Negroes in the Country, by which they are debauched, and encouraged to steal and robb their Masters of their Corn, Poultry, and other Provisions” (South Carolina Gazette, November 5, 1744).

Traffic in the other direction – from country to town – was also cause for concern among the white population. An advertisement for a runaway slave, posted in the 1744 South Carolina Gazette, described,

“A lusty young Negro Fellow, named Baccus, with a broad Face and large Feet, well known in Charles-Town, where he used to go about selling Greens, Fruits, &c.” (South Carolina Gazette, June 11, 1744).

Several decades later, John Jackson advertised for his slave Peter, who ran away, presumably with his wife Sarah, owned by Mrs. Chambers. Peter was evidently “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 entrepreneurship of the enslaved Africans was the most common complaint among white townspeople. Most of the market regulations provided separate levels of retribution for infringements. A Grand Jury Presentment in 1742 complained of “The unlawful practice of Negroes, buying and selling in the public market...” (South Carolina Gazette, March 27-April 3, 1742). Four years later “Many well dispos’d Poor white People” complained of slaves who, as a result of non-regulation, forestalled the market and frequently sold goods “by very indirect methods”. The Assembly responded with a law that forbade slaves to vend anything except fish, oysters, and ‘Herbage’ (Bridenbaugh 1955:82). Despite repeated attempts at legislation, it appears that 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).

The bustling city shown in the 1739 view did not last long. Several natural events removed many of these buildings, and cleared the area for construction in newer styles and on a larger scale. A major fire in 1740 leveled 40% of the city, from Water Street to Broad, and from East Bay to Church (Poston 1997; Stoney 1976:133). Nearly 300 dwellings were destroyed in this disaster (Poston 1997:50). In a letter to Michael Lovell in Antigua, Robert Pringle noted,

“You may have perhaps heard before this comes to your hands of the fatal Calamity that Befell this Town by Fire the 18th November Last which in four hours Time Lay’d about three Hundred Dwelling Houses in Ashes, besides a great number of Store Houses and Some of the Wharfs, in which was Consum’d an Immense quantity of Merchandize of all Sorts, the Value thereof Computed at 200,000 pounds Sterling besides the Houses and if it had not happened then to be High Water, most of the Shipping in the Harbour had likewise been Destroy’d. In the number I was Burnt out of my House and thereby Lost some of my Goods and Household Furniture. It broke out about two a clock afternoon the Wind blowing hard at North West, and by Six a Clock all the Damage was done”



Detail from Bishop Roberts' *Charles Town Harbor*, c. 1738

Pringle went on to say that rum, muscovado sugar, and Madeira wine were very scarce, as “most in town was burned in fire.” (Edgar 1972: 283-284).

The hurricane of 1752 nearly equaled the fire in damage. The seawall along East Bay was badly damaged -

“Granvill’s bastion, situated at the southeast corner of East Bay Street...was much shaken, the upper part of the wall beat in, the platform with the guns upon it floated partly over the wall. The upper part of the curtain line, a solid wall at least four feet thick, was beat in upon the bay” (South Carolina Gazette, September 19, 1752, quoted in Calhoun 1983)

Calhoun reports that the storm surge overwhelmed all of the southwest part of town between Tradd and King Streets. Meeting Street was covered by two feet of water, and Church Street was flooded to Tradd Street. The waterfront was devastated, and all but one of the ships in the harbor was driven ashore. The resulting wall of debris caused extensive damage to the houses and wharves along East Bay Street (Calhoun 1983; for archaeological evidence of this event see Herold 1981). The South Carolina Gazette reported,

“the sea having rose upwards of Ten feet above the high-water mark at spring tides, and nothing was now to be seen but ruins of houses, canows, wreck of pittaguas and boats, masts, yards, incredible quantities of all sorts of timber, barrels, staves,

shingles, household and other goods, floating and drive, with great violence, thro the streets, and round about the town” (SCG, September 13, 1752, discussed in Shields 2003).

By 1750, Charleston’s plantation-based economy was thriving. As the 18th century advanced, Charles Town’ economic importance continued to expand and, with it, the relative affluence of its citizens. White per capita income was among the highest 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 craftspeople and their slaves who produced this finery. The city supported, in particular, a number of cabinetmakers and silversmiths.

Personal wealth was matched by a rise in imposing public and domestic architecture, coincident with the opportunity for rebuilding provided by the fire of 1740 and the hurricane of 1752. Unlike other plantation-based American colonies, the planter elite of the lowcountry chose to live in the city at least part of the year, and to display style and taste in their imposing town homes. Lounsbury notes that this involved a shift from vernacular to classical design, with a new approach to the layout of the urban lot (Lounsbury 2001:14; see also Joseph 2002). This concern with style, taste, and visual form carried through to public buildings, as well. City planners used this opportunity to return to the town center set aside at the intersection of Meeting and Broad a half-century earlier. Re-shaping of this area began with the 1730s construction of the single-story brick market house, and continued with construction of St. Michael’s Church in 1751 and the State House in 1752. The fourth corner was improved a decade later with construction of the two-story treasury and guardhouse on the southeast corner. Lounsbury suggests the removal of public buildings from the waterfront to a centralized location follows a pattern noted in other early American cities such as New York and Philadelphia. The visibility of the Statehouse and St. Michael’s, in particular, symbolized the prosperity and prestige of the entire community (Lounsbury 2001:16). The Exchange building at the foot of Broad Street, over the foundation of the half moon battery, further cemented the visual image of Charleston as a preeminent economic force. Its construction over the foundation of the half moon battery reminded residents that commerce had replaced defense as the primary function of the waterfront. By this time Charleston was a fortified city, but no longer a walled city (Weir 2002; Saunders 2002:213).

If Broad and Meeting emerged as the administrative center of the city, the waterfront remained the economic center. It was here that the agricultural products of the surrounding plantations accumulated and were shipped to market; here was the destination of finished goods whose journey had begun in far-away, often exotic ports. Factors, commission merchants, retailers – all of those who dealt in exports and/or imports, East Bay and the wharves were ideal locations for their businesses. As the 18th century progressed, more and more wharves were built – eight are shown on the 1739 map. Government officials who felt increased openings in the curtain line left the city vulnerable to attack were overruled by those who felt closing the openings would impede trade. The 1752 hurricane, however, completely destroyed the waterfront. The rebuilding

after the 1752 hurricane coincided with Charleston's economic heyday. Joseph et al. (2000:6) notes there were seventeen wharves by 1770. commerce was interrupted by the American Revolution, but business was reviving by 1780. In 1786 the City made plans to widen East bay Street to 66 feet, and wharf owners were permitted to build "convenient Brick Houses, to be covered with Tile" in return for providing the land "east of the curtain line" for the road (Stevens 1988:502 in Joseph et al. 2000). The 1788 Petrie map shows twenty two wharves covering nearly every open space along the Cooper River.

The Late Colonial Markets

In 1760, the old market building was apparently adjudged unequal to its role in the growing town. The Commissioners of the Markets began construction on the same site of a "neat building, supported by brick arches and surmounted by a belfry" (Bridenbaugh 1955:82; Fraser 1854:32-33). The new building evidently sat back from Broad Street, and was twice as long as the first. It was constructed of brick and was again evidently a single story. It was, at this point, renamed the Beef Market. This large building was one of three markets serving the city for the next 40 years.

The Beef Market was apparently a landmark. The market district attracted both craftsmen and merchants throughout the colonial period. Saddlers, in particular, gravitated towards the market square and to Broad Street. Many sold saddlery imported from England, merchant Robert Pringle noted that "there are several of your Trade Sett

up in this Town and some of them have Very Good Business So that there is not now the Encouragement to Import Saddlery from England that has been formerly" (Edgar 1972:305). Members of the business community often advertised their locations in terms of their relation to the Market. Peter Laurens, for example, directed people to



"his shop fronting the new Market Square" (South Carolina Gazette, November 7-14, 1741)

While the gravitation of saddlers to the market neighborhood may be related to use of skins available from the butchered animals, it may just as well reflect the financial status of this trade. Other craftsmen whose work might be associated with the use of animal skins were dispersed through the town. Most butchers who advertised in the colonial newspaper gave no address, though those who did were listed at or near the market. The tanners and leather dressers were more dispersed, as their craft likely made them less than desirable as neighbors. Shoemakers were also spread throughout the town (Calhoun et al. 1983). It is probable that it was not financially feasible for these less lucrative crafts to be located in the center of the commercial district.



The market area also appears to have served as a social center. This may have been especially true for the lower and middle classes who made their own purchases in lieu of a servant or slave. In 1743, a shuffle board was set up in a house in Market Square, “where Gentlemen may enjoy their Bowl and Bottle with satisfaction and be handsomely served... (South Carolina Gazette, May 9, 1743). Evidently, several such establishments were in close proximity to the market (see Shields 2003:7).

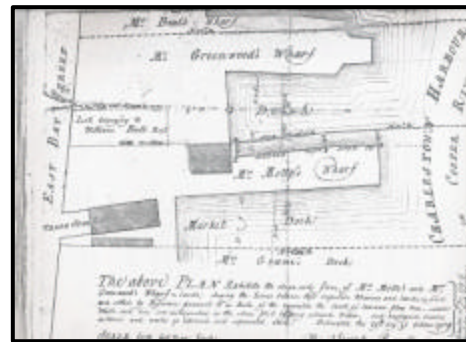
As an urban center and an active Atlantic port, Charleston had access to a range of foodstuffs. “An English Traveler” in 1774 described the provisions available in the city:

“beef, which on account of the hot weather is now reckoned out of season and but very indifferent can’t be had under 4d per point but in the winter it is much better at 2d per pound. Veal which is sold by the joint comes to about 5d per pound. The town in general is very ill-supplied with fish, which is not owing to a real scarcity for there are plenty to be caught if there were but proper people to seek after them, but as that is not the case they are scarce and dear; however that is pretty well made up for by having plenty of fine turtle one half the year from 4d to 8d per pound. Poultry is in general very good and reasonable, fine capons being at a shilling a piece and very good fwls fit for the spit at 9d and in the winter season here are fine wild ducks at 4d each, plenty of excellent otter-lines, partridges and quails at 2d each, with abundance of very fine wild turkeys weighing from 20 to 40 points from 3 to 5 schillings each, also plenty of venison at a guinea a buck, which tho’ it has little or no fat is generally esteem’d good flavored” (Merrens 1977:284).

The traveler would have likely been able to purchase most of these foods at the Beef Market, for his list matches closely the specimens recovered at the site. He goes on to describe and price other resources available in Charleston, including butter, eggs, peas and beans, and “vegetables of all kinds at much the same price as they are sold for in and about London”. “Most kinds of fruits” were available, and citrus was available from “a place called Providence”. The traveler noted that oranges were scarce, but lemons and limes, “as well as pine apples” were available about half the year. The most common drinks were beer, made of “molasses and also of percymon”, which he rated as much

inferior to English beer. But Charles Town boasted the best Jamaica rum, and plenty of French claret (Merrens 1977:285).

By the third quarter of the 18th century, Charleston was evidently large enough, and wealthy enough, to support additional markets. A Fish Market was constructed on Vendue Range (Queen Street), east of Bay Street in 1770. This location was ideally suited to receive the catch by water, and to clean and prepare for sale with ready access to the waterfront for the disposal of the waste. This, too, seems to be the case for the Lower Market, constructed at the foot of Tradd Street, again east of Bay Street, in 1764. This was evidently a bustling establishment, as indicated by several references to the locale in the newspaper.



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; also Southern Agriculturalist vol. 9, 1836:165). The waterfront location of the Lower Market likely meant that the remains of these butchered animals were deposited in the harbor. The central location of the Beef Market, in contrast, likely hampered the ability of butchers there to slaughter on-site or nearby. In evident response to a recurring problem, a 1783 issue of the South Carolina Weekly Gazette reminded readers that the butchering of cattle “within the city limits” was prohibited (SC Weekly Gazette, October 4, 1783).

On July 4, 1776 the American colonists proclaimed their independence from the British Empire. Tensions between the mother country and her North American colonies had been building over the years, centered around payment of the national debt. The first attempt to conquer the province of Carolina came in 1776 when the Royal Navy attacked Fort Sullivan, later Fort Moultrie. They struck again in 1780 and were successful. The British occupation of Charleston was to last two years. The loss of Charleston was considered by many Americans to be their greatest defeat in the Revolution.

During the occupation, many Carolinians suffered sequestration of their property, the quartering of troops in their homes, imprisonment in the “dungeon” of the Exchange or 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 (Wallace 1961).

The British occupation evidently brought many changes to the city. There was a great deal of movement and change among the city's merchant class, and a variety of new products, particularly foodstuffs, were imported (Royal Gazette 1780-1782). The occupation forces also worked to clean up the city. In July 1780, they proclaimed,

“As there will be an absolute Necessity for keeping the Town and suburbs as clean as possible, a Regulation will take Place for Waggon to go round the respective Districts, every second Day, in order to carry off all Filth and Soil; and it is earnestly recommended to the Inhabitants upon no Account to throw any of it in the Streets, but to collect it within Doors till the Carts come to receive it from the several Houses. –No Dirt or Filth is to be thrown into any of the vacant lots. As the Health of the Inhabitants, as well as that of the Garrison, will depend very much upon the Order and Cleanliness of the Town, it is hoped it will be unnecessary to issue any further Proclamations upon the Subject” (Royal Gazette, July 6, 1780).

Much of the rubbish was hauled to the “British Dump”, whose location is unknown. Their efforts must have been somewhat successful, for in September, 1780, the Commissioners of Streets gave notice that,

“as streets are now clean and put in good condition, people are to avoid throwing out dirt, rubbish, or other offensive matter into any part of the streets or vacant lots but are to carry such rubbish & c to such parts of the town as the Commissioners now use for that purpose; Also, do not put anything in the streets that may obstruct the way or endanger the safety of passengers” (Royal Gazette, September 19, 1780).

The American Revolution and its attendant chaos disrupted the commercial life of Charleston but did not halt the growth of the city. In 1783 the town was incorporated, renamed Charleston, and divided into wards for better control. Peace and security stimulated a people tired of war. After a period of economic readjustment, Charleston returned to a period of unbridled prosperity. The invention of the cotton gin in 1796 paved the way for the ascent of cotton as another immensely profitable staple. (AC 12)

By this time, the development and increased prosperity of Charleston resulted in a rise in the cost of renting and buying real estate within the commercial core of town. Significant portions of the artisan community dispersed throughout Charleston as all but the more affluent craftspeople were driven from the highly desirable locations. Many small businessmen attempted to combat rising real estate prices by sharing buildings. Craftspeople who derived their livelihood from such trades as the slaughtering of livestock, soap making, and tallow chandlery needed space, while the unsanitary conditions and danger of fire made these activities the subject of nuisance persecution (Calhoun et al. 1982). But the wealthy and influential merchants typically lived on East Bay Street adjacent to the wharves and the economic heart of the community.

The waterfront remained the economic center of town into the next century. The 19th century Charleston wharf was not merely a docking facility. Rather, it consisted of a dock and usually several buildings where merchandise could be stored, counted, and

shipped or purchased. Dealers in merchandise not only profited from the convenience of being in the commercial center of town, Broad and East Bay, but also by avoided exorbitant cartage costs. Goods were often advertised at discount prices if the buyer would pick up his purchases on the wharf. Transportation was not merely an expense but, at times, a major difficulty (Joseph et al. 2000). Although the individual would find it relatively comfortable to traverse the city, the movement of goods from one location to another was not as simple. Flooding and bad roads were facts of life in Charleston. David Shields notes that the streets of Charleston remained unpaved throughout the 18th century, long after other North American cities. Charleston's streets were sand, though, which meant they drained quickly and were relatively easy to clean (Shields 2003:4).

19th Century Changes

The third and final chapter of marketing activity at Meeting and Broad ended in 1796, when another fire destroyed major portions of the city. The fire broke out on June 13, 1796 in Lodge Alley . Flames spread south and west to Broad Street, and the market was among the casualties. The City Gazette and Daily Advertiser reported,

“Again has this city been visited with the dreadful calamity of fire. On Monday last, at 3 o'clock in the afternoon, a room in Lodge-Alley was discovered to be on fire, which in a few minutes communicated with the neighboring buildings. The citizens soon assembled; but their exertions could not stop the devouring flames 'till three o'clock on Tuesday morning, or until a very considerable part of the city was destroyed....those acquainted with the city will conceive the damage done, on being told that every house in Queen-street, from the Bay to the corner of Church-street; all Union-street continued; two-thirds of Union-street; Church-street, from Broad-street to St. Phillips church, with only two exceptions; Chalmers and Beresford's alleys; Kinloch's court; and the North side of Broad-street, from the State-house to Mr. Jack's four doors below Church-street; and five houses on the Bay, from the corner of Queen-street, were burnt to the ground.

The public buildings destroyed are, the French Church and the Upper or Beef Market...”(City Gazette and Daily Advertiser, June 15, 1796).

By this time, the area surrounding Broad Street was changing. The intersection of Broad and Meeting remained a central location. St. Michael's church was rapidly becoming the most prestigious in town, and its role in protecting the city, through its fire watch and the tolling of the house (and alarms) gave it an added institutional importance (Radford 1974:194-195). Many of the city's most prosperous citizens wanted to be within sight and sound of St. Michael's. The bells tolled the hour, and a sentry stationed on the steeple called out the quarter hours as they struck. He also maintained a fire watch and, if a fire was seen, made sure the bells were rung and hung a warning light on the side of the spire nearest the fire. In a city frequently assaulted by flames and terrified of arson by a large slave population, the ability to hear the bells and see the light was no doubt comforting (Calhoun et al. 1984:25). With the Court House and the Guard House nearby, the intersection was the physical embodiment of social control in Charleston (Radford 1974:195).

But the raucous and undoubtedly malodorous Beef Market was not rebuilt. As Charleston developed into a prosperous economic center for the surrounding area, commercial and residential areas became increasingly differentiated. In the earlier colonial period, the commercial core centered on Broad and East Bay Streets. By the time of the 1796 fire, this area had been transformed from a commercial/residential district to a predominantly residential area, home to many of Charleston's elite planter/merchants. While the location at Meeting and Broad remained central to the citizens of Charleston, a new role for the fourth corner was in order. On July 29, 1800, the City Council of Charleston conveyed to the president, directors, and company of the Bank of the United States,



Portion of the J.J. Negrin map of Charleston, 1802, showing The Bank of United States in place of the market

“all that piece...of land situate and being on Meeting and Broad Streets in the city of Charleston measuring in width from North to South Eighty Six feet and in length from East to West one hundred and thirteen feet...To have and to hold... forever. Provided... that upon the said Lot...the Bank of the United States shall...erect and Build...an elegant Edifice or Bank House...(Register of Mesne Conveyance Book 7:317-320).

Gabriel Manigault, an amateur architect in Charleston has long been credited with the design of the new bank, but the building was constructed under the guidance of carpenters Edward Magrath and Joseph Nicholson and mason Andrew Gordon (Poston 1997:167). The exterior of the building was local red brick laid in Flemish bond and lavishly trimmed in white marble (Childs 1981). The effect was so colorful that, in 1826, Robert Mills asserted,

“Its façade is showy, but...exhibits a crude taste in architecture, only meritorious as a work of art unaided by science.

But though this building is repugnant to good taste, and offensive to the critical eye, it is yet an ornament to the city, and will probably, at some future day, be so improved as to be brought within the pale of good taste, of which it is in some degree capable” (Mills 1826:408-409).

In 1818 the City Council of Charleston resumed control of the lot and bank building; the former Market Square became known as City Hall Square. Soon, after improvements were made to the surrounding properties. Soon after resuming control of the former bank, the City acquired “ a number of small wooden buildings on Broad and Meeting streets...with the land upon which they stand the intention being to take them down and lay out the ground as a public walk, embellished with rows of trees” (Charleston Courier, June 4, 1818; Severens 1988:26). The park was renamed

Washington Park in 1881, to commemorate the centenary of Washington's victory at Yorktown (Poston 1997:195). The park received many renovations and alterations, and houses several important monuments. Likewise, the City's collection of government-commissioned art was displayed in the building, a tradition that continued throughout its history.

City Hall was renovated in 1839 under the guidance of Prussian-born architect Charles Reichardt, who also designed the Guard House on the opposing corner (Poston 1997:167; Severens 1988:108). This was to be the first of several repairs and renovations. During the Civil War, downtown Charleston was heavily bombarded by Union troops. For protection, the city government was moved from the corner of Broad and Meeting streets to the Charleston Orphan House on Calhoun Street. The Northern troops took possession of Charleston on February 18, 1865. General W.W. Burns, the Union commandant of the city, made the former City Hall both headquarters for the occupying army and the Provost Guard House. In 1868 the building was returned to the City and once again sheltered the government of Charleston.

The shelling suffered by the buildings of Charleston plus the natural deterioration through time persuaded Mayor William A. Courtenay in 1882 to transform the building. The red brick was covered with white stucco and the mutined windows replaced with large panes. In the course of the restoration the interior was gutted and a new trussed roof allowed the ceiling to be raised five feet.

The terribly destructive earthquake of 1886 severely damaged the building. A 'tent city' was erected in the square to shelter citizens afraid or unable to return to their homes. The structural damage caused by the earthquake necessitated major repairs that were completed in 1898. During the tornado of 1938, City Hall lost its roof and all of its window panes. The masonry of the upper floors on the northeast corner collapsed and much of the furniture was damaged. Once again, major repairs were needed before all signs of the tornado were obliterated (Childs 1981:10-11; Calhoun et al. 1984:22).

Although the commercial thoroughfares of the colonial periods – Broad, Tradd, and Elliot Streets - were still central, many of the merchants and craftsmen were now located north of Broad Street. Meeting and King Streets replaced these as the principal commercial district. New residential neighborhoods were built on both sides of this corridor. When the new Centre Market was constructed, it was built on a filled creek bed several blocks north of the old market square. This new facility centralized the Charleston market system, and all three colonial sites were abandoned (City Gazette and Daily Advertiser, August 24, 1799).

There had been, for a while, some effort made to move the market. Legislation creating Centre Market was passed as early as 1787. The "neat brick building" constructed in 1760 was described in 1774 as "a low dirty-looking brick market house for beef" (Merrens 1977:282). In making this assessment, "An English Traveler" described the handsome modern brick houses located along the city's principal thoroughfares, Meeting Street and Broad Street, and commented particularly on the quality of St.

Michael's church and the Statehouse at the intersection of the two streets. He concludes that the market "does not match the other three" buildings located here.

A new market was built on lands given by the Pinckney family in 1788, with a revision clause (that the family could reclaim the property if the city ceased its use as a public market). The city was "to lay out a street from the channel of the Cooper River to Meeting Street 100 feet broad, and in said street to establish a public market or markets for the purpose of vending all sorts of butcher meats, poultry, game, fish, vegetables, and provisions." (CCRMCO A-6:231). The new market was built on a filled creek that once formed the northern boundary of the walled city. As the walls were removed, streets were continued via "Governor's Bridge" to lot 80 of the Grand Modell. As with the rest of the lowlands on the peninsula, the creek was filled gradually to form viable real estate. The city market eventually stretched from Meeting Street to the waterfront, covering four city blocks. The market structures were built gradually from 1790 to 1806. An impressive Market Hall was built on the western end in 1837. Designed by local architect Edward Brickell White, the temple-form building featured a frieze of bucrania and ram's heads, signifying the presence of a meat market (Poston 1997: 395-396; 339). The single-story market stalls featured arched openings and a peak roof, and were raised one foot above street level. An 1883 description suggests that "meats, vegetables, and fish are sold in separate parts of the market. The stalls are arranged on each side, with a broad walk between. The whole arrangement is quite convenient, and well adapted to a Southern climate" (Mazyck 1883 in Waddell 1983:18). Leland reports that the beef market featured "some 112 stalls, as well as three sections for vegetables, a fish market and storerooms (Leland 1980:37).



Portion of the 1852 Bridgens and Allen map of Charleston, showing the Centre Market from Meeting Street to the waterfront.

An 1865 painting of "Charleston Square" by Charles Hamilton captures the vibrancy of daily life at the city market. Market Hall dominates the image, while in the foreground streets bustle with huckster draymen, and townspeople of all types. Wagons and baskets are loaded with provisions. More significantly, buzzards circle the market stalls behind Market Hall, these in increasing numbers as one nears the waterfront. The colorful image is a reminder that the avian scavengers were integral to the functioning of the market. They evidently made such an impression on the Duke of Saxe-Weimar during his 1826 visit to Charleston that he commented,

“The market consists of five houses, in a long street ending upon the harbor..the most beautiful tropical fruit therein arranged, oranges from Florida, pistachios, and large excellent pine apples from Cuba...Upon the roofs of the market house sat a number of buzzards, who are supported by the offals...They are not only suffered as very useful animals, but there is a fine of five dollars for the killing of one of these birds. A pair of these creatures (was) so tame that they crept about in the meat market among the feet of the buyers.” (Rogers 1980:87).

Natural historian Mark Catesby had been fascinated by these creatures a century earlier,

“They continue a long time on the wing, and with an easy swimming motion mount and fall, without any visible motion of their wings...no sooner there is a dead beast, but they are seen approaching from all quarters of the air, wheeling about, and gradually descending and drawing nigh their prey, till at last they fall upon it.”

The offal from beef cattle were evidently a major part of the scraps available to the scavengers. The Southern Agriculturalist gives the following accounting of animals brought to the Centre market for sale (and possibly slaughter) in the last quarter of 1835:

“Beeves, 3081; Calves, 583; Hogs, 2716; Sheep, 1275; Lambs, 115; Goats, 18; Wagons with Poultry, Bacon, &. 260, and Venison, Game, &c.” (Southern Agriculturalist vol 9, 1836:167).

The Centre market evidently sold more produce than their colonial counterparts. Little is know about the customers, the purchases, or the daily affairs of market-goers. A



brief glimpse into the shopping habits of urban customers comes from the Memoranda book of Sarah Reeves Gibbes. Mrs. Gibbes, a middle-aged widow, kept scrupulous notes on her nearly-daily marketing trips, and a two-year volume of her notes survives.

View of the mid-19th century market, from the collections of The Charleston Museum

**The Sarah Reeves Gibbes Memoranda Book and
19th Century Charleston Market-ways.**

(by Hayden R. Smith)

On a hot breezy June day in 1807, Sarah Reeve Gibbes stepped off of her carriage to survey a market bustling with activity in the streets of Charleston, South Carolina. She had just returned from her “Beach Villa” located on Sullivan’s Island and will live at her Meeting Street house for the next five months before moving back to the Gibbes family plantation, Peaceful Retreat, on Johns Island for the holiday season and winter months. During this time that Gibbs stayed in Charleston, the Market became an integral part of daily activity. She visited the market an average of four days a week, sometimes more and sometimes less, to buy a variety of meats, poultry, fish, fruits, vegetables, breads, and other perishables. On this particular day, Gibbs had to restock the house after her leave of absence with a significant amount of purchases, including beef, fish, butter, basket salt, milk, whiting, camp oil, coffee, veal, potatoes, pine apples, and barley (Gibbes Memoranda Book 1807).

The information Sarah Gibbes maintained on her daily expenses at the Charleston Market was recorded in a memoranda book, now housed at the South Carolina Historical Society. This account book shows her “daily expenses” of Gibbs’ trips to the market and her “various expenses” of miscellaneous purchases throughout the city. For this study, research was limited to observations on the market, although additional research would reveal a rich social history of personal consumption habits in relation to Mrs. Gibbes’ economic standing. The memoranda book follows a three-year period, from 1807 to 1809, during her stays in Charleston, which lasted from mid-June to late November. This information is an important primary document to study the social history of a family, and the foodways and commerce of an antebellum city. Through the individual notations recorded by Gibbs, the reader can view into this person’s daily life without reference to a diary or letters. Also, a reader of this memoranda book can also glimpse into the activities of the Charleston Market in relation to a family’s specific tastes and social status.

Sarah Reeve Gibbes was the wife of Robert Gibbes, a successful planter, and they divided their time among three residential properties at thirteen Meeting Street, Peaceful Retreat, and the house on Sullivans Island. The Gibbes represent the planter elite and lived a comfortable lifestyle based on their property holdings and material wealth. During their marriage, the Gibbes had ten children that continued to flourish in the upper echelon of Charleston society. Their great grandson James Shoolbread Gibbes, for example, established the downtown art museum that bears his name. By the time Sarah Gibbes started recording in this memoranda book, she had been widowed for thirteen years and was sixty-one years-of-age. In the 1807 Charleston directory, she is labeled a “widow planteress.” The reason Gibbes started recording a memoranda book at this time is unknown. Speculations range from the possibility that this was one volume of a series of family account books to that she was held accountable for her expenses to an executor. Whatever the reasons, a reader of this memoranda book must understand that her records

reflect items purchased with specific tastes and from a family representative of the Charleston elite (South Carolina Historical Magazine 1911; Charleston City Directory 1807).

Gibbes' wealth is seen in the variety of products that she purchased from the Market. Poultry was an item she consistently brought back to the family throughout her residency in Charleston. Her memoranda book reveals the emphasis of poultry, for it and rice are the only two foodstuffs that Gibbes specifically made a side-note of in the margins. Judging from Gibbes purchases, some land at her Meeting St. residence was devoted to husbandry for she states that some of the poultry was alive when she bought it. For example, on August 16th, 1807, Gibbes specifically "bought two chickens for the yard." The first day that Gibbes returned to Charleston in 1809, she bought six fowl, twelve chickens, four turkey, and twenty hens. These numbers suggest an active yard. Poultry purchases occurred in large quantities, which may indicate that the birds were brought back to the Gibbes property. On August 3rd, 1807, Gibbes purchased two turkeys, three young geese, ten ducks, ten fowls, and two guinea hens. Large purchases included twenty-four chickens, eighteen English ducks, thirty fowls, and thirteen hens. Other purchases were not large in volume of poultry, but did indicate a variety of birds available for sale in the Market, including pigeons that were purchased once a year in the summer. Also, Gibbes would occasionally emphasize where the poultry originated, notable from the Wahpoo and Ashepoo Rivers.

Beef was bought more actively at the Market. Almost every time that Gibbes went to the Market, she bought some form of beef. This would indicate that meat was already slaughtered at the market. From June to November, the Market always had beef available, and Gibbes purchased plenty. She bought four portions of beef a week in 1807, three portions a week in 1808, and four portions a week in 1809. Beef was the staple foodstuff sold at the market, as it provided the foundation for many Charleston recipes. The other staple, pork, surprisingly did not register very high in Gibbes memoranda book. She would occasionally purchase - one portion a month - and specifically purchased cuts of leg or feet. The small percentage of pork featured in the memoranda book could either signify that Sarah did not prefer pork in the household, or that pigs were slaughtered at the residence and out at the plantation. Calf, calves head, and calves tongue were three of the more exotic beef products available in the Charleston Market. Gibbes purchased each of these items occasionally, but would they appear more in November as the holiday season approached. Other meats that Gibbes purchased approximately twice a month were lamb and "hankles" of veal.

Although not the volume of beef, Gibbes bought a significant amount of fish at the Charleston Market. A general notation, labeled "fish," accounted for four portions a month in the summer and dropped to two portions a month in the winter. Specific fish appear occasionally, depending on the season. Shrimp purchases begin in July of each year and last until late September. When in season, Gibbes bought two to three portions a week. Salmon, whiting, and mullet appear occasionally in her memoranda book. Oysters appear seasonally, beginning in late September and again in late October.

Fruit and vegetables were the most seasonal of all foodstuffs at the Market. Gibbes bought a variety of products, depending on what was available. In the summer, plums, beets, corn, peaches, oranges, “pine apples”, onions, and melons all appear in the memoranda book. By the fall, apples, tomatoes, pears, beans, turnips, limes, and potatoes were available. Items that one would expect to be grown or produced at the residence were also available at the Market. Eggs, bread, flour, milk, and butter were all items that Gibbes purchased. With the exception of butter, which was bought almost on a daily basis, each of the other products was probably purchased when they were not available around the yard. Like today’s shopper, who realizes that they are out of an important ingredient and have to make an extra trip to the grocery store, sporadic purchases of provisional items might represent the importance of the market to residents who rely on getting foodstuffs when needed. Another observation, similar to buying ingredients out of dire necessity, are Gibbes’ trips to the market on Sunday. Surprisingly, the Charleston market did open on Sunday and Gibbes occasionally purchased items on that day. Although rare, four times in the three years that she kept the memoranda book, Gibbes shopped on that day. Food items that you would expect, such as sugar, butter, pork, lamb, beef, and fish, were purchased on that day; these are all foodstuffs that would fit well into the traditional Sunday dinner.

Besides the variety of products purchased at the Market, another aspect of the memoranda book is that Gibbes recorded everything in pounds, shillings, and pence. This method of payment would have been the standard while the British occupied Charles Town, but the city switched to a domestic currency after the Revolutionary War. By the early nineteenth-century, Charlestonians’ payment of goods with British currency was unusual. Gibbes was an exception to the norm. She continued to record her payments up to July 1809, but then reverted to recording her entries in dollars. David Ramsey (1858) wrote in the same year about a few Charlestonians who still paid for goods with pounds, shillings, and pence, but they were minority in the city. The practice of paying with British currency after the Revolution began when the South Carolina legislature added two pence to the dollar to encourage citizens to still spend Sterling. The practice to pay in British currency became less popular as the dollar began to strengthen, but some Charlestonians still held on to tradition and Gibbes was one of those people.

The Sarah Reeve Gibbes Memoranda Book provides a unique picture of daily life not found in journals or diaries. Further research of Gibbes and her family may provide a comprehensive framework to examine how the food was distributed throughout the household and to what degree enslaved people and indentured servants received provisions from these market purchases. When examined in larger context, the Gibbes memoranda book informs on food supply, product availability, and seasonality in Charleston.

Chapter III Excavations

Site Description and Logistics

The site of the Beef Market is located in the southwestern quadrant of Washington Square Park. The park is dominated by a grove of large, stately live oak trees, planted in the 1930s, and is divided into quadrants by brick walkways and a central monument. The park is a popular spot for lunch, resting, or just cutting the corner, and foot traffic is heavy. City Hall abuts the corner of Meeting and Broad streets, measuring 61' by 64', and covers the majority of the market building footprints.

City Hall is a massive three-story brick structure, with above-ground basement. In the basement, a central hall terminates in a cove, and divides the building into four rooms. Around this are four outer rooms. The footprint (figure) suggests relatively little non-impacted space. Brick foundations were 2' wide, and test excavations, conducted by the architectural team, revealed that they were over 5' deep. Visitors to the building may enter the first floor by an exterior flight of stairs, or they may enter the basement by a front door and take the elevator. These latter features remained in operation during the project, as City Hall was occupied and functioning during the excavation project. For this reason, the concrete flooring in the southwestern hallway, between the front door and the elevator, remained in place and prohibited access to this portion of the site.



The basement had been used extensively for offices and restrooms, and the various rooms and halls featured remnants of drop ceilings, fluorescent light fixtures, and an array of wires and pipes. The restroom facilities were removed, as was the flooring, with the exception of the southwest hallway, which provided ground-floor access to the elevator. The basement featured a 6" thick concrete floor, laid in the 1950s. In some areas, a previous concrete floor, from the 1930s, underlay this floor. Under the guidance of Joe Schmidt, this floor was carefully removed to minimize damage to the archaeological record. The flooring was cut into 2' square sections, fitted with a bolt, lifted with a hoist, and carried to a window access for removal. A narrow ledge of concrete flooring was left around the edge of each room. The soils beneath were completely undisturbed by this process, and a sandy surface glittering with artifacts and bone fragments greeted the archaeological team upon arrival. The surface of the ground, beneath the concrete



floor, is nearly two feet (1.8' - 2.1') below the present ground surface in Washington Park. As stratigraphic definition for the site was based on excavations on the site interior, excavations initiated with soils defined as zone 5.

Execution of an archaeological project inside an occupied public building presented some special logistical considerations. Lack of natural light was an issue for interpreting and photographing soils. Some natural light was available for excavations in the surrounding halls, but the interior rooms were completely dark. Fortunately, the fluorescent light fixtures were still functional; all one had to do at the beginning of the day was to flip the light switch. The fluorescent lighting affected the quality of color photographs, though. None of the film types, or specially purchased filters, corrected the color spectrum completely. An additional challenge to photographing was getting high enough to take them. A position on the ladder far enough above the unit to frame it entirely put the photographer's head above the drop ceiling. Often, metal struts and wires had to be carefully pushed aside to frame the photo. The low ceilings likewise compromised use of the stadia rod for elevations.

Soils on a building interior are often dry and dusty, and lack of ventilation can be a problem. This was not the case at the market, however, as the soils had been sealed by the concrete floor until a few weeks before excavation. Only the upper tenth was dusty, and did not provide a screening problem.

Management of the backdirt from excavations posed somewhat of a problem. The four interior rooms, in particular, were rather small. Units measuring 5' by 5' were carefully placed to allow room for the screen, for the folks doing the screening, and for the extensive collection of backfill to be derived from units nearly three feet deep. Likewise, the units had to be backfilled carefully, and tamped at half-foot intervals, to prevent slumping and settling that might impact new flooring. For this reason, backdirt was not removed from the small rooms during the project.



The interior excavations also provided many advantages. The site, and the field equipment, was secure from vandalism, liability injuries, weather and erosion. Both temperature and humidity were relatively stable inside the basement, and so soils maintained optimum moisture levels even after excavations; exposed profiles did not dry or erode (or grow mold, mildew, mushrooms or ferns, as is often the case on long-term projects).

The footprint of the building presented challenges to both horizontal and vertical control. Vertical control was problematic, as there was no single location for the transit that would provide visual access to more than one or two units at a time. The most common location for the transit was the central hall, and just inside the front entrance. A temporary datum point was established on the wooden riser inside the front door and designated R.P 1. This was tied to the U.S.G.S marker located at the federal courthouse building on the southwest corner of Meeting and Broad Streets. The marker is located on the top step of a Meeting Street doorway, on the east side of the building. The marker is 16.552' above mean sea level (MSL). Elevations for three temporary datum points were measured in relation to this marker. During the course of excavation, elevations for each unit were taken in a variety of ways. For those more accessible by transit to R.P. 1, elevations were taken with the stadia and transit on an ongoing basis. Some units were not visible from a central transit location, and so were measured with a line level and folding rule from a datum point established adjacent to the unit. These unit datum points were then tied to RP 1 with the transit.

Horizontal control was equally challenging. The walls made it impossible to establish a visual plane for a unified grid in any capacity. The four interior rooms, in particular, were accessed by a single narrow, angled door, which opened onto the central hallway. The exterior hall rooms were likewise narrow, and each included a corner. For this reason, no grid system was used. Instead, excavation units were located relative to walls and corners of the basement - clearly permanent features - and their locations noted on a floor plan of the building. The locational information for each unit is included in table 1.



Units ranged in size from 3' by 3' to 5' by 5'. They were horizontally dispersed throughout the building, with the exception of areas disturbed by modern plumbing (the rest rooms in the northeast hall) or still covered by concrete (the southwest hall). Within this general format of spatial distribution, certain units were located to intersect architectural features revealed during the course of the project.

The units were hand-excavated to sterile subsoil. The work was conducted by archaeology curators from The Charleston Museum, aided by a crew of four archaeology graduate students (all veterans of the College of Charleston/Charleston Museum archaeological field school) and intern students from the College of Charleston. In addition, many professional archaeologists from throughout the state visited the project and volunteered their services and skills for a day.

All excavations were conducted by hand using shovels and trowels. Excavations followed natural zones, and deeper deposits were subdivided into arbitrary levels. All materials were dry-screened through 1/4" mesh. Architectural rubble - brick, mortar, plaster, etc. - was sampled and discarded. All other cultural and faunal materials were retained. Environmental analyses were integral to the project, so soil samples were retained from 130 proveniences. Most of these consisted of one or two-gallon samples. A total of 285 proveniences were designated and excavated during the testing project. An additional 50 proveniences were designated during the monitoring phases.

Record keeping entailed narrative notes and completion of a variety of field forms on a daily basis. These include feature forms, excavation unit forms, photographic logs, elevation rosters, and field specimen logs. Planview and profile maps were made for each unit, as appropriate. Material from each designated provenience was bagged and tagged separately, and a field specimen number (FS#) was assigned to each in ordinal fashion. Photographs were taken in black and white (T-max 100) and color slide (Kodachrome 200 for warm tones and archival stability), as is standard on all Charleston projects. As mentioned previously, the lack of natural light and use of fluorescent lighting posed some problems for color photographs. The units were variously photographed with Kodachrome 200 (most successful in the exterior halls where some natural light was available), Ektachrome tungsten (160), and Kodachrome 200 with an F-DL filter. None of the slide colors were exactly correct. Digital photography provided a fourth set of color and archival storage options. These included a flash, and were perhaps most “true”. Unless noted, all of the images included in this report are digital.

General Stratigraphy and Analytical Units

The beef market site exhibited an archaeological record remarkable in its clarity and stratigraphic definition. All of the units excavated exhibited well-stratified layers nearly three feet in depth. Unlike many previously examined urban sites, the beef market exhibited zone deposits that were consistent across the site and noted in each of the units. The predictable stratigraphy made it possible to define contextual differences in these zones across the site. These are summarized below, and serve as a reference for the description of individual units that follows.



As the basement of City Hall was 2' lower than exterior grade, excavation began well into the stratigraphic sequence defined in 1984. The first few inches of dry, potentially disturbed sand was

designated **Zone A** in the first units, to distinguish it from undisturbed layers, and this designation followed for the remainder of the units. The very top was dry and dusty, but after .1' the soil was moist enough to discern soil color. Zone A was a highly mottled soil, associated with construction of City Hall and re-filling of the builders trenches for the structure, and was a light grey mottled sand. It ranged in thickness from .1' to .4'.

The next deposit encountered was a layer of orange clay. As this deposit had been encountered in a similar stratigraphic position on the building exterior, this was designated **Zone 5**. It was present in the two units first excavated, Test Units 2 and 3, and so was expected to be present throughout the site. Designation of this first intact layer as zone 5 led to an ordinal numbering of all subsequent deposits. This, when complete, did not relate precisely to the designations given in 1984. These relations are discussed in a later section.

Zone 5 was an intermittent cap of orange clay/sand, suggesting a prepared floor level. It was not present in all of the units. It is unclear if this is a result of post-occupational disturbance or deliberate action.



Zone 6 was a lens (about .2-.3 feet thick) of granular, water-washed gray sand. It contained a distinctive cultural assemblage of chopped, or cleaved, fragments of bone, and small, highly trampled artifacts. Zone 6 was usually present on top of well-defined areas of zone 7, with a maximum depth of .2'.

Zone 7 was a very hard-packed floor layer; texture was the most distinguishing characteristic of the deposit. The deposits above and below readily separated from zone 7. In units located in the southwestern portion of the site, zone 7 was a compacted layer of orange clay and sand (10yr5/6 to 2.5yr6/6, 10y45/8 and 5yr4/6). Zone 7 was densest in unit 4, followed by units 3 and 8. In the eastern and northern areas of the site, including the exterior units, the clay was replaced with a corresponding hard-packed layer of medium gray-brown sand (7.5yr3/2 to 3/3). Bone and other artifacts were mixed into the clay and the brown sand deposits, and the deposit suggests an exposed working and living surface. Zone 7 averaged .2'

to .3' in thickness, though it was .5' deep in Unit 4.



Zone 8 was a friable layer of gray sand and artifacts, of varying thickness and content. **Zone 9** was distinguished from zone 8 by being overall a lighter gray (10yr 4/1 and 10yr5/2). Some linear distinction between the two was visible, though the texture and content of the soil suggest a fill layer. In some portions of the site, a portion of the zones 8 and 9 soils contained some orange clay mottling. These deposits were designated stratigraphically as “zone 9a”. Deposits of zones 8 and 9 together varied from .6' to .9'.

Zone 10 was the most distinct zone in the depositional range. This is very dark brown, loamy to downright mucky zone (10yr3/1 to 4/2). There was a crisp line of separation between zone 10 and the above zone 9, suggesting that zone 9 was intentional fill. The

interface of zone 10 and zone 11 below, however, exhibited a high level of bioturbation, particularly root activity, suggesting that zone 10 and the soils below it were a natural accretion. Unlike all of the zones above, zone 10 was characterized by large fragments of bone, particularly cattle. Zone 10 ranged from .2' to .3' in thickness. There was also horizontal variation in the texture of zone 10; some portions were extremely gummy and sticky, suggesting a high organic content, while in other areas, particularly the eastern side of the site and the exterior units, the deposit was more sandy.

Zone 11 was an unusual deposit of black sand (10yr2/1). The dark soil contains very sparse artifacts, and gradually becomes devoid of cultural materials. The soil gradually becomes lighter, but remains dark for nearly a foot. This soil deposit appears to be natural subsoil, based on the texture and artifact content, but no similar deposits have been encountered elsewhere in Charleston; sterile subsoil is usually a tan to yellow sand.

Dating Techniques

As it was essential to separate deposits from the three marketing periods, and to assign all proveniences to the appropriate occupation, the encountered archaeological deposits were dated on the basis of stratigraphic point of initiation, Terminus Post Quem, and horizontal association. Stratigraphic point of initiation is based on the Law of Superimposition, the geological principal that soils gradually accumulate on sites of human occupation. Therefore, the deepest deposit is the earliest, with deposits occurring later as one approaches the top of the ground. Relative dates are therefore assigned

according to the profile map and the measured level of the top (or point of initiation) of each deposit.

Terminus Post Quem, or TPQ is the principal that states that no provenience can be deposited earlier than the invention date of the latest-dating item in the provenience. A provenience can be deposited any time after that date; therefore, estimated date of deposition is rarely the same as the TPQ date.

The date of deposition assigned to each archaeological provenience is therefore based on both techniques and is determined by considering each provenience relative to those around it. On sites such as the Beef Market, where dispersed test units are excavated and strata are relatively intact, additional emphasis is placed on recognizing stratigraphy, in terms of dating, depth, artifact content, and physical characteristics, across broad areas of the site. As discussed below, this was most successful at the Beef Market, where zones were readily recognizable across the site, and variations in these could be noted. Overall dating of the zone deposits, then, is based on the TPQ from particular proveniences.

Following a determination of date of deposition for each provenience, appropriate temporal subdivisions, or periods, are determined for a site. In Charleston, site assemblages may be subdivided temporally according to changes in site ownership or usage, general historical trends within the city, or changes in world technology. After the parameters for appropriate temporal subdivision is determined, each individual provenience is placed in the appropriate group. These subdivisions then form the basis for discussion of artifact assemblages and patterning, for intersite and intrasite comparison and interpretation, and for exploring temporal change. In the case of the Beef Market, three periods of construction and use were clearly indicated in the documentary record; archaeological changes related to these three periods were identifiable. Archaeological discussions, then, are structured around the three periods of use:

1. 1692-1739, when the northeast corner of Meeting and Broad streets was designated as “market square”, but featured no documented formal market building (depicted in the 1704 Crisp map).
2. 1739-1760, the period of use for the first market structure (as depicted on the Roberts and Toms map of 1739).
3. 1760-1796, the period of use for the second market structure, and the new designation as the “Beef Market”, prior to destruction by fire (as depicted on the 1788 Petrie map).

Interior Excavations

Cartographic research prior to fieldwork suggests the City Hall structure straddles the location of both the 1739 market building and the 1760s market structure. The only cartographic sources for the two buildings are the 1739 Roberts and Toms map (which depicts the 1739 market) and the Petrie map of 1788 (which depicts the 1760 market). The accuracy of each map is unknown. The city maps suggest the 1739 building fronted directly on Broad Street, adjacent to the intersection with Meeting. The 1760 building was built directly behind the first, and was nearly twice as long. It is not clear whether the building footprints overlapped or were adjacent to each other. Therefore, excavation units throughout the building

might encounter the interior of both structures, as well as the lands just outside the structures. For this reason, unit location was random, but dispersed throughout the building.

Excavations began in the interior rooms; opposing locations were chosen. Test Unit 2 was located in the southeastern room, and placed to intersect a test pit excavated by the architects in the northwest corner. This hole had encountered a brick foundation that did not appear to fit the foundation for City Hall, and it remained exposed in the rough excavation. Test Unit 2 was a 5' by 5' unit, and the northwest corner was located 2.0' south of the north wall and 3.0' east of the west wall. The exposed foundation suggested that it would continue into the northern portion of the unit.

Excavation of zone A revealed the brick foundation running east/west through the unit, and a series of soil deposits. The brick foundation was designated **feature 10**. The rest of the unit was marked by a series of ash and refuse deposits, many of which received feature designations. A small, shallow deposit of rusty-colored sandy soil, full of artifacts, was located adjacent to feature 10 and appeared to be the latest deposit. Excavated as **Feature 11**, it contained quantities of refined earthenwares, particularly creamware. The southern portion of the unit was marked by a highly mottled, fine grey soil (2.5yr3/2). This deposit appeared to be mostly ash. This was designated **feature 12**. As there was no clear edge to this amorphous deposit, it was first excavated as successive levels of Zone A. This revealed a single square foot in the southeastern corner of the unit that contained the intact zone sequence noted across the site; the remainder of the unit contained several features.



The ash material designated **Feature 12** and, later, **Feature 15**, when first defined, was 2.5' wide. This was excavated separately, and revealed the domed top to a brick drain, designated **feature 19**. The mottled grey and black soils beside and beneath feature 12 were variously designated **feature 13** and **feature 16**, and eventually proved to be a construction trench for the drain. Feature 19 measured 2.0' wide, with straight sides and a rounded top. Excavation of features 13 and 16 revealed the exterior of the brick sides, 2.2' from top to

base. Complete excavation of features 12, 13, and 16 eventually revealed that feature 19 continued beneath the wall, feature 10. Further, feature 10 was carefully constructed to arch over the drain. In most places, feature 10 was a solid foundation 1.8' wide and four courses deep. In the vicinity of the arch, however, an extra pier continued an additional 6 courses. Features 13 and 16 exhibited very similar fill, but were clearly separate deposits, marked by clear lines. It is possible that feature 16 reflects a repair event; it certainly postdates feature 13. As contained in Unit 2, feature 13 was 1.4' wide and exposed the eastern side of feature 19. It continued to the top of a brick footer at the base of the drain and was 2.5' deep.

A third complex of archaeological features was also first noted in Test Unit 2. Adjacent to feature 10 was a linear area of light grey, highly mottled soil that revealed a brick feature, designated **Feature 14**. Feature 14, parallel to feature 10, consisted of a single course of stretcher bricks, a single brick deep, secured with heavy mortar. Like feature 10, feature 14 was truncated by the brick



drain and overlying feature 12 ash in unit 2. A perplexing series of features (features 17 and 18) surrounded feature 14, and were variously interpreted as builder's trenches for feature 14 and feature 10. It eventually appeared that a U-shaped builders trench surrounded feature 14, suggesting a shallow trench was excavated to construct the brick feature; this was designated **feature 18** in subsequent excavation units.

The southeastern quadrant of the unit contained intact zone deposits as described above. Small sections of zones 6 through 11 were defined and excavated. The zone 7 deposits in this unit consisted of orange-yellow sandy clay. The zone 10 deposits in this unit exhibited the gummy, cloying characteristics noted in the central portion of the site.

Test Unit 3 was excavated simultaneously with Unit 2, and was as straightforward as Unit 2 was complex. Unit 3 was located in roughly the center of the northwestern interior room, 3.5' south of the north wall and 3.0' west of the east wall. This unit revealed the defining set of zones described above. No intrusive features were encountered in the unit. In unit 3, zone A was a powdery dry gray-brown mottled soil, .2' deep. Zone 5 was present as a shallow deposit of yellow-red clay mixed with brown sand (10yr5/8, 10yr5/3). Zone 6 was distinct in visibility and in content as a water-deposited silty sand (10yr5/2, 10yr8/1), full of chopped or hacked fragments of bone and highly fragmented artifacts. Zone 7 was clearly visible as a solid floor or prepared surface of yellow/red sandy clay (10yr5/8, 10yr4/6, 10yr7/3), containing small artifacts and brick fragments. Zone 7 ranged in depth



from .25 to .3'. A thin lens of silty sand adhered to the base of the clay. Zone 8 consisted of very mottled gray-brown and yellow sands (10yr4/1), with some clay inclusions, particularly in the northern portion of the unit. As defined here, zone 8 was .35' deep. Zone 9 was highly mottled gray-brown sand with dark soil inclusions, likely from zones 10 and 11 below (10yr3/1, 10yr5/2, 10yr4/1). Zone 9 was as much as .75'

deep. Zone 10 was again particularly well-defined and intact here. The soil was very cloying and sticky, and contained a sparse amount of larger artifacts. The very dark brown soil (10yr3/1) averaged .25' in thickness, but continued into an amorphous feature in the southeast corner of the unit. This feature was a loosely filled void with poorly defined edges, and contained a large paving stone. It was only minimally explored. Zone 11 was a dark brown to black homogenous sand with very few artifacts (10yr2/1). Excavation of zone 11 continued for .7', and the dark soils continued to an unknown depth beneath this level. All of the cultural materials contained in zone 11 were concentrated in the top .1' of soil.

Test Unit 4 was located in the southwestern interior room. This was a 5' by 5' unit, with the northwest corner 2.0' south of the north wall and 2.0' east of the west wall. Zone 5 was intermittent in this unit, and zone 6 was not recognized or defined. Zone 7 was yellow/orange clay, and was the thickest encountered, between .4' and .5' thick. Some pockets of red clay were present here, as well. Zones 8 and 9 were consistent across the site, and exhibited no distinguishing characteristics in unit 4. Zone 10 was somewhat shallower in this unit, .2', and was characterized here by ribbons of granular white sand churned through the mucky deposits. Both bone and artifact content was relatively dense in zone 10 here. Only the top .2' of zone 11 was excavated.

Several features were present in Unit 4, and all initiated at the top of zone 7. **Features 23, 25, and 26** were all post features, .8' deep from the defined top at the base of zone 5. They ranged in diameter from 1.2' to 2.0'. A distinct post mold and posthole was visible in feature 25. All were characterized by mottled yellow sand/clay and brown-grey sand fill, reflecting a mixing of zones 7 through 9 in the fill.



Feature 14, the single-brick feature, was also present in unit 4, and was continuous east/west through the unit. This feature again was a single brick wide and a single brick deep. The bricks were uniformly mortared, and well-made. A well-defined builders trench for feature 14 was designated here as **feature 22**, and was present on both sides of the brick. Like the posts, feature 14 intruded into zone 7. Stratigraphic superimposition of features 14 and 25, however, indicate that the brick is later than the posts. Missing from this unit, though, was feature 10, the market wall. Based on cartographic data, feature 10 should continue west to Meeting Street, within the limits of unit 4, but there was no sign of it in this unit.

Test Unit 5 was also complicated, with numerous intrusive features. The unit was located in the northeast interior room, and was placed to intersect feature 19, the brick drain. The southwest corner of

the 5'x5' unit was flush with the south wall, and 4' east of the west wall. The dry powdery brown-gray soils of Zone A were .2' deep. At this point, the ash deposit of feature 15 was visible in the western half of the unit. The feature seemed to contain multiple, discrete deposits of ash-filled soil, all sloping south toward the south profile. These were excavated separately as Feature 15a, 15b, and 15c. When completed, the domed top of feature 19 was exposed. Feature 13, the construction trench for the drain, was also well-defined in this unit. It initiated at the top of the unit and was excavated to a depth of 2.8' below surface. Feature 13 was again characterized by a gray-brown soil (10yr3/2) mottled with the dark soils of zones 10 and 11. As in Unit 2, the ash deposits of feature 15 were characterized by a concentration of refined earthenwares, and animal bone from a variety of species.



There were several interesting aspects to feature 19, as revealed in Unit 5. The drain had been truncated by construction of City Hall, and it appeared that a section had been ‘chopped’ out to allow construction of the Bank, but the space between the building foundation and the open edge of the drain was very narrow (only a few inches). Further, there was clearly a repair to the top of the drain, adjacent to City Hall. The various layers of fill of feature 15 all sloped toward the foundation wall. This no doubt reflects exposure of the drain in the vicinity of the wall, and then backfilling after construction was complete. There was some archaeological, and documentary, evidence that this exposure and repair to the drain occurred after construction of City Hall. This will be explored in a later section.

Feature 19 was breached later in the project with removal of two bricks. This opening revealed that silt inside the drain is nearly a foot thick, and an exploratory excavation suggests that soils accumulated in four zones. The top layer was similar to feature 15, characterized by fine powdery ash and quantities of refined earthenware. Visual inspection, via digital camera, indicates that these soils are mounded near the intersection of the drain and the City Hall wall, as feature 15 sifted into the opening. The second zone was a gray silty layer. This was followed by whitish water-washed sand, and finally banded light and dark water-washed sands. A 1' square sample was excavated by zones, and soil samples were retained.

The eastern half the unit was equally challenging. Beneath Zone A was a layer of loose white-to light gray sand, suggesting a construction surface. This was not encountered elsewhere in the site, and was excavated as Zone B. Beneath this was a zone of hard-packed brown-gray sand. This was initially excavated as Zone C, but proved to be the first encountered sample of Zone 7 that was brown sand instead of the orange clay. As discussed above, the principal characteristic of the soil was that it was extremely hard-packed. The “zone C” designation was then dropped. Zones 8, 9, 10, and 11 were similar to those

encountered elsewhere, and excavation of these continued.

The northeast corner of the unit was again different, and was, at the base of Zone A, characterized by an L-shaped area of brown soil. This initiated at the base of Zone A, and intruded into Zone B. The interior of this L-shaped feature appeared to contain the light sand of Zone B. Deliberate excavation of both deposits revealed two features. The northernmost one, **Feature 21**, was .8' deep and remained amorphous in definition. The southernmost was re-designated **Feature 24**, and proved to be a well-defined post hole and mold. The feature continued into Zone 11. The mold was filled with gray mottled soil similar to zone 9 (or a mixing of all of the soils on site), while the post-hole was mostly gray-brown highly mottled soil. The postmold was marked by three brick fragments.

Test Unit 6 was located on the north side of Test Unit 3. This unit continued to the north wall of room, and measured 5' by 3.7'. Excavation of Unit 3 revealed that the orange clay/sand layer designated zone 7 was thickest in the southern portion of the unit and narrowed to a trace along the north wall. The location of Unit 6 was based on the supposition that this narrowing might indicate the location of a wall or other boundary. Excavation of a relatively deep Zone A, particularly along the wall, revealed that this deposit reflects building activity for City Hall. A thin lens of whitish sand was present beneath this, and was similar to the Zone B soils encountered in Unit 5. Zone 6 was present beneath this, and the two soils were difficult to separate; the soil was excavated here as zone b/zone 6 together. (Zone 5 was not present in this unit.) Removal of zone 6 revealed the hard-packed soil characteristic of zone 7, but again medium gray-brown sand rather than the orange clay. The orange clay layer noted to the south in unit 3 seems to end rather abruptly, conveniently along the interface of Unit 3 and Unit 6, and the brown-gray zone 7 soil sloped upward towards the north.

The underlying zone 8 soils were present beneath zone 7, and were more compacted in this unit than noted previously. Zone 8 was excavated in two levels. Zone 9 beneath contained relatively large amounts of bone and cultural materials. A concentration of clay inclusions was noted in the northern portion of the unit, and was designated zone 9a. A thin lens of oxidation, or rust, was present at the interface of zones 9 and 10. Zone 10 in this unit was highly organic and sticky, but artifacts and bone were sparse. Zone 10 was also relatively deep at .5' and was excavated in two levels. The lower level of zone 10, and the excavated portions of zone 11, contained virtually no cultural materials. When excavated completely, units 3 and 6 presented an uninterrupted 9' of soil profile for analysis.

Test Unit 7 was the first excavated in the outer halls surrounding the four central rooms. Unit 7 was located in the northern section of the northwest hall. The unit measured 5' by 4.3', and a long axis was flush with the south wall of the room. The southwest corner of the unit abutted the eastern edge of the corner column. It was suggested by a mound of rubble running down the center of this hall that a pipe was likely located in the northern profile of the unit. After excavation of zone A to .2' below surface, this pipe was clearly defined by a concentration of concrete rubble and brown bottle glass. To avoid this intrusion, the unit was truncated to 3.5' in width, avoiding the pipe area. This unit contained more intrusive features

than previously excavated squares, and the various deposits were difficult to define throughout the excavation.

Zone A in this unit was deep and dusty, and contained relatively large quantities of artifacts. A hard-packed, highly mottled soil was present along the south profile (a lens of similar soil was noted in Unit 6, along the wall). This linear area proved to be a builder's trench for the City Hall wall, designated **feature 27** throughout the building. The east and west portions of the unit had different appearances at this point. The eastern side exhibited a concentration of crushed red brick, while the western half contained homogenous brown-gray sand. The eastern portion eventually became a posthole, eventually designated **feature 40** (during excavation of unit 14). The homogenous-appearing soils in the western portion were difficult to interpret throughout excavation, but were eventually interpreted as a large square posthole with rounded edges. This was not evident until the top of zone 10, where the gray-brown mottled fill clearly intruded into the dark soil. Moreover, the feature was not contained in either profile, so that there was no vertical record of the deposit. It was eventually designated and excavated as **feature 28**. Feature 28 continued into zones 10 and 11, and a distinct post mold was defined at the zone 10 level.

The remainder of the unit contained the typical range of zone deposits, albeit in fragmented condition. Zone 6 was relatively thin. Zone 7 was dark gray-brown sandy soil, highly compacted. It contained large quantities of small, embedded artifacts. There were small pottery sherds, red brick fragments, and bits of shell. Zone 8 was present beneath, and was marked by numerous inclusions of orange clay. A similar concentration was noted in the northern portion of Unit 6, located directly to the south. These soils were excavated as zone 8 level 2, but were eventually designated zone 9a, as in Unit 6. The bone and artifacts in zone 10 were relatively sparse, but appeared in clusters. A concentration of bone and Spanish olive jar was photographed *in situ*. Zone 11 was not excavated in this unit.

Test Unit 8 was located in the southern section of the southeastern hall; this was the unit closest to Broad Street. The 5' by 5' unit was flush with the south wall of the room, and flush with the west wall column and the door to the central hallway. (This partition represents a 20th century change to the building and will likely be demolished). The ground surface in this portion of the site appeared somewhat redder than in other areas, seemingly the result of heavier brick rubble content. Excavation of zone A immediately revealed the builders trench for City Hall (feature 27). The builder's trench for City Hall was wider in this unit (1.7'), the first against an exterior wall. This area also included an abandoned iron pipe. Because of the different location and dimensions, the builder's trench was designated **feature 30**.



Beneath zone A were a somewhat confusing series of clay and sand deposits. An initial lens of mottled orange clay/sand was designated zone 5. This was followed by zone 6, here .2' deep and consisting of loose silty gray sand (10yr5/3). Beneath this were multiple

layers of hard-packed soil, all designated zone 7, and excavated as separate layers. First was a lens of reddish sandy clay. This was followed by a hard-packed layer of the brown-gray soil. Both layers are distinct in profile, and match the soils found in other units throughout the site. They were more hard-packed in this unit than elsewhere across the site. Zones 8 and 9 were present beneath this, and again zone 8 was distinguished by an overall darker appearance, and a more compacted feel. The zone 9 soils were, in contrast, looser and more powdery. An interface between the two deposits was easy to distinguish. Zone 8 was fairly deep, with an undulating bottom, and deeper in the southern portion of the unit. Zone 8 had a particularly high density of cultural materials, as well. Zone 10 was somewhat shallower in this unit, but it was particularly cloying and loamy. Mollusks, including clam and whelk, were also concentrated in zone 10. Crushed shell was concentrated in the western half of the unit. These were photographed *in situ*. Zone 10 separated relatively easily from the underlying zone 11 because of an intermittent band of granular water-washed sand. This appears to be the same sand that was mixed into zone 10 in Unit 4. A narrow (.15') section of zone 11 was excavated, as well. No additional features were noted in this unit.

Test Unit 9 was located in the northern section of the northeastern outer room. This hall had been artificially narrowed in the 20th century by construction of an electrical room in the northern half. The unit measured 5' by 4', and covered the width of the hall. The southeast corner was flush with the south wall, and the western edge of the corner column. (The partition wall housing the electrical unit was removed during renovation). Excavations began with zone A, which was deeper in this unit (nearly .3' feet). The soils of zone A were darker, and marked by an increased inclusion of brick and charcoal. Feature 27, builders trench for City Hall, was present along the south wall of the unit. Zone 6 was not well defined in this unit, and could not be isolated in profile. Zone 7 consisted of dark gray-brown soil, again characterized by compaction. Zone 7 was relatively deep here, nearly .4'. Zones 8 and 9, in contrast, were comparatively shallow. Zone 8 was again more hard-packed than zone 9, but far less so than zone 7.



Test Unit 9 was the first location where the zone 10 deposits were sandy, rather than loamy and cloying. Zone 10 was only .2' thick, and contained relatively few cultural materials. A .2' level of zone 11 was also excavated.

Unit 9 contained a well-defined posthole feature in the eastern portion of the unit. This was designated **Feature 31**. Feature 31 initiated at the top of zone 7, and was roughly rectangular, 1.5' in diameter. The southern side was truncated by feature 27. A round post mold was visible in the center of the feature, at the base of zone 8. These were excavated separately.

Test Unit 11 and **Test Unit 15** were located in the eastern portion of the southeastern outer room, and were positioned to trace the brick features encountered in Test Unit 2, feature 10 and feature 14. **Test Unit 11** measured 5' by 3', with the long axis flush with the western wall of the hall. The northwestern corner was flush with the western wall of the hall and the southern side of the column. Zone A was characterized by a high proportion of dark soil in the fill and a slightly compacted texture. This separated easily from the layer below, and revealed feature 27, the builder's trench, against the western wall.

There was, again, no evidence of the water-washed zone 6. Zone 7 was the dark, compacted soil, and again rather thick at .4'. The single brick structure, known as feature 14, was present within zone 7. The horizontal location of this feature, though, did not seem to align with feature 14 in Unit 3. For this reason, the feature was designated **Feature 34**, to allow for the possibility that it represented a separate, parallel feature. A narrow builder's trench was visible on both sides of the brick, and was designated **feature 36**. Zone 8 below was relatively thick, and somewhat compact. It was excavated in two levels. A series of post features were visible at the base of zone 8 level 1. These small intrusions were designated **Features 37, 38, and 39**. Feature 37 was well defined and 1.0' deep. Features 38 and 39 were somewhat less substantial, and .5' deep. Zone 9 was quite shallow in this unit, with a maximum depth of .2'.

Zone 10 exhibited some distinct characteristics in this unit. The dark soils were marked by a heavy concentration of charcoal, as well as significant amounts of crushed brick and crushed oyster shell. After removal of .2' of zone 10, these concentrations took some shape, and so were designated **Feature 42**. A center portion, designated feature 42a, was lighter soil. This area was excavated, revealing a concentration of charcoal, designated feature 42b. There were no clear edges to this deposit but the soil was texturally different, and relatively loose and friable compared to the loamy zone 10. Due to the restricted size of the excavation unit, it was impossible to determine if this area was a discrete deposit, and so the soil was excavated with the surrounding zone 10. The shell and charcoal concentrations were later visible in profile as lenses, rather than pit-like intrusions. A .2' level of zone 11 was then excavated. The brick foundation, feature 34, was left intact.

Unit 15 was then excavated adjacent to Unit 11, to expose more area of the zone 10 deposit, and to determine any relation of feature 34 to feature 10. A 3' by 3' unit was located along the northern baulk of Unit 11. This area was initially avoided because it was located in the area used as a restroom until recently. Disturbances to the soil were expected. Excavation was, in fact, hampered by a series of hanging pipes and wires that remained from the restroom. The soils, however, were relatively undisturbed.

Excavation of zone A immediately revealed the top of zone 7 and several features. Feature 10, the brick building foundation was present in the northern portion of the unit. Immediately adjacent to it was feature 14, the original single brick feature, and feature 18, the builder's trench for feature 14. These were cleaned and mapped, and no further excavation of Unit 15 was conducted. Excavation of Units 11 and 15 together confirmed that feature 14 and feature 34 are separate lines of brick, running parallel, with 4'

between them.

Unit 10 and Unit 13 were located adjacent to Unit 3, again to expose feature 10 and search for additional architectural features. These units were located on the north side of Unit 3, abutting the north wall of the interior southeastern room. Each unit measured 2' by 5', with the long axis oriented with the north wall of the room. Each unit intersected the north edge of feature 10, and was designed to expose a builder's trench for that foundation. Unit 10, located north and east of Unit 3, was excavated first. The northeast corner is 8' east of the west wall of the room.

Zone A was excavated as elsewhere in the site. The soils beneath zone A were unlike others encountered elsewhere in the site, and were not interpreted correctly until excavation to the top of zone 10. The soil beneath zone A were a mottled light gray and dark gray sand, which appeared to be a mixture of the zone 8 and zone 9 soils. An ephemeral line of dark soil was present 1.2' north of feature 10, and was initially interpreted as the edge of a builder's trench. The area within the line, filled with swirled gray sands, was designated **feature 35**. Because the feature was difficult to define, it was excavated in levels. At the base of level 1, it became apparent that the thin dark line did segregate intact stratigraphy, particularly zones 8 and 9, from mixed soils of feature 35. Continued excavation, though revealed that feature 35 did not abut feature 10, but was instead a U-shaped ditch or trench parallel to it. A southern edge was visible in the top of zone 10, approximately .4' from feature 10. The base of feature 35 contained a yellow fibrous material



that appeared to be part of a mortar bed. Based on stratigraphic and horizontal position, feature 35 may be associated with feature 10, but its definition as a construction trench for feature 10 remains unclear.

Based on this discovery, Unit 13 was located north of Unit 3 and west of Unit 10, providing a 10' view of the architectural complex. Unit 13 contained the northern edge of feature 10, and the complex associated with feature 19 (features 11, 12, 13, 16, 19), as well as feature 35. Features 11, 12, and 15 were excavated from the top of the drain (feature 19). Excavation revealed that feature 13, the builder's trench for the drain, clearly cut through feature 35, post-dating it. Exposure of the drain revealed that, as in Test Unit 5, the drain abutted the City Hall wall, and may have been repaired to form a close fit.

After excavation to the top of zone 10, followed by careful examination and mapping of the features in Units 10 and 13, a 2.0' section of zone 10 was excavated in the eastern portion of Unit 10. Here, there was a dense concentration of bone, shell, and artifacts in zone 10. These were photographed *in situ* prior to removal. A .2' sample of zone 11 was excavated, as well. Excavation of the three units, plus the remnants of fill between Unit 3 and the architect's test excavation in the northwest corner of the room, provided a 13' long section of feature 10 for visual inspection and mapping, though examination of the north

face was hampered by close proximity to the City Hall wall.

Unit 12 was a 5' by 5' unit located in the western section of the northwestern hall, adjacent to the elevator machinery room. The southwest corner was flush with the west wall, and the door to the motor room to the south. The western section of the unit was truncated by a 1.5' wide section of the concrete floor, which remained in place, leaving the eastern 3.5' available for excavation. Excavation of zone A rather quickly revealed an iron pipe running north/south through the center of the unit. The disturbance of the pipe trench covered nearly 90% of the unit, and the soils contained quantities of late 19th century materials. The pipe trench appeared to branch to the east, as well. For these reasons, excavation of Unit 12 was abandoned at the base of zone A.

Unit 14 was located adjacent to Unit 7, and was placed to further delineate a possible line of postholes, as noted in Units 7 and 9. Unit 14 was flush with the eastern baulk of Unit 7, and measured 5' by 3'. The long axis was flush with the south wall of the hall, and the unit was shortened to a 3' width to avoid the iron pipe in the center of the hall, revealed in Unit 7. As in other units with intrusive features, the upper levels of soil were difficult to interpret. After removal of zone A and definition of feature 27 (the



builders trench for City Hall), there were areas of yellow clay, crushed red brick, and a highly mottled gray-brown soil. Careful excavation by levels eventually revealed that the yellow clay matched zone 5, found only in the western areas of the site (Units 3 and 7). Beneath this was zone 6, with its distinctive lensed gray sand and fragmented bone. The western portion of the unit contained a large intrusive feature, designated **feature 40**. This was again a rectangular posthole, though it was somewhat shallower than

those in Units 7 and 9, and there was no clearly defined post mold. Another smaller, square feature, **feature 43**, was noted in the eastern portion of the unit, associated with an area of feature 27 fill. This was designated **feature 41**. Feature 43 was difficult to interpret. It did not appear to be a larger posthole, as the others. The base of the soil stain was somewhat poorly defined, and the feature was not visible until the base of zone 9. Interpretation of feature 43 as a post remains tentative.

Outside of the intrusive features, the basic stratigraphy of Unit 14 was consistent with the rest of the site. Beneath zone A, this unit contained a lens of orange clay that was eventually interpreted as zone 5. This was based on the positive identification of zone 6 beneath. Zone 6 was relatively thick, and the second level in particular contained large quantities of materials. Zone 7 in this unit was again the dark gray-brown compacted sand (10yr4/1). It was relatively thick, at .3'. Zone 7 here was distinguished by quantities of large oyster shell. Zones 8 and 9 were excavated next, and were relatively shallow here. The base of zone

9 was distinguished by a dark gray-brown soil with large lumps of orange clay and large clumps of charcoal, as well as oyster shell and brick fragments. This deposit was excavated as zone 9a, and the same soil was then recognized in the profile of Unit 6 to the south. Zone 10 ranged from .2' to .3' in depth, and was more sandy and less cloying than in the units to the south. A .2' level of zone 11 was excavated to complete the unit.

Unit 16 was the last excavated on the building interior, and was located in the central hall, between Unit 2 and Unit 4. Unit 16 was positioned to intersect feature 10 and feature 14, considered critical because feature 10 was absent from Unit 4. The unit measured 5' by 3', with the long axis north/south, flush with the western wall of the hall. The northwest corner was flush with the west hall wall and the south side of the pier. The southwest corner intersected the northern edge of the door opening to the southwest room.

Excavation of zone A immediately revealed Feature 10 traversing the unit near the southern side, plus feature 27 along the wall. Completion of zone A revealed that feature 27 was L-shaped, and continued along the northern edge of the unit where a cross-bracing foundation for City Hall was revealed. This was designated **Feature 44**. The brick edging on the south side of feature 10 was irregular, and investigation revealed an iron pipe surrounded by brick rubble. This area was not excavated further. Instead, investigations focused on the narrow area between feature 10 and feature 44.

Yellow-orange clay appeared beneath Zone A, and was interpreted as zone 7. This was not consistent across the unit; instead the zone 7 soils were mottled into gray sand in some areas. Continued excavation revealed a clearly defined construction trench for feature 44, designated **Feature 45**. Feature 45 intruded into zone 7, thus accounting for the clay mottling. South of feature 45, feature 35 was present beneath zone 7. This was a continuation of **Feature 35**, the trench noted in Units 10 and 13. Feature 35 terminated in zone 9, as did the base of feature 10. Zones 9 and 10 were consistent beneath features 35 and 10. Features 44 and 45 continued into zones 9, 10, and 11. Excavations were halted at the base of zone 10. The stratigraphy revealed in Unit 16 demonstrates that feature 35 predates the yellow clay surface of zone 7.

Based on the discovery of Feature 10 in Unit 16, and its absence in Unit 4, a small shovel test unit was excavated along the east side of the southwest room. This was designated **Test Unit 17**, and measured 1.5' by 1.5'. The northeast corner of the unit was 1.0' west of the eastern wall of the unit and 1.5' north of the northern edge of the door. Excavation revealed zone A, a thick layer of yellow/orange clay zone 7, plus feature 27. Feature 10 was not present in this unit.

Exterior Excavations

Test Unit 18 was excavated a year after completion of the interior work, and was the only

controlled excavation on the building interior during this project. The unit was excavated to provide access to the soils and stratigraphy for soil morphological analysis by Dr. John Fosse. The unit location was chosen to avoid known 19th and 20th century features including tree roots, to avoid ongoing construction, and to expose an additional portion of the architectural features of the 1760s market. The unit measured 4' by 3', with the long axis north/south. The northeast corner of the unit was 28.0' north of the southeast corner of City Hall and 15' east of the building wall. This represented the first new opportunity to record the stratigraphy beginning at zone 1 (The stratigraphic profile of the 1984 unit is revisited in detail and compared to the present project in the section below). It was necessary to excavate the unit quickly, and only select deposits were screened. Others were partially screened, while still others were hand-collected. The unit was excavated in a single day by Zierden and Anthony, and the soil analysis was conducted the following morning. The unit was then filled quickly in advance of torrential rain.

As defined in 1984, zone 1 was a dark brown loamy sand topsoil (10yr2/1), evidently imported in the 20th century during renovation of the park and planting of the oak trees, followed by natural humic accumulation. These soils were .8' thick. An area of disturbed soil was noted in the northern foot of the unit, and at a depth of .4'. Excavation of this revealed a new pipe of white pvc. (At this point, the original unit, measuring 3' by 3', was expanded one foot to the south, creating a 4' by 3' unit, and abandoning the disturbed area in the north. Dr. Fosse's research required at 2 to 3 foot wide profile.) Zone 1 was virtually sterile; a 1941 dime was recovered from the base of the zone deposit. Zone 2 was marked by an increased presence of coal, shell, brick rubble, and artifacts, and contained materials from the mid-19th century. Zone 2 was .3' thick. Zone 3 was somewhat lighter (10yr3/2-3/3) and was .2' thick. This overlay a lens of crushed brick and mortar, designated feature 54. This was not isolated during excavation, but observed in the profile. It may be associated with the 1882 renovation of City Hall. Zone 4 below was a lighter brown sand (10yr5/3-3/2) and contained materials from the early 19th century. The color and texture of zone 4 is typical for late 18th/early 19th century domestic deposits throughout Charleston. Zone 5, the intermittent layer of clay, was not observed in this unit.



Deposits associated with the market era began with zone 6, clearly identifiable in this unit. Zone 6 was again characterized by granular water-washed sand (10yr5/2-3/3). This particularly deposit contained an extremely dense deposit of chopped bone. For this reason, all of the provenience was screened and all of the materials in the screen were returned to the lab. Figure ___ shows the materials retrieved from this zone, and the relative proportion of bone to other cultural materials. Zone 6 again peeled readily from the underlying zone 7, here again a very hard-packed brown sand. The soils were the same texture as above,

just more compacted and slightly redder (7.5yr^{3/2-3/3}). Zone 7 was relatively shallow at .1- .2' in thickness. Zones 8 and 9 were excavated and screened as a single unit, as interior excavations had suggested that the two are part of the same event. The two levels together were .65' thick.

Zone 10 was relatively thick, .35', but here was quite sandy and exhibited little of the loamy, cloying characteristics found further west, in units 3 and 8, for example. Zone 10 did feature ribbons and lenses of granular white sand, as observed in unit 4. It appeared somewhat lighter and browner in the natural light (10yr 3/1-42), though this could be a product of the textural (and thus content) differences. It was clearly distinguishable from zone 11 beneath, which remained quite sandy and dark (10yr 2/1).

Excavation of Unit 18 provided an opportunity for Dr. Fosse to assess the unusual color characteristics of zone 11, through deep augering. The hand coring continued from the base of excavation (3.5' below ground surface) to an additional depth of 47". Zone 11 as defined by black sands continued for a depth of 13". Soils were slightly lighter and browner for an additional foot (to 23"), followed by light gray-brown sand. Orange to brown ribboning was encountered at 46", indicating fluctuations in the water table. Standing water was encountered at 48". Samples of each soil type were retained for analysis and final curation.

An additional feature was encountered at the top of zone 7. This was a square posthole in the south profile, measuring .65' in diameter. The post initiated at the top of zone 7, and was filled with a mixture of soils from zones 7-10. The feature was mapped at the top of zone 10, and excavated to a depth of 3.7' below surface.

Excavation of the disturbed soils around the pvc pipe in the northern portion of the unit exposed feature 10 at 2.0' below surface. This feature was present in the northern foot of the unit, in precisely the location noted along the east wall of City Hall during monitoring.

Re-analysis of Test Pit 1: Field records for the 1984 project guided the excavation and soil designations for the 2004 project. The present project, however, was much more detailed and provided a much greater opportunity to carefully examine and record the soil layers on site. Likewise, twenty years of additional experience in urban archaeology provided a firmer footing to analyze the site formation processes. Field records from 1984, including notes, soil descriptions, elevations, profile maps, and profile photographs, were used to begin designation of the inside deposits with zone 5. As excavation of the first units continued, however, subtle variation in the stratigraphy necessitated re-designation of some of the deeper deposits. The one-week excavation in 1984 clearly did not allow for long-term consideration of the profiles. Further, the upper zones of that unit contained a number of features and disturbances that compromised the overall clarity of the profile.

It was soon clear that zone 10 as defined in 1984 was now zone 11 in 2004. For this reason, the soil profiles from 1984 were carefully re-examined upon completion of fieldwork. Those readers using the

1984 report should carefully consider the re-definitions as provided below. The clearest profile from the 1984 excavations was the south wall. This was a 10' section, with few intrusive features.



Zone 1 was, as noted in Unit 18, a deep layer of sterile topsoil, associated with 20th century renovations to Washington Square Park. Zone 2 was a dark midden deposit heavily flecked with crushed shell, brick, and coal. The base of zone 2 was marked by a slightly denser lens of crushed shell. Zone 2 contained artifacts from the second quarter of the 19th century. Zone 3 was lighter and browner, and contained a heavier concentration of brick rubble. Feature 3 was described as a concentration of brick and mortar, covering most of the unit and present in the south profile. Feature 3 was interpreted as rubble from construction of City Hall, and may be associated with feature 54, as defined in Unit 18. Zone 4 was also brown loamy sand with quantities of cultural material, dating to the first quarter of the 19th century. Zones 1 through 4 were not present on the interior of City Hall.

Soil deposits also present inside the building begin with a layer designated feature 5. Feature 5 was a hard-packed surface full of ash and charcoal. It was quite vivid in color in both planview and profile

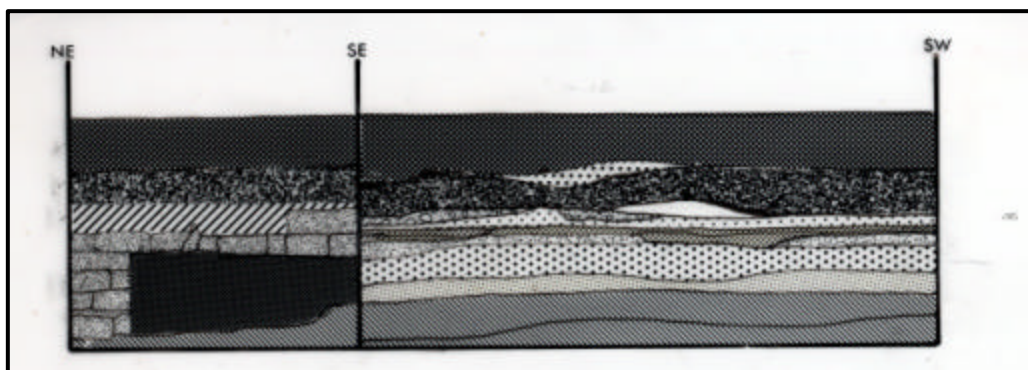


photographs, and corresponds in appearance and date to **Feature 15**. During the 1984 project, there was consideration that feature 5 might be associated with the 1796 fire, but this was not certain. The recovery of feature 15 confirms that both are part of the 1796 fire. On the building exterior, feature 5 was a relatively thin lens that peeled away from the zones above

and below. It was .25' thick, and contained pearlwares similar to those in feature 15. The zone mapped as .25' in thickness evidently included the gray soils defined in 2004 as **zone 6**. Though not identified as such in the profile drawings, zone 6 is visible in the north profile photo as a thin lens.

The soils mapped as **zone 5** in 1984 correspond to **zone 7**. This was described as 'a shallow deposit of yellow sand and highly fragmented bone'. In test pit 1, this zone contained some fragments of pearlware, but these are likely from the large intrusive features that were poorly defined in 1984 (features 4 and 6).

The soils mapped as **zones 6-7** in Test Pit 1 correspond with **zone 8**. What was zone 6 in 1984 was not distinguished, or designated in 2004. The soils excavated as zone 7 clearly match the description and position of zone 8, as medium tan sandy soil. The swirled gray sands defined as **zone 8** clearly correspond with **Zone 9**. In test pit 1, zone 9 contained some lenses of the dark soil, visible in the profile photo.



Soils excavated as **Zone 9 level 1** correspond with the mucky dark soil of **zone 10**. The field notes indicate that quantities of bone and artifacts were recovered from this deposit, but there is no mention of a mucky, loamy texture to the soil. The absence of this quality in Unit 11 and Unit 18 lend credence to the 1984 notes, and indicate that the zone 10 soil loses this characteristic on the east side of the site.

No distinction was made between Zone 9 level 1 and the underlying zone 9 level 2 in 1984, other than that the density of cultural and faunal materials decreased rapidly. **Zone 9 level 2**, as excavated, corresponds with **zone 11**. Excavations of zone 11 (zone 9 level 2) in 1984 continued for a depth of .4'.

Test Pit 1 was excavated to a depth of 4.0' below surface. Proveniences encountered in the building interior initiated at 2.0' below surface.

Construction and Monitoring: The controlled excavations on the building interior clearly indicated that City Hall rested on a significant archaeological site. Further, construction of City Hall had done little to damage the integrity of the site. While the majority of the restoration project would take place above ground, and on the building interior, certain activities would impact the soils on the building exterior. Two activities, in particular, were likely to reveal and disturb deposits associated with the market - stabilization of

the foundation and installation of service lines, particularly a geothermal heating system. Stabilization of the building required excavation to the base of the foundation, re-pointing of the brick, and installation of a french drain. A trench 5' in width was excavated around the perimeter of the building, to a depth of 5'. Installation of the geothermal system involved installation of a series of pipes and lines throughout Washington Square Park, and excavation of large, shallow pits for well point installation. Both projects were coordinated among the City, NBM Construction, architect Joe Schmidt, and Museum archaeologists.

Museum archaeologists were on-site for the duration of the foundation excavation, from October 21 through November 23, 2004. Several important features were located and recorded during this project. Excavation of the trench was done with a small backhoe and by hand. Archaeologists collected artifacts in key locations, and cleaned and mapped features as encountered. The excavations revealed that 18th century stratigraphy on the building exterior exhibited the same high level of integrity as noted inside. Again, a narrow (.5') builders trench for construction of City Hall was the only soil disturbance associated with building construction.

Three distinct deposits were noted during the backhoe work. These were zone 1, the dark topsoil, a level of grayish sand, most likely zones 8 and 9, and the dark soil of zone 10. Artifacts for each of these general layers were isolated and collected. Artifact density increased near the northeastern corner of the building.



Excavations began on the eastern side of the building. These excavations revealed intact stratigraphy and several significant features. Some of these were associated with the 18th century market, while others were associated with City Hall. Feature 10 was discovered 27' north of the southeast corner of the building, truncated by feature 27, the builder's trench for City Hall. Excavation of the trench exposed a 4' section of the foundation. This measured 1.7' across. A two-foot wide section was removed for building construction, and the remainder was left intact. Also exposed in the profile of the construction trench was one of the single-brick features. This was 4.5' south of feature 10, and so most likely is a portion of feature 34 (as exposed in Unit 11) rather than feature 14. Feature 34 was 1.9' below ground surface.

Excavation of this trench also revealed that the foundation of City Hall continues to the water table. The trench revealed a number of bricks laid in running bond, as well as wooden planks at this level (5' below ground surface). These were designated **feature 49**. These have been interpreted as working

platforms laid during construction and never removed. Intact portions of feature 49 were noted in two locations in the eastern trench.

The east trench also contained two significant features associated with City Hall. First was a brick catchments basin, fitted with stone slab covering and a lead pipe. The brick basin was 4 to 5 feet deep. This was designated **feature 48**. Photographic and architectural evidence suggests this was associated with second-floor latrines. The brick sides were unstable and so the feature was demolished after photography.

A final feature noted along the northeast corner of City Hall was a section of brick walkway, laid in running bond, parallel with the north wall of City hall. This brick was 1.3' below current ground surface. An 8' long section was revealed; the brick initiated .6' from the building wall, and covered the 5' exposure of the trench. This was mapped and removed, and designated **Feature 50**.

The trench along the west side of City Hall, fronting Meeting Street, was particularly revealing. Removal of the concrete sidewalk was necessary to excavate this trench; this provided a wider area of visibility than on the eastern side. The first feature encountered was a large section of brick sidewalk, laid in running bond similar to feature 50. This was designated **feature 51**. The walkway initiated 3' north of the southwest corner of City Hall and continued to 14.6' north. The exposed section was irregular in configuration, with a maximum width of 5'. The brick was flush with City hall wall. The feature was encountered .5' below current sidewalk grade. Architect Schmidt suggested that such a feature could be visible in mid-19th century photographs.

Excavation of a larger area for installation of a drainage pipe at the southwestern corner of City Hall revealed an intact section of brick wall. This was designated **feature 52**. The exposed section was approximately 5' long and measured 1.55' in width. The east side of this wall was 8.4' west of City Hall. The top of the feature was encountered approximately 1.0' below surface. Based on its location, it is possible that feature 52 is a portion of the first (1739) market.



Like the east side, wooden planks were present beside the foundation, near the base of the brick. These were between 50' and 58' from the southwest corner. The wood was approximately 3 brick courses from the true base of the foundation.



Excavations further north revealed a large portion of **feature 10**, the foundation for the 1760 market building. A portion of an east/west wall was encountered 29' north of the southwest corner of City Hall. Continued excavation revealed that this was the location of the southwest corner of the structure,

and that a 30' section of the western wall was present in the construction trench. The east side of this western (or north/south) wall was 5.0' from City Hall; thus it is not aligned with feature 52. Feature 10 was 1.9' wide, one brick course wider than feature 52. It initiated .85' below the sidewalk grade. The foundation was 1,6' deep, and set on top of a basal section of zone 9 and zone 10.

The 30' section of feature was truncated on the north by a large rectangular brick cistern located on the northern side of City Hall, at the northwestern corner.



This was



designated **feature 47**. This feature measured 10' north/south and 18.6' east/west; the western wall was beneath the sidewalk, and so the final length is unknown. The north and south walls were 1.6' thick, while the east wall was twice that. The cistern featured straight sides and domed top, and was 5.75' deep. When breached by the backhoe, the cistern was filled halfway with soil and brick rubble. This feature was mapped in planview and profile, but no excavation was conducted.

The trench along the northern face of City Hall revealed soils that were more disturbed, and difficult to interpret. The eastern third of this space contained feature 47. The western third contained a large

electrical transformer and associated pipes and wires. These had disturbed the soil prior to excavation, and stabilization and removal of the transformer proved to be a serious logistical issue for the contractors. The single feature of interest was a section of brick foundation, located north of the nave at the center of the building. This was 1.6' north of the northernmost point of City Hall, and appears to align with the northern edge of feature 47. The general configuration of the wall is similar to feature 10, in that it features four courses of brick. There was some speculation initially that this could represent the northern wall of the 1760 market. But cartographic data suggests the wall should be farther to the north, and this wall appears to have some more recent mortar in certain sections. It was subsequently interpreted as a section of the small electrical room added to City Hall in the 20th century. For this reason, no feature number was assigned.

Cleaning and careful examination of the profile beneath the wall provided one more bit of information; it appears that zone 11 is not present in this portion of the site. A narrow band of zone 9 is visible beneath the brick, followed by a darker gray sand. Beneath this is the tan to gold sand normally recorded as sterile subsoil. It appears that zones 10 and 11 may have horizontal boundaries within the market square.

Monitoring of Interior Excavations: Installation of service lines for City Hall required extensive trenching in the basement. The work crew were careful to collect materials encountered during these excavations, and to notify the archaeological crew when features were encountered. Most of the features encountered were those already noted during the controlled excavations. These included the market wall, feature 10, and the brick drain, feature 19. One additional feature of significance was recorded during the project. Demolition of 20th century features and reinforcement of structural elements in the basement resulted in the discovery of a significant feature in December 2004. Removal of the internal wall for the electrical room in the northeast hallway plus preparation for a concrete floor in the space exposed a brick

feature. This was designated **Feature 53**. The feature was brick in a curvilinear shape, representing the northeastern quadrant of a circular feature. The feature was located approximately 4.5' west of the western edge of unit 9. The remaining portions suggest this was a large well (interior diameter approximately 6'; exterior diameter approximately 8'). The feature was badly compromised by construction of City Hall in 1800, as the south wall of the northeast hall would have bisected the feature. It was further compromised by construction of the temporary



wall. When viewed by Museum archaeologists, the remnant was pedestaled, and soils along the two walls excavated and fitted with rebar for concrete. Therefore, it was only possible to clean profiles and take digital photographs in the space allowed. A narrow builders trench for feature 53 was visible, and the fill seemed to encompass the zones 7, 8, and 9 soils seen in other features associated with the 1760 market. No artifacts or soil could be retrieved from the builder's trench. The interior appeared to have been filled with brick rubble and brown sand. Based on location and configuration, feature 53 appears to be a large well or cistern, located in the center of the 1760 market structure.



Trenches in the eastern hall, adjacent to units 11 and 15, revealed additional details of the 1760 market. During the interval between completion of the interior fieldwork and excavation of the interior service trenches, mapping of the features encountered inside and outside City Hall revealed that the sections of feature 10 encountered in the interior units and the sections encountered in the exterior trenches were parallel, but not aligned. The interior section was 4' south of the exterior walls. Speculation that this could represent a central projection was confirmed with the discovery of two corners, plus a 4' long section of wall running north/south. These features were cleaned, mapped, and recorded. The exposed section confirms the existence of a central portico, and explains the absence of feature 10 in Unit 4. This will be explored in greater detail in Chapter VII.

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. Soil samples were separated and inventoried. These ranged in size from one quart to three gallons. All diagnostic soil samples were stored in double plastic bags for permanent curation. Portions of selected were dried and re-bagged for special analyses. Those larger samples (multiple gallon bags) were selected for flotation. A single gallon was retained for permanent curation and the remainder was floated. The soil samples will be retained as part of the permanent collection.

Faunal materials were washed, separated from other materials, and weighed by provenience. They were then shipped to the Zooarchaeology Laboratory, University of Georgia for analysis. Funds were sufficient to analyze the entire faunal assemblage. The report by Dr. Elizabeth Reitz appears in this volume. Upon completion of the zooarchaeological study, the faunal samples were returned to The Charleston Museum for permanent curation.

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. Analysis by provenience included identification and counting of each artifact by type. Washing and sorting commenced immediately after each field project, and was conducted by trained laboratory technicians, students from the College of Charleston, and experienced volunteers.

Conservation procedures included reconstruction of ceramic and glass vessels, where possible, and stabilization of metal artifacts. Ceramic and glass vessels were restored with conservator's glue, B-72 and a number of commercial super-glue products, all reversible in acetone. Ferrous materials were separated during analysis and stabilized by placing them in successive baths of distilled water to remove chlorides. They were then oven-dried, bagged and stored separately. Stabilization of iron from downtown Charleston sites usually requires at least one year of soaking. The majority of the iron fragments and nails recovered from the Beef Market were degraded beyond repair, and so were not stabilized. Several ferrous and all non-ferrous metal artifacts 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 dried in ethanol. 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 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 Inctalac to protect the surfaces.

The City of Charleston decided that permanent curation of the collection at The Charleston Museum was appropriate, and donated the collection to the Museum. The Beef Market materials received the accession number 2005.76, and are catalogued by provenience. All excavated materials are curated in The Charleston Museum's storage facility according to museum collection policy. Artifacts are packed by provenience in standard low-acid boxes, labeled, and stored in a climate-controlled environment. Those artifacts worthy of 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 in acid-free containers in the security section. Archival stable copies are stored in the archaeology laboratory.

Analysis

The first step in the analysis of materials was the identification of the artifacts. The Museum's type collection, Noel Hume (1969), Stone (1974), Ferguson (1992), and Deagan (1987) were the primary sources used. Ceramics references included Towner (1978), Gaimster (1997); Austin (1994), Sussman (1997), and Cushion (1976). Web sites maintained by 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 (DAACS) maintained by Monticello (www.monticello.org), and others were utilized (www.apva.org; www.usouthal.edu; www.stmarys.ca). Other references were consulted for specific artifacts. 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.

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. Artifacts are quantified in relative proportion to each other within eight broad categories. Broad regularities, or patterns, in these proportions prescribe the average retinue of activities on British colonial sites. While some have criticized this methodology as being too broad, it has been widely adopted by historical archaeologists working in the southeastern United States. In Charleston, it has been used as an initial organizing tool.

Some artifact types were subject to more detailed identification. Nails were identified by manufacture type, head type, and size, where possible, though this was rarely feasible. Architectural rubble - brick, mortar, and plaster - was discarded in the field. Several samples of architectural material - brick, mortar, stone, etc. were retained for further study.

Following this exercise, the relative proportions of a variety of artifact types were examined, based

on the work of King (1990, 1992), and many others in the mid-Atlantic region. This recent exercise (Zierden 1993, 1994) has provided more details on proportions of consumer goods and how they were used by Charlestonians.

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 to 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 subdivisions are more or less comparable for a number of Charleston sites. Development of baseline data for this analysis began with excavations at the Heyward-Washington 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.

Two recent excavations – the Beef Market and 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 the three periods of market operation, 1690 to 1739, 1739 to 1760, and 1760 to 1796. These events are clearly dated in the documents and readily identifiable in the ground. Similar circumstances exist for the Heyward Washington House assemblage (c. 1730-1790). This site was excavated a year earlier, and the data are directly comparable. These tighter temporal assemblages, in turn, provide an opportunity to refine our understanding of artifact assemblages that characterize these decades of the 18th century.

Three market assemblages were defined for this project. Dates of occupation for these are well documented. The stratigraphic sequence was also clear. Dating the deposits artifact content and Terminus Post Quem was more challenging. The intense use of the site generated a large assemblage of highly trampled materials, while construction and foot traffic caused some mixing. Many of the ceramic types in used during the 18th century were used for long periods, or their dates of manufacture are poorly known. The types whose date ranges are firm were found in varying amounts throughout the stratigraphic sequence. Therefore, other analytic tools, particularly the Mean Ceramic Date formula (South 1972), were used to refine the temporal association for each period. The results of these analyses are discussed in detail in each assemblage analysis.

The three market assemblages, then, are as follows: The first is associated with initial use of the

block as Market Square, from c. 1692 to 1739. Zones 10 and 11 are associated with this period. The second is associated with construction of the first market building in 1739 until its demise in 1760. Zones 8 and 9 appear to be fill associated with this period, and zone 7 is interpreted as a living or working surface for this market. All of the proveniences in period 2 have a TPQ of 1740. The third period is associated with construction of a new market and designation as the Beef Market in 1760, until its demise by fire in 1796. Zones A, 5, and 6 date to this period. All of the architectural features encountered inside the structure are associated with period 3, as well. This includes the brick foundations, features 10, 14, and 34, as well as the numerous posts. All of the posts encountered in units 4, 5, 7, 9, 14, and 18 initiated at the base of zone 6, and cut through the hard-packed zone 7. Finally, the brick drain and the deposits of ashy soil on top (features 11, 12, and 15) are all evidence of the second market and the 1796 fire.

Artifacts from each of the temporal assemblages for the market site are summarized separately. But first, there are some general observations about the market assemblage as a whole. First, the range of artifacts recovered from the site was significantly narrower than other sites in Charleston, particularly residential sites. Artifacts of personal possession and items from furniture are very rare. Clothing items are only slightly more common. There are proportionately fewer architectural items in periods 1 and 2. Architectural materials are somewhat more common in period 3; this may reflect a more substantial building, or it may be a product of burning and abandonment of the structure. The amount of materials associated with arms is elevated in relation to other Charleston sites. The assemblage, then, is dominated by ceramics, bottle glass, and tobacco pipes. The physical condition of the artifacts was also unique. Ferrous artifacts are often highly corroded in the salty soils of the lowcountry, but this was more pronounced at the beef market. Both iron and copper alloy artifacts were highly corroded, and the brass materials were particularly degraded. Moreover, most of the green bottle glass was highly decayed, a situation unusual for Charleston. No doubt, the soil possesses a particular chemistry that has eroded these items. The unusual chemistry is likely related to the operation of the market.

Period 1: Market Square, 1690-1739

The Market Square period begins with the 1692 ordinance naming the location as that of the market, and continues until construction of a market building in 1739. During these years, it is presumed that the site contained no permanent structures, and that the square was an open field or park, where vendors sold wares on an itinerant basis. Zones 10 and 11 are associated with this period, and the majority of artifacts are from zone 10. The material assemblage from zones 10 and 11 was different from the subsequent deposits in two respects. Unlike the later zones, zone 10 contained large fragments of bone and larger artifacts, suggesting primary deposits. Secondly, the artifact assemblage was rather sparse, containing only 1100 artifacts. Zones 10 and 11 had an overall TPQ of 1740, based on the presence of a few diagnostic ceramics manufactured after that date. Further, the relatively large percentage of architectural items suggests that zone 10 contains artifacts associated with construction of the first market building, along with larger debris that predates this event. Such an interpretation would allow for the presence of a few later ceramics. These are likely the result of trampling and mixing, and the association of zone 10 with the

earlier period is relatively certain. The assemblage produced a mean ceramic date of 1725. The overall artifact assemblage was relatively small, and the 16 interior units produced less than 1,000 cultural items

The Kitchen Group: As is typical of most British colonial sites, artifacts from the Kitchen group dominated the assemblage. The types recovered, and their overall abundance, are similar to residential sites, though the nature of their use and discard at the public market is poorly understood. Kitchen materials comprise 53% of the assemblage, a slightly smaller amount than most residential sites, and 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 here 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 (1977:210-212), 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. 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 a common component of mid to late 18th century domestic sites in Charleston, but was rare at the beef market. Only four fragments were recovered from zone 10 deposits.

The most common European ceramic found in the early market is the tin-enamelled coarse earthenware known as delft. Delft is a tableware common in the 17th and early 18th centuries that persisted in use through the late 18th century. Vessel forms include larger vessels such as plates, punch bowls, and platters; these more substantial vessels continued in use through the late 18th century. The smaller, more fragile pieces, such as candlesticks and tea wares faded in popularity after 1740, when they were replaced



with more substantial wares. 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

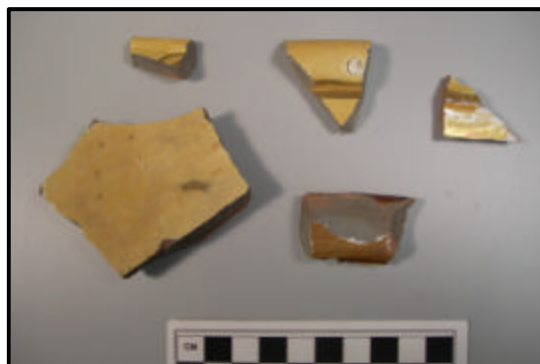
colors, the latter classified as polychrome. The early market contained 95 fragments of delft, the undecorated variety being most common. A few plate forms were represented, but bowls were the most common vessel form. A nearly complete bowl, with blue painted decoration was recovered from the top of zone 10 in unit 2.

The other common early 18th century ware 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. Most of these wares feature a buff- to yellow body and 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% of the ceramics for this period in Charleston and account for 14% of the early market assemblage. The large flatware pieces - shallow bowls, plates, and platters of all sizes - feature an unglazed exterior and molded rim reminiscent of piecrust. The interior features slips and spriggles of white, dark, and brown clay, often combed 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 59 fragments from the early market.

Utilitarian lead-glazed earthenwares were a significant component of the early market assemblage. Common forms include cream pans and butter pots; cooking vessels are also represented (Beaudry et al. 1983). Though a few smaller vessels, such as cups and bowls, are present, the majority of the fragments are from larger vessels.

The two earliest utilitarian ceramics 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 early market assemblage included 19 fragments of this ware, and includes cream pans or pots, most often of gallon capacity. North Devon Sgraffito slipware features 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. While two sherds were recovered from the early market layers, this ware is more common in later zones.

Tankards and mugs were the most commonly recognizable form in the ceramic assemblage, and many of those present were coarse earthenwares. The most distinct is a late 17th - 18th century ware known as Manganese Mottled Ware, or Mottled Ware. The coarse earthenware paste is thin, but otherwise similar to English (Staffordshire) slipwares. The vessels feature a brown streaky glaze with manganese 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.



Michael Stoner has recently identified this ware in 1670s contexts at Charles Town Landing (South and Stoner 2001), extending the date of use in Charleston back to the first decade. While some bowl forms were identified among the Beef Market ceramics, the majority of these wares are tankards of various sizes. The tall, cylindrical vessels feature bands or cordons at various intervals (www.jefpat.org). The exterior basal portion is often unglazed, while the interior features the very thick puddling of glaze noted above. Seventeen fragments were recovered from the early market assemblage. Also recovered in significant numbers is a similar ware, featuring a solid, rather than streaked glaze. This ceramic was identified as Slip-coated Ware by David Barker, Keeper, Potteries Museum, Stoke-on-Trent. 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 on those wares recovered at the market suggest that tankards or other hollow wares were the most common forms. The early assemblage included 29 mottled ware fragments and a single sherd of slip coated ware.

A large number of the early ceramics were lead-glazed earthenware vessels. These poorly defined ceramics included a number of utilitarian forms, such as pots, pans, jars, and small bowls. They usually feature a shiny lead glaze in brown or dull green. Thirty-five fragments were recovered from the early market deposits.

Stoneware vessels were also a major component of the early market assemblage. Utilitarian stonewares manufactured in the Rhineland were recovered in significant numbers. Noel Hume suggests that these wares were imported into England and later into the colonies in large numbers throughout the 17th and first half of the 18th centuries. After 1760, the Rhineland's virtual monopoly was broken by the saltglaze potters of Staffordshire (Noel Hume 1969:276). The type known to archaeologists as Westerwald is gray-bodied and decorated in blue, and sometimes purple on earlier examples. Vessel forms for the early 18th century include chamber pots, small pots and mugs of various sizes; earlier forms include jugs with bulbous bodies and reed necks, and porringers. Six fragments were recovered from the early market deposits.



featuring the 'old man' face at the shoulder.

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 the zone 10 deposits in unit 4 produced several fragments of a bellarmine, including the lip, neck and handle. More common are undecorated bottles in a variety of sizes. These were imported through the first half of the 18th century. The early market assemblage produced 19 such fragments. Most notable was a reconstructed portion of a bellarmine jug,

The early market assemblage contained a small number of ceramics developed after 1740; the recovery of these in small, but consistent amounts suggests that materials from construction of the first market building became trampled and mixed into the earlier zones to a limited degree. Nine fragments of white saltglazed stoneware, as well as a single fragment of British brown stoneware were recovered from zone 10 deposits. As these types were more common in the second market period, they will be discussed in more detail there. More common in the early assemblage were fragments of slip-dipped white saltglazed stoneware. This early tableware was first developed in 1715. It features a gray stoneware paste with a white or off-white stoneware glaze. The edges of the vessels are finished with a brown oxide slip, to prevent chipping around the rim. Zone 10 contained 18 fragments of this ware.



The early market assemblage also contained a few ceramics from Spain and France. The Spanish ceramics included two fragments of Olive Jar and a single sherd of 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 are often glazed on the interior, and feature a

thin white slip on the exterior (Deagan 1987:30-35). They were manufactured from 1490 to 1800, and were used for transport and storage of liquid goods of all kinds. The single fragment of majolica appeared to be a late 17th century style, possibly San Luis blue on white (Deagan 1987:74). A single fragment each of French green glazed coarse earthenware and Saiontage earthenware, both characterized by a green glaze, were recovered from the early contexts.

The final class of ceramics, 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 site it may be as much as 50%. The early market assemblage contained 9% colono wares

overall. This is in contrast to the early deposits in Unit 1, which contained 35% colono ware. Archaeologists have determined that much of this ware was likely made and used by African Americans (Ferguson 1992), though much of the ware is likely the result of interaction between African American plantation laborers and Native American slaves (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 at The Charleston Museum as Yaughan) 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 wares from Catawba Indian potters (Schohn 2003), who often traveled the lowcountry making and selling pottery (Crane 1993; Ferguson 1992). Colono wares comprise 9% of the early market assemblage. Also present were a number of sherds of pottery that appear to be Native American, likely from the historic period. These comprise an additional 2% of the early market ceramics.



Container glass comprised 40% of the kitchen-related artifacts. Almost all of these artifacts were fragments of olive green bottles. Those with formal attributes featured the short, squat proportions that characterize bottles from the 1690s through 1730s. Much of the glass was highly eroded and exhibited a very heavy patina, likely the result of the unique chemistry of the market soils. Minor amounts of clear and aqua container glass, from smaller vessels, were present. Five fragments of table glass were also recovered. Interestingly, the Beef Market site contained a number of examples of stemmed glassware,

many in early 18th century styles.

The Architecture group: Architectural artifacts comprised 30% of the early market artifacts. This supports the data suggested by the datable ceramics – that zone 10 contains some materials from construction of the 1739 market along with debris from the earliest occupation. The architectural materials include nails, window glass, and clay roof tile fragments. All of the identifiable nails (61) were hand wrought. Additional nails were too corroded for positive identification (47) or were fragmentary (121). A surprising amount of window glass was recovered (111 fragments), suggesting the possibility of pane windows in the market building. The roof tile fragments exhibited the ‘s-profile’ typical of pantiles commonly used for roofing (Lounsbury 1994:374). The examples from the market were unglazed.

The Arms group: Artifacts associated with firearms are classified in the arms group. At most domestic sites, and at urban sites, these are likely associated with hunting and food procurement, rather than any type of military activity. Such items have been relatively scarce on Charleston sites, averaging .2% of the total assemblage. South’s Carolina Artifact pattern, the standard measure of British colonial sites, averages .5% of total artifacts. The market site in general, and the early market assemblage in



particular, exhibited a larger number of such items. Arms materials in the early market assemblage comprised 1.7% of the early market assemblage. This included the typical artifact classes, lead shot and gunflints. But a unique aspect of the market site was a collection of flint debitage. The layers of the market included a number of cobbles of European flint that exhibited flaking and edge finishing, suggesting tool manufacture on site. It is unclear if the flint was used to manufacture gunflints, or some other type of tool. Cutting and scraping blades are a possibility. Recovered debitage ranged from worked flint pebbles to small flakes.

Perhaps the most remarkable artifact retrieved during the project came from zone 10 in unit 7. This was a small projectile point, made from gray English flint. The source and use of this artifact is unknown. A possibility is that it is of Native American manufacture, and was transported with deer or other game from the hinterland. It may also have been produced on-site, or imported with the flint.

The Clothing, Personal, Furniture groups: Very few of the personal artifacts of daily life were recovered at the market site. Only a few clothing-related items were recovered, and furniture and personal items were virtually absent. The clothing group for the early market site consisted of two small buttons made of copper alloy, with wire eyes, comprising .2% of the total assemblage.

The Tobacco Pipe group: A large proportion of tobacco smoking artifacts were recovered from the early market deposits. Fragment of kaolin tobacco pipes comprised 13.2% of the early market assemblage.

The Activities group: Materials related to specialized activities comprised 1.6% of the early market assemblage. Most of this group consisted of scrap iron, brass, and lead from a range of manufacturing activities. A few fragments of iron straps from wooden barrels were recovered. A lead net, or fishing, weight was recovered. The final artifact was a decorative brass boss, likely from a saddle or bridle.

Period II: The Early Market Building, 1739-1760

The second period of market site use is marked by the accumulation of artifact-bearing midden soil, followed by a hard-packed earthen surface. Zones 7, 8, and 9 contain artifacts that date them to a 1740-1760 period of use. According to the documentary record, this is associated with construction of the first market structure in 1739 and its use until 1760. The midden soils of zones 8 and 9 are located directly on top of the black soil of the early market. The compacted brown or gold sand designated zone 7 appears to be a living (or walking) surface, possibly for the later market built in 1760. The intrusion of the foundation for this later market into the zone, and the date of the artifacts within the hard-packed soil, suggests that zone 7 contains materials from the first market building. None of the encountered features are associated with the 1739 market building.

The artifact assemblage for the second period was more numerous, and both the artifacts and bone were more fragmentary. Artifacts for period II totaled nearly 13,000. Items related to the kitchen and food

dominated the assemblage, with proportionately (though perhaps not numerically) less items related to architecture. Tobacco pipes are also numerous, while personal and furniture items are not.

The Kitchen group: Kitchen or food-related artifacts comprised 68% of the period II artifacts. Ceramics dominated the kitchen group, with over 5,000 fragments recovered. The ceramics included a few types developed after 1750, as well as those used throughout the 18th century.

Chinese export porcelain was more numerous in the post-1739 assemblage, as over 200 fragments were recovered. The vast majority of these were the less expensive underglaze blue-on-white variety (cf. Leath 1999). Vessels included tea wares as well as tableware. Larger fragments of platters and punch bowls were also recovered. Porcelains comprised 3.7% of the ceramics.



Tablewares of stoneware were also common in the period II assemblage. These included the early 18th century slip-dipped stoneware and British brown stoneware, as well as Nottingham stoneware. The white-bodied saltglazed vessels produced in molds after 1740 were also common. The c. 1715 type known as slip-dipped stoneware was the most common; 158 fragments were recovered. This early type, which featured a thick white salt glaze over a gray body, 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 period II assemblage; 151 fragments were recovered.

Also common at the market were vessels of British brown stoneware (also known as Fulham). These wares were manufactured between 1690 and 1775 (Noel Hume 1969: 114). The majority of recovered fragments were from tankards, many molded with the same decorations as white saltglaze and Nottingham. The market examples featured bands of diamond patterns, as well as a range of rich brown colors. Twenty-three fragments of these wares were recovered. Also common was the gray-bodied stoneware known as Nottingham. This ware features a rich lustrous brown glaze over a thin white slip, often with incised or molded designs. The body of the stoneware is gray. The 1739 market assemblage included 45 fragments.



More common were stoneware utilitarian or storage vessels. Jugs and pots of brown saltglazed stoneware were the most numerous; 236 fragments were recovered. The bottles of brown glazed stoneware came in various sizes, and feature a sturdy base, bulbous body, and thin neck with a single handle

on the shoulder (see Beaudry et al. 1983). Pots or butter pots were the other common vessel form; these are large cylindrical or convex-sided vessels, used for souring cream, storing butter, fat, or other food products (Beaudry et al. 1983). The other common utilitarian wares were gray-bodied, with a gray saltglaze finish. Many fragments (129) were undecorated. More distinctive are the type known as Westerwald. This gray stoneware is decorated with incised and molded designs decorated in cobalt blue and, on earlier vessels, manganese purple. The vessels from the early 18th century include tankards in a range of sizes, and jugs with thin reeded necks and bulbous bodies. Later in the century, chamber pots become the most common vessel form. The period II assemblage included 229 fragments of Westerwald stoneware.

Earthenwares were the most common ceramics recovered. The mid-18th century assemblage included several recognizable types, as well as a number of unidentified lead-glazed wares. Most of the fragments were from utilitarian vessels. Tankards and drinking pots were the most common tablewares noted.

The most unusual ceramic recovered at the market site came from 1739 market deposits. Two handle fragments of marbled Italian red slipware were recovered here. The handles are from a tall pear-shaped bottle known as a costrel. Noel Hume dates these to the period c. 1610-1660 (Noel Hume 1969:77), and examples of these have been recovered at Jamestown, c. 1607 (Straube 2001:58). The two distinctive handle fragments from the market are the only examples of this ware recovered in Charleston.



Image of a costrel of marbled Italian ware. From *Ceramics In America 2001*, edited by Robert Hunter. Beverly Straube, "European Ceramics in the New World: The Jamestown Example."

The earliest ceramics recovered were the North Devon wares. North Devon gravel-tempered ware is considered a marker of 17th century sites in the lowcountry, but was manufactured through 1775. North Devon ware includes pots and pans as the most common vessel forms. The 1739 market assemblage included 173 fragments of the gravel tempered ware. Slightly less common were fragments of North Devon Sgraffitto slipware. These wares feature the same earthenware body, minus the gravel tempering, decorated with a white slip. The final finish is a yellowish lead glaze, which accentuates incised designs in the vessel.

The Sgraffito wares included smaller vessels such as dishes, single handled mugs, and pitchers (Noel Hume 1969:104), as well as larger vessels.

A large component of the market earthenwares are lead-glazed vessels. There are a few established types, but the majority represents forms and finishes produced at regional potteries throughout Britain and, later, in 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 the North American colonies after 1720, and persists until the Revolution. Twenty-two fragments were present in the phase II assemblage. Other, unnamed earthenwares included those with brown, rust, or green lead glazes, most often with a red clay body. Nearly 500 fragments of these wares were recovered, many from larger storage or cooking vessels.

Earthenware vessels for food consumption were also numerous. Most common were fragments of manganese mottled ware (333 fragments), most of these from tankards. A smaller number of the slip coated variety (18) were also recovered. But the most common earthenware consumption vessels were



small cups and drinking pots of Combed and Trailed slipware. Staffordshire slipwares were the most numerous ceramic type recovered, with over 1,100 fragments recovered. While the hollow ware forms were most numerous, the larger open dishes and pans were also well represented. These vessels can feature a pinkish clay, as well as the buff paste typical of the smaller cups and pots. In addition to the more common trailed designs, the phase II assemblage included examples of bat-molded decoration, typical of the second quarter of the 18th century.

The 1739 market assemblage also included a small number of slipwares attributed to potters in the Philadelphia or mid-Atlantic region of North America. 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 designs 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 wares 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, and the data from the Beef Market site support these dates. American slipware was not recovered from the early market proveniences, and only 28 fragments were retrieved from the 1739-1760 layers.

The 1739 market assemblage also contained a number of ceramics developed in the middle of the 18th century, albeit 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. 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 teapots. 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, eleven fragments of these mid-18th century tea wares were recovered from the phase II layers. Even more rare in the market collections were the stonewares produced around this time.

Two unglazed stonewares are typical of the mid-18th century. Elers ware, developed in 1760, is characterized by a compact, well-fired red stoneware body that was 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. Four fragments of these wares were recovered from phase II soils.

British delftwares of the 18th century were the most common ceramic recovered from the 1739 market assemblage. These were evenly divided between those that were undecorated (630) and those with blue hand painted decoration (685). An additional 276 fragments were separated from their glaze. Finally, those with more elaborate polychrome painted decoration comprised the remaining 68 fragments. Delft vessels at the market included plates and dishes as well as tea cups. The majority of the delft sherds were too fragmentary to identify vessel form.

Colono wares comprised less than 5% of the ceramics recovered. Lesesne lustered ware was the most common variety recovered, while twenty sherds each of Yaughan and River Burnished were recovered. In addition, 64 sherds of historic Native American pottery were recovered.



Glass artifacts comprised the remaining 37% of the kitchen group. The vast majority of these were fragments of green bottle glass (2952). Most of these were highly fragmented, but some basal sherds were large enough to determine proportions. Most of the recovered bases exhibited the proportions typical of bottles from the second quarter of the 18th century. Smaller numbers of clear and aqua bottle glass, from smaller condiment or medicine bottles, were recovered (107 and 138, respectively). Finally, a number of fragments from drinking glasses were recovered. These include a small number of recognizable

wine goblet stems. Those large enough to identify include types used from 1700 to 1760 (Noel Hume 1969:190 – Type IX, 1700-1725; Type XII, 1705-1715, and Type XVII, 1725-1760).

Architecture group: Architectural artifacts comprise 12.8% of the artifacts for the 1739 market assemblage; 1657 items were recovered. Most of these were nails, and most of the nails were either fragmentary or unidentifiable. All of the identifiable nails (103) were hand wrought. Several examples of red clay roof tile were recovered from the brick rubble, as well. Five examples of architectural hardware



were identified. The most unusual artifact were two fragments of lead came, from leaded glass windows. These are grooved strips of lead used to anchor small diamond or square-shaped pieces of glass, which were in turn fit into wooden casements. Such windows are typical of the 17th century, and disappear rapidly in the 18th century, replaced by double-hung sash windows. Only two examples of these lead strips have been recovered in Charleston, the other from the site of the 1769 Miles Brewton House.

Arms group: Arms materials comprised 2.5% of the assemblage. The most numerous material associated with this group were flint debitage. The debitage includes small flakes, re-touched primary flakes, and pebble cores; 317 fragments were recovered. Five intact gun flints and 6 musket balls were recovered from 1739 market layers.

Clothing, Personal, Furniture groups: The clothing group was larger, and more varied for the second period, in comparison with the early market period. Thirteen artifacts comprised .1% of the assemblage. Included in this group were four copper alloy buttons and a clothing buckle. Five glass beads were recovered. All appear to be types typical of the 18th century. Two cornaline d'alleppo beads were recovered. These are tube beads of varying proportions, characterized by a finish of opaque red glass over a translucent green core. They are common on Spanish as well as British colonial sites, and recovered in contexts dating from the late 17th through the 18th centuries. They are commonly recovered in Charleston. Other types included a faceted clear wire wound bead and an oval opaque white glass bead. The final example was a small tube bead of dark blue glass, decorated with longitudinal red stripes. Similar, but not identical, beads have been recovered from 17th century contexts on Spanish colonial sites (Deagan 1987:174).



Two scissors fragments and five straight pins were recovered from 1739 market contexts; the presence of these together may suggest some sewing on-site, or perhaps sale of such items. Scissors are rarely recovered from archaeological contexts. Though highly corroded, the scissors fragment appeared similar to 18th century examples (Noel Hume 1969:268).

As was the case with the early market assemblage, no personal possession items were recovered from the phase II assemblage. Six furniture items were recovered, representing .04% of the assemblage. This group included four brass furniture tacks and a curtain ring, as well as two fragments of miscellaneous hardware. The curtain ring was the large flat brass ring typical of the 18th century.

Tobacco Pipe group: Kaolin tobacco pipes comprised 14.5% of the phase II assemblage. Pipe stem fragments were three times as numerous as bowl fragments, and a total of 1878 pipe fragments were recovered. Two intact bowls resembled Noel Hume's type 15, dated from 1700 to 1770 (Noel Hume 1969:303).

Activities group: Activities items comprised 1.5% of the assemblage, and included 203 items. Most of these items were scraps from other activities, and included strips of lead, brass, and iron. Three fragments of worked slate, unidentified as to function, were also placed in this group. Other items were

directly related to particular activities. Thirty one fragments of iron strap was recovered; most of these were from barrels or kegs of various sizes. Four lead net or fishing weights were recovered from phase II proveniences. Two brass bosses from leather bridles or belts reflected equestrian activities in the area. Finally, a single fragment of redware flower pot was recovered.

Period III: the Beef Market, 1760-1796

The third and final period of site occupation is associated with construction of a new market structure in 1760 and designation of this market at the Beef Market. The beef market, described in 1774 as “a low, dirty looking market for beef”, is reported burned in the fire of 1796. Proveniences associated with this period of occupation include zone 6, a lens of waterwashed sand full of fragmentary artifacts and small hacked fragments of bone present in some, but not all, of the excavation units. (The underlying zone 7, a hard-packed earthen floor, may be a walking surface for the 1760 market, but contains debris from the 1739 market.) Overlying zone 6 in some units was an orange clay surface excavated as zone 5. An overlying zone A, exhibiting varying levels of disturbance, was excavated in every unit. The construction of City Hall in 1800 effectively sealed these deposits from any intrusive materials.

Several features were also deposited during the Beef Market era. This is the only phase of market occupation for which we encountered architectural evidence, and the construction trenches and other architectural features are included in this subassemblage. These include the brick foundation, vaulted brick drain, and builder’s trenches for these features (features 10, 13, 26, 35), the series of single-brick features associated with the foundation (features 14, 17, 18, 22, 34, 36). The post holes encountered at the top of zone 7 also date to the Beef market era, and are associated with the market building (features 23, 25, 26, 24, 28, 31, 40). The ashy deposits from the 1796 fire, redeposited in 1800-1802 with construction of City Hall, date to this period (features 15, 19, 12).

A few features were clearly associated with construction of City Hall in 1800 (feature 11, 27, 30, 32, 41, 45, 29). These, however, contained redeposited artifacts and bone from the Beef Market era, and so are included in the phase III assemblage. No proveniences later than c. 1802 were encountered during the interior excavations. Artifacts from the Beef Market assemblage were only slightly less numerous than those from the earlier market building; 11,141 artifacts were recovered from proveniences associated with this temporal phase.

The Kitchen group: The kitchen group of the Beef Market assemblage consisted of 61% ceramics and 38% container glass. Significant numbers of 18th century ceramics, like those recovered from the earlier deposits, were present in the assemblage, some in increasing numbers. Several ceramics characteristic of the second half of the 18th century were present for the first time.

Chinese export porcelain was present in larger numbers; 310 fragments of underglaze blue-on-white hand painted porcelain were recovered. The more expensive overglaze decorated ware remained scarce;

only 30 fragments were recovered. Most of these were tea wares, though a few fragments of tablewares were recovered. The stonewares included several eighteenth century table wares. The slip dipped white stoneware of the early 18th century was still present in significant numbers (156) in the 1760s assemblage, reflecting its continued production until 1775. The molded white saltglazed stonewares developed in 1740 were slightly more numerous (206). A small number of scratch blue stoneware, manufactured from 1744-1775, were recovered from phase III proveniences. This ware resembles the undecorated white saltglazed stoneware, and is decorated with incised designs filled with blue glaze. Nottingham stoneware, the lustrous brown-glazed stoneware manufactured throughout the 18th century, was also present (42 fragments). The British brown stoneware tankards were less common in the late 18th century assemblage; only 10 fragments were identified. Only a few fragments of the unglazed tea wares, Elers ware and Black Basalte ware, were recovered (4 and 6, respectively).

Utilitarian stoneware remained a common component of the late 18th century ceramics. Brown saltglazed stoneware, gray saltglazed stoneware, and Westerwald stoneware were all recovered in significant amounts (205, 103, and 162 fragments, respectively). Most fragments were too small to identify vessel form, but jars, pots, and chamber pots were identified.

The early 18th century utilitarian earthenwares were present in smaller, but still significant amounts. This likely reflects their continued manufacture through 1775. North Devon gravel tempered ware (56 fragments), Sgraffitto slipware (25 fragments), and Buckley wares (14 fragments) were all recovered. The most common utilitarian earthenwares were the lead glazed redwares; 270 fragments were recovered.



Earthenware vessels for food consumption were still a significant component of the late 18th century assemblage. Manganese mottled wares and slip coated wares, manufactured through the first half of the 18th century, were still numerous (137 fragments and 24 fragments, respectively). The finer wares of the mid-18th century – Astbury ware, Agate ware, and Jackfield ware, were also present in small amounts. All of these were used in the second and third quarters of the 18th century. Astbury ware is the most numerous of the three (35 fragments, 11 fragments, and 28 fragments, respectively).

Combed and trailed slipwares dominated the ceramic assemblage. Manufactured throughout the 18th century, the Staffordshire slipwares comprise over one quarter of the Beef Market era ceramic assemblage. Fragments of cups and drinking pots dominate this assemblage, though the heavier pans are also numerous. These were augmented by American slipware, manufactured in the mid-Atlantic colonies after 1750. The Beef Market assemblage yielded 78 fragments of these wares.

Tin-glazed delftware was also manufactured through the end of the 18th century, and remains a significant component of the late 18th century assemblage, despite the development of newer and more durable ceramics. The 859 fragments of delft comprise 18% of the Beef Market ceramics. French and Spanish ceramics remain a small, but consistent portion of the late 18th century ceramics. This group included lead-glazed utilitarian wares as well as tin glazed



tablewares. Thirty French ceramics and 28 Spanish ceramics were identified. The most unusual find was a fragment of Tonola ware, an unglazed earthenware made in Mexico. This distinctive ware, manufactured from the 16th century through the present, is unglazed and features elaborate hand-painted designs.

Colono wares and historic Native American wares are also present in the late 18th century assemblage. Lesesne lustered was the most common variety of colono ware (79 fragments), followed by the cruder Yaughan (26 fragments). A small number of River burnished wares (12) were recovered. Thirty-two fragments of historic period Native American ceramics were recovered.

The refined earthenwares that dominate most domestic assemblages of the late 18th century were only a small component of the Beef Market ceramics. Together these wares comprise 7.5% of the ceramic assemblage. The most important 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 Whieldon, 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). The Whieldon wares were manufactured until 1770, and are consistently present in 18th century contexts in small numbers. The Beef Market assemblage contained only five fragments.

Far more numerous were creamwares. Creamware was the most common refined earthenware at the Beef Market, in keeping with the almost universal popularity of cream-colored earthenware in the late 18th century. 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 styles, which appealed to the Charleston gentry, and in relatively plain and affordable patterns. Those from the Beef Market fit the latter category; 257 fragments of creamware were recovered.

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 earthenware 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 come in a wide range of decorations, compared to creamware. Earliest (1780-1810) was hand painting in underglaze blue, most often in chinoiserie designs. Twenty fragments were recovered from the Beef Market. Shell-edged pearlware is perhaps the most readily recognizable historic ceramic, but it was less common at the beef market. Only 6 fragments were recovered from the late 18th century

proveniences. Shell edged pearlware comes most often in flatware forms – pates, soup bowls, platters – a features rims molded in a feathery design, which was hand painted in blue or green. The earlier pieces, c. 1780-1795, feature careful, individual brush strokes accentuating the individual features. By the early 19th century, the hand painting had deteriorated to a single swiped band around the rim. The early 19th century also witnessed rims molded in designs other than feathers.

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, resulted 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. Annular wares, in contrast, 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. Only 19 of these two pearlware styles were recovered from the Beef Market proveniences.

Container glass comprised the remaining third of the kitchen group, and was dominated by fragments of olive green glass. Nearly 2,700 fragments of green bottle glass were recovered from late 18th century proveniences at the market. As with the earlier groups, many of these glass fragments were highly corroded. Medicinal and condiment containers of clear or aqua glass were less common, but were consistently present (432 fragments). Like the olive green glass, all of these were hand-blown bottles typical of the period before 1820. The Beef Market assemblage included several recognizable neck and shoulder fragments from the tall, narrow cylindrical bottles that dominate the third quarter of the 18th century.

A small amount of table glass was present in the Beef Market layers; 58 fragments were recovered. Most of these were too fragmentary to identify vessel form, but the presence of rim fragments suggested wine goblets or undecorated tumblers. The final artifacts of the kitchen group were four examples of cutlery. These are bone-handled implements, either knives or forks. The iron portion of the artifact was missing and highly corroded. Two of the bone handles were intact over the corroded iron core, and were the ‘pistol grip’ style popular in the early 18th century (Noel Hume 1969:182). The other two were fragments of the bone handle, and were decorated with incising popular in the mid-18th century.

The Architecture group: Architectural items comprised nearly 20% of the total assemblage. Nails and window glass were again the dominant artifacts. Most of the nails were highly corroded, and were unidentifiable. Most of these, in fact, were fragmentary; the group included 730 nail fragments, 636 unidentifiable nails, and 148 wrought nails. No identifiable nails from the later 18th or early 19th century were identified.

The flat aqua glass typical of window pane in the 18th century was fairly common. In addition to the regular fragments of pane glass, several edge fragments from crown glass were recovered. A notable item

was the bull's eye, or central pontil scar, from crown glass. Crown glass was developed in the late 17th century and remained popular through the early 19th century. Crown glass was more durable and less flawed than other types of hand-blown glass. It was made by blowing a large bubble, and attaching a rod opposite the blowpipe. The glass was then reheated and rotated to form a large disc. The central area, scarred with the mark of the iron, was known as the bull's eye. This was usually discarded, but could be used in windows that were less visible (Noel Hume 1969:234). Most of the crown glass used in the American colonies was made in England, but some came from New England by the early 19th century (Lounsbury 1994:105). It was often shipped in barrels, and then cut to size.



Other architectural items were recovered in very small amounts. Six fragments of redware roof tile were recovered. A single copper nail, associated with slate roofing, was recovered, as well. Six examples of hardware, including shutter pintels, were recovered. Finally, three fragments of delft tile were retrieved. Fireplace or wall tiles were made in delft factories throughout the 18th century. They are readily distinguished from delft dishes by their flat surface and unglazed, scored backs for mortar. Eighteenth century delft tiles feature a range of hand painted designs, often in blue but also in a polychrome palette. All of the examples from the Beef Market were small fragments.

Arms group: Arms materials comprised 2.4% of the Beef Market assemblage, and consisted principally of flakes and debitage of European flint (265 fragments). Three gunflints were recovered, along with four lead shot. The final arms item was a fragment of a sword handle. This decorative strip of brass is similar to examples of dress small-swords recovered on other lowcountry sites (Zierden et al. 1999:194). Such rapiers, or small-swords were used for civilian, rather than military, purposes, perhaps for hunting or simply for dress (Peterson 1956).



Clothing group: Like the earlier assemblages, the clothing group from the Beef Market assemblage was limited in size and scope. The 35 clothing artifacts comprised .31% of the assemblage. The dominant artifacts were buttons. Plain brass disc buttons were the most common, though the one-hole bone buttons (or button molds) were recovered as well. These were often covered with cloth or thread (cf. Baumgarten 2002:101, 135). Recovery of a fragment of bone button blank suggests that production of the bone discs could have taken place at the market.

Such blanks have been recovered on other colonial sites, both British and Spanish. Deagan suggests these buttons increased in popularity in the second half of the 18th century (Deagan 2002:166).



Two buckles, likely knee or vest buckles, were recovered from the Beef Market assemblage. Five pins and a thimble suggest sewing activities. Finally, six glass beads were recovered from late 18th century assemblages.

Personal group: The late 18th century deposits were the only subassemblage to yield any items of personal possession, and 8 were recovered. Coins would be expected at a site of commercial exchange, and four were recovered at the Beef Market. Two were brass coins too eroded for positive identification, but they appeared to be British halfpennies. One is likely a George II, though it is impossible to determine if this is the “young” head, dating 1730-1739, or the “old” head, dating 1740-1754 (Noel Hume 1969:162). The earliest, and most unusual was a silver Spanish coin, described by Deagan (2002:249) as a cob coin (“cobs” are irregularly-shaped coins). The Beef Market example most closely matches Deagan’s illustrated quarter real dated to Phillip V (1700-1746), possibly minted in Mexico City. Deagan notes that Spanish American coinage was accepted worldwide during the 18th century, particularly after the appearance of the milled “pillar dollars” in 1732. They were legal tender in the United States until 1858. Spanish coinage was based on a system divisible by eight (half, one, two, four, eight), giving rise to the “of eight” terminology popular in lore (Deagan 2002:237). Spanish coins are common on Charleston sites. The final coin was also unusual, and was significant for dating features 11 and 15, the latest proveniences encountered in the basement of City Hall. This was an U.S. coin, a penny dated to 1794. The coin features the bust of Liberty with a loose cap and flowing hair, a type known as “wild-haired liberty” (Noel Hume 1969:160). The date of 1794 is significant in relation to the destruction of the market by fire in 1796, and helps associate the ash in feature 15 with the documented fire.



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Recovery of coins at the market site was expected. What was not necessarily anticipated was the recovery of two kaolin clay wig curlers. These colonial artifacts are relatively rare in Charleston, and have been recovered on only a few sites. The Beef Market assemblage contained two, and an intact example was recovered on the ground surface at the onset of the project. These were used throughout the 18th century in both homes and barbers’ and wigmakers’ shops, to style wigs (Noel Hume 1969:321). They were used in the same way that curlers are used

in the 20th century.

Two other personal items were recovered. The first was a portion of bone brush, designed for natural boar bristles. Deagan notes that hairbrushes did not come into common use until the late 18th

century (Deagan 2002:230), as earlier hairstyles were maintained by combs. The final item was a jaw harp, or Jew's harp. These instruments, which were played by plucking a thin, flexible metal tongue while holding the instrument next to the open mouth, were used in Europe from the medieval period. They are common on colonial archaeological sites.

The Furniture group: Furniture items comprised only .16% of the Beef Market assemblage, and totaled 18 items. Eleven of these were basic tacks, used to affix upholstery or fabric to furniture. They are common on 18th and 19th century archaeological sites. Three curtain rings were recovered. A fragment of enameled creamware appears to be a portion of a figurine. Figurines were common in the late 18th century. Two pieces of brass hardware include a terminal to a poker or some other metal tool and a portion of a lock.

The Tobacco pipe group: Tobacco pipe fragments remained numerous in the Beef Market assemblage, comprising 16% of the artifacts. This is in contrast to most Charleston sites of the same period, where pipes are far less common.

The Activities group: The activities group was limited in size and scope, and comprised 1.2% of the Beef Market assemblage. The most notable component was fragments of iron barrel straps, as 56 were recovered. These likely came barrels containing staples sold at market. Two marbles and a fragment of clay flowerpot were recovered. One piece of slate recovered from the site appeared to have been shaped to a point. As its function was unknown, it was placed in the activities group. The remainder of the Activities group consisted of scraps of iron, brass, and lead, likely the byproducts of onsite production activities.

Analysis of the Beef Market Colonoware (by Nicole Isenbarger)

Colonoware is an unglazed, low-fired earthenware found mainly in the South Carolina lowcountry, and in association with African-American occupation. Colono ware was produced by both free and enslaved African Americans, and Native Americans from the 17th to the early 19th century, with the height of its manufacture being in the 18th century (Anthony 2001: 10-11; Singleton 1991: 160; Cooper and Steen 1998: 5-7; Joyner 1984: 75). Potters tend to make their wares appealing to their intended users, colono ware would have been available to African Americans, Native American, as well as Euro-Americans, and therefore the ware exhibits attributes of all three cultures (Cooper and Steen 1998: 10-11). Recent Colonoware research has suggested that the Charleston colono ware was a marketed ware available in the Charleston markets (Joseph 2005; Crane 1993). The Charleston Beef Market was a main marketing center in Charleston from 1692-1796. This research will analyze the colono ware from the Charleston Beef Market and compare it to several gentry sites in an attempt to gain a better understanding of the distribution of colono ware in Charleston.

My analysis is based primarily on the colono ware categories proposed by Wheaton and Garrow, Ron Anthony and Leland Ferguson, which are currently used by the Charleston Museum. For my analysis I used three broad categories – River burnished, Lesesne lustered, and Yaughan (Anthony 2001; Ferguson 1989; Wheaton and Garrow 1989). River burnished is a well-fired, nicely burnished colono ware that was produced from the late 18th to early 19th century (Anthony 2001: 10; Ferguson 1989: 188). The paste is typically micaceous, contains fine sand, and is non-laminar. River burnished vessels tend to have a thickness of 3-7mm. The Catawba Indians are attributed with the manufacture of River burnished vessels (Anthony 2001: 10-11; Ferguson 1992: 90; Singleton 1991: 160).

Lesesne lustered wares were produced between the early 18th to early 19th century, and were first classified by Ron Anthony in 1986 (Anthony 2001: 12). Lesesne lustered tends to be the median quality ware between the River burnished and Yaughan varieties, and are commonly found in association with planter sites (Anthony 1986: 7-46). It is characterized by a non-laminar, fine to medium paste, which commonly lacks temper. The surfaces are burnished and the vessels are nicely fired, while River burnished vessels have a more defined burnishing and are more well-fired. Lesesne lustered vessels are thicker than River burnished ones, and more uniform than Yaughan (Anthony 2001: 13).

The Yaughan variety was produced between the early 18th to mid 19th century and are most frequently associated with African American occupation. The vessels exhibit a laminar paste, which is coarser and less well fired than both the River burnished and Lesesne Lustered varieties. The surfaces are commonly smoothed, but they are sometimes burnished poorly (Anthony 2001: 11-12). Yaughan is the least well made of the colonoware varieties. Yaughan is believed to have been used for more utilitarian purposes, with its rougher surfaces aiding in gripping the vessels during cooking, and its association with food preparation and cooking (Ferguson 1992: 31; Wheaton and Garrow 1989: 178; Anthony 1986: 7-46).

Analysis

All non-residual River burnished, Lesesne lustered, and Yaughan sherds, those larger than a quarter, were used for my analysis. The Beef Market site has four distinct occupational phases: The early open air market 1692-1739; a more permanent market 1739-1760; a later market with a larger more well-defined brick structure, which was destroyed by a fire 1760-1796; and City Hall 1818 to present. I compared the distribution of the three varieties of colono ware within and between these temporal periods looking for spatial and temporal changes. I then compared the first three temporal phases (pre-1796) of the Beef Market assemblage to two Charleston gentry house sites, and one multi-function site in an attempt to further our understanding of the distribution of colono ware in Charleston, as well as the effects the Beef Market had on this distribution. One gentry house site analyzed was the Miles Brewton House (1765-1870) whose occupational phases corresponded with all three phases of the Beef Markets use up to 1792. The Nathaniel Russell House (1730-1880), whose early occupation corresponds with the later market 1760-1796 phase. At the Heyward-Washington Stable (1694-1820), the early occupation associated with John Milner, a gunsmith, corresponds with the 1692-1739, and 1739-1760 Beef Market phases.

The Beef Market assemblage consisted of 179 colono ware sherds. The majority of the sherds were from the early market phase with the numbers dropping off during the later occupational phases. The following table shows the distribution of the entire Beef Market assemblage.

Table 4-1: Distribution of Colono ware Temporally

Occupational Phase	# of Sherds	% of Assemblage
1692-1739	63	32.5%
1739-1760	56	31.3%
1760-1796	29	16.2%
1818-present	31	17.3%

The most commonly occurring colono ware variety at the Beef Market was Lesesne lustered. Only one sherd of River Burnished was recovered, and it was from the 1739- 1760 period. The Yaughan variety was present in small quantities, and it's popularity increased slowly through time. The following table shows the distribution of the three colono ware varieties for each temporal period.

Table 4-2: Distribution of Colonoware by Types

Occupational Phase	# of Sherds	Yaughan %	Lesesne %	River Burnished %
1692-1739	63	2.1%	97.9%	--
1739-1760	56	5.4%	92.9%	1.87%
1760-1796	29	10.3%	89.7%	--
1818-present	31	9.7%	90.3%	--

Within the entire Beef Market colono ware assemblage there were 8 bowls, 4 jars, and 1 handle. All of the vessels were of the Lesesne lustered variety, the bowls and handle were burnished, while the jars were smoothed. The following table shows the temporal distribution of these vessels.

Table 4-3 : Distribution of Colono ware Vessel Forms

Occupational Phase	# of Bowls	# of Jars	# of Handle
1692-1739	3	2	--
1739-1760	2	--	--
1760-1769	--	2	--
1818-present	3	--	1

All of the colono ware vessels had either rounded or squared rims. Within the distinguishable vessel forms the squared rims were most common. The following table shows the frequency of the vessel rim forms temporally.

Table 4-4: Temporal Distribution of Colonoware Vessel Rim Forms

<u>Vessel Forms by Phase</u>	<u># of Rounded Rim</u>	<u># of Squared Rim</u>
1692-1739 bowls	1	2

1692-1739 jars	--	1
1739-1760 bowls	--	2
1760-1796 jars	1	--
1818-present bowls	--	3
Total:	2	8

Including the rim sherds that had identifiable vessel forms, there were 42 rim sherds total for the Beef Market assemblage. Within all of the rim sherds for the Beef Market assemblage there were rounded, squared, and scalloped rims. While the most frequent rim form for the vessels was squared, when considering the entire rim sherd assemblage rounded rims were the most common. There was only one scalloped rim sherd, which occurred in the early market phase. The rounded and squared rim forms were almost equal in frequency with 54.8% rounded, and 42.8% squared. The frequency of the rounded rims seems to decrease through time, while the frequency of the squared rims is more constant, with a lower frequency during the later market phase. The following table illustrates the frequency of rim forms through time.

Table 4-5: Temporal Frequency of Rim Forms

Occupational Phase	# of Rounded Rim	# of Squared Rim	# of Scalloped Rim
1692-1739	9	6	1
1739-1760	8	6	
1760-1796	5	1	
1818-present	1	5	
Total	23	18	1

The early market phase (1692-1739) assemblage was comprised of 63 colono ware sherds. The majority of the sherds were body sherds with a total of 47 (74.6%), and only 16 (25.4%) rims sherds. The early market assemblage was made up of almost all Lesesne lustered, with only 1 (2.1%) Yaughan body sherd. All of the sherds were burnished, except for 2 body sherds and 1 jar rim fragment, which were smoothed (4.8%). Within the rim sherds there were 3 (18.75%) bowl fragments, and 2 (12.5%) jar fragments. Rim forms consisted of 9 rounded (56.25%), 6 squared (37.5%), and 1 scalloped (6.25%).

The more permanent market phase (1739-1760) assemblage had 56 colono ware sherds. There were 42 (75%) body sherds and 14 (25%) rim sherds. The most common ware during this time period was again Lesesne lustered comprising 92.9% (52 sherds) of the assemblage. There were 3 (5.4%) Yaughan sherds, and 1 (1.87%) River Burnished sherd. Only 2 (3.6%) sherds were smoothed. Within the rim sherds there were 2 (14.3%) bowl fragments. All of the rims were from Lesesne lustered vessels. Rim forms consisted of 8 (57.1%) rounded, and 6 (42.9%) squared.

The later market phase (1760-1796) assemblage had a total of 29 colonoware sherds. There were 23 (79.3%) body sherds and 6 (20.7%) rim sherds. As with all of the other assemblages the Lesesne lustered variety was most frequent with 26 (89.7%) sherds. There were only 3 (10.3%) Yaughan sherds in

this assemblage. River Burnished sherds were absent from this assemblage. Only 5 (17.2%) sherds were smoothed. Within the assemblage there were 2 (6.9%) jar fragments, one a rim sherd and the other a shoulder fragment. The jar rim sherd was smoothed. Rim forms consisted of 5 (83.3%) rounded and 1 (16.7%) squared.

The City Hall assemblage (1818-present) consisted of 31 colono ware sherds. Of the 31 sherds 25 (80.6%) were body sherds and 6 (19.4%) rim sherds. The most common colono ware variety was Lesesne Lustered which consisted of 28 (90.3%) of the 31 sherds. The remaining 3 sherds were Yaughan (9.7%). River Burnished sherds were also absent from this assemblage. Only 1 (3.2%) sherd was smoothed. There were 3 bowl fragments from this assemblage. All of the bowl rim sherds were burnished and of the Lesesne lustered variety. Rim forms consisted of 1 (16.7%) rounded, and 5 (83.3%) squared.

Discussion

Lesesne Lustered is the most common colono ware variety within the Beef Market assemblage. Lesesne Lustered should then also be the most common variety on other Charleston sites. Although there was a low number of vessels identified, there may be some patterns within the assemblage. The bowls were all burnished, while the jars were commonly smoothed. As I stated earlier, utilitarian vessels, such as jars, were commonly smoothed so that there was a better grip when handled (Ferguson 1992: 31). Even though Lesesne lustered vessels tend to be burnished, if they were used for utilitarian purposes they may have been smoothed, so as to be more functional. I also noticed that bowls tended to more frequently have squared rims. This may be evidence of a stylistic preference that may be reflected on other Charleston sites. Also noteworthy, was that the only scalloped rim was found in the early market phase (1692-1739). This may reflect only chance, or it could be another reflection of stylistic preferences, it is hard to discern with only one sherd. However, during the early 18th century European attributes were commonly found in colono ware vessels, especially those associated with planter contexts (Espenshade 1996: 1-7). Scalloped rims were common on combed and trailed slipware vessels, which were common in the Lowcountry from 1670 to 1795. This pattern may also be recognized on other Charleston sites.

Miles Brewton House (1765-1870) Colonoware Assemblage

The Miles Brewton House assemblages that I analyzed contained a total of 89 colono ware sherds. The 1720s/Colonial context at the Miles Brewton House has only 1 sherd of colono ware. This context is temporally comparable to the early market phase at the Beef Market. The sherd was a rim sherd from a smoothed Lesesne lustered bowl.

The Miles Brewton assemblage had 29 sherds of colono ware. For my analysis the Miles Brewton assemblage is temporally comparable to the middle of the 1739-1760 Beef Market phase to the early later market phase 1760-1796. The majority of the sherds were body sherds (25 at 86.2%), with only 4 (13.8%) rim sherds. Most of the sherds were burnished with only 9 (31%) being smoothed. Of the 29 sherds 1 (3.4%) was Yaughan, and 28 (96.6%) Lesesne Lustered. River burnished sherds were not present in this assemblage. There was no dominant rim form with 2 (50%) rounded, and 2 (50%) squared. The Brewton assemblage had 3 Lesesne lustered bowls, 2 were burnished and one smoothed. The smoothed bowl had a square rim form, one of the burnished bowls had a round rim, and the other burnished bowl had a square rim.

The Motte-Alston assemblage consisted of 59 sherds. The Motte-Alston assemblage is comparable to the Beef Market phases of the late later market phase 1760-1796 to the early City Hall phase 1818-present. There were 45 (76.3%) body sherds, and 14 (23.7%) rim sherds. 30 of the sherds were smoothed. Only 3 (5.1%) of the sherds were River burnished, all others were of the Lesesne lustered variety. Within the 14 rims, there were 8 (57.1%) rounded and 6 (42.9%) squared. The Motte-Alston assemblage had 5 bowls and 1 jar. All of the vessels were Lesesne lustered. The jar was burnished with a rounded rim. Two of the Lesesne bowls were smoothed with squared rims, and three were burnished with a rounded rim.

While there was only one sherd from the 1720s/Colonial context, it is interesting that none of the bowls from the Beef Market were smoothed and this one was. For the Miles Brewton phase (1750-1775) the majority of the sherds were Lesesne lustered which is consistent with the Beef Market patterns. The majority of these were also burnished, the same is common in the Beef Market assemblage. Another similarity is that there were no River Burnished sherds. During this time period there was only one sherd of River Burnished found at the Beef Market. Also, there was no dominant rim form, just like at the Beef Market. Throughout the entire Miles Brewton assemblage no scalloped rims were recovered, at the Beef Market there was only one in the early market phase (1692-1739). This may suggest that they were not common in Charleston assemblages. During the Motte-Alston phase (1775-1830) there was a higher frequency of smoothed vessels than was seen at the Beef Market. The rounded and squared rim forms had relatively equal distribution, which also occurs in the Beef Market assemblage.

Nathaniel Russell House (1730-1880) Colonoware Assemblage

The Nathaniel Russell House assemblages that I analyzed contained a total of 82 colonoware sherds. The Nathaniel Russell House late 18th century colono ware assemblage consisted of 18 sherds. This assemblage is comparable to the Beef Market's later market phase (1760-1796). The late 18th century assemblage consisted of 9 (50%) body sherds, 8 (44.4%) rim sherds, and 1 (5.6%) handle fragment. There were 15 (83.3%) Lesesne lustered sherds and 3 (16.7%) River burnished sherds. Only 1 (5.6%) of the Lesesne lustered sherds was smoothed. The handle was of the Lesesne lustered variety, with the exterior portion being burnished and the interior smoothed. There were 4 Lesesne Lustered bowls, all were burnished, and 3 had rounded rims. Rim forms consisted of 6 (75%) rounded, and 2 (25%) squared.

The Russell assemblage was comprised of 63 colonoware sherds. This assemblage is comparable to the Beef Markets later market (1760-1796) and early City Hall (1818-present) time periods. The Russell assemblage consisted of 40 (63.5%) body sherds, 22 (34.9%) rim sherds, and 1 (1.6%) pipe stem. Lesesne lustered wares (82.5%) were the most prominent variety. There were 9 (14.3%) River burnished sherds, and 2 (3.2%) Yaughan sherds. Only 5 (7.9%) sherds were smoothed. The Russell assemblage had 10 bowls, 8 Lesesne lustered, and 2 River burnished, all of the bowls were burnished. The Lesesne lustered bowls had 2 with rounded rims, 4 squared rims, and 2 scalloped. The River burnished bowls had rounded rims. Rim forms consisted of 11 (50%) squared, 6 (27.3%) scalloped, and 5 (22.7%) rounded.

The Russell assemblage had a high frequency of Lesesne lustered sherds, and a few smoothed sherds, which is similar to the Beef Market for the same time period. In the Russell assemblage squared rims were the most common, which is similar to the City Hall (1818-present) period at the Beef Market, but unlike the later market (1760-1796) Beef Market phase where rounded rims were the most common. There was also a moderate amount of scalloped rim sherds, which are not present at the Beef Market during this period.

The Heyward-Washington Assemblage

The Heyward-Washington assemblage I analyzed contained a total of 53 colono ware sherds. The 1730-1740 Heyward-Washington Stable assemblage consisted of 10 colono ware sherds. The assemblage is comparable to the Beef Market's early market (1692-1739) phase. There were 9 (90%) body sherds, and 1 (10%) rim sherd. The assemblage had 5 (50%) Lesesne lustered sherds, and 5 (50%) River burnished. None of the sherds were smoothed. The rim sherd was a burnished Lesesne lustered with a rounded rim.

The 1740-1750 Heyward-Washington Stable assemblage consisted of 43 colonoware sherds. This assemblage is comparable to the Beef Market's more permanent market (1739-1760) phase. There were 10 (23.3%) rim sherds, and 33 (76.7%) body sherds. Lesesne lustered sherds were the most prominent at 22 (51.2%), and there were 15 (34.9%) River burnished, and 6 (13.9%) Yaughan sherds. There were only 6 (14%) smoothed sherds. The assemblage had one burnished Lesesne lustered bowl with a squared rim. Rim forms consisted of 7 (70%) squared, and 3 (30%) rounded.

For the 1730-1740 Heyward-Washington Stable context half of the sherds were Lesesne lustered, the other River burnished. This is unlike the Beef Market where the majority of sherds were Lesesne lustered. There weren't any smoothed sherds, which is similar to the Beef Market where the majority of sherds were burnished. The only rim sherd was rounded, and at the Beef Market most of the rims were rounded.

For the 1740-1750 Heyward-Washington Stable Lesesne lustered sherds were the most prominent variety. The Beef Market assemblage for this time period also had a higher percentage of Lesesne lustered sherds. Interesting is that at the Beef Market there were smaller quantities of River burnished and Yaughan sherds, but there were more Yaughan. In the 1740-1750 context, however, River Burnished more common than Yaughan. There is a low frequency of smoothed sherds in both the 1740-1750 Heyward-Washington Stable and Beef Market contexts. The majority of the rim sherds were squared, which differs from the Beef Market where there was a more equal distribution of rim forms.

Conclusion

The urban sites tend to mirror the Beef Market patterns, suggesting that colono ware may have been distributed at the Beef Market. River burnished vessels were most likely distributed outside of the

Beef Market, since they are almost absent from its assemblage, but found on other Charleston sites. Lesesne lustered wares remain the most common colonoware vessel variety both temporally and spatially. It is interesting that scalloped rims did occur in the later market period at the Nathaniel Russell house, and the early market period at the Beef Market. Scallop-rimmed vessels do not seem to have been distributed broadly, especially not from the Beef Market. Further research on the distribution of Charleston colono ware assemblages will help us understand the economic and social interactions involved in colono wares distribution and use.

Vertical Patterning and Temporal Changes

For the purposes of initial analysis, the entire site was divided into three temporally discrete artifact assemblages. These have been discussed above in terms of particular content. In the following section, the assemblages will be quantified to analyze particular artifacts with temporal sensitivity.

The stratified deposits at the market site contained some artifacts with narrow date ranges, but overall contained a large number of well-documented artifacts, particularly ceramics, with a broad period of manufacture. Based on the law of superimposition, it was possible to sequence the well-defined zone deposits. Segregating the temporal changes and constructing the assemblages associated with the three occupations was more challenging. This was particularly the case with the zone 10 deposits, where an overall artifact assemblage associated with the first quarter of the 18th century also contained a significant number of items dating after 1740. The hundreds of individual proveniences were first assigned a date of deposition and a temporal association based on the principal of *Terminus Post Quem*. This was refined with calculation of a mean ceramic date for each zone deposit.

This formula combines the number of each ceramic type found with its median date of manufacture to determine a mean, or possibly peak, point of occupation or use for the materials being measured. The Mean Ceramic Date Formula, derived by Stanley South, is based on the principals of evolution and horizon. Evolution occurs with each manufactured consumer item; it will be created, rise in popularity until a peak is reached, then decline in popularity until it is no longer available, or used. Horizon is a compressed version of evolution, where an object experiences a broad and rapid spread in popularity. By measuring the relative quantity of artifacts against their presumed peak in popularity (the median date), a mean date of occupation can be proposed (South 1977:217). Instead of comparing the ceramic dates with documented occupational dates, the dates here are compared to each other to define the sequence of deposition and association.

The market square occupation is reflected in the accumulation of zones 11 and 10. Numerous samples of these zones were retrieved. Most had a TPQ date of 1720, but several contained items dating to 1740. Calculation of mean ceramic dates for these two zone deposits revealed mean date of 1722 for zone 11 and 1725 for zone 10. Zones 7, 8, and 9 exhibit TPQ dates of 1740 to 1760, which associate them with the 1739-1760 market building. All exhibit similar artifact assemblages, and produced mean

ceramic dates of 1722-1727. The overall similarity of the artifact contents suggest they are part of the same occupation. While the mean ceramic date for these proveniences is close to that of the zone 10-11 assemblage, it was visibly clear that zone 10 represented a different type of depositional activity, with larger bone fragments and larger artifacts. Further, the clear line of demarcation between zones 9 and 10 suggests a change in occupation at this point. The overlying zone deposits, stratigraphically latest, include zones A, 5, and 6, as well as the feature 15 ash deposit. These exhibit substantially later TPQ dates, 1770-1795, and significantly later mean ceramic dates.

Table 4-6: Mean Ceramic Date Calculations

<u>Provenience</u>	<u>Terminus Post Quem</u>	<u>Mean Ceramic Date</u>
Zone A	1795	1734.5
Feature 12/15	1795	1760
Zone 5	1795	1740.9
Zone 6	1770	1735.3
Zone 7	1740/1760	1726.0
Zone 8	1740/1760	1727.4
Zone 9	1740/1763	1722.6

The differences among the mean ceramic dates are subtle, and result in part from the dominance of ceramic types manufactured over the course of the 18th century. The narrowly-defined temporal periods, and the excellent stratigraphic control allowed consideration of the dates of usage in Charleston for the various ceramic types recovered. Range of use and popularity can be determined for types that are already well defined and have precise periods of manufacture. Dates of use can be defined, or refined, for ceramic types that are poorly defined, or whose date of manufacture is unknown. The relative proportions – or popularity – of these types will then be compared to the Charleston average (based on broader date ranges) in a subsequent chapter to suggest activities particular to the market site.

Chinese porcelains are a fairly common component of Charleston ceramic assemblages of the 18th century, but this table and tea wares was uncommon at the market. It does increase through time, though. Porcelains comprise 1.0% of the market square assemblage (1690-1739), 3.7% of the early market assemblage (1739-1760), and 7.1% of the Beef Market ceramics (1760-1796). This is significantly less than the Charleston average of 6% for the 1720-1760 period and 20% for the 1760-1830 period. Together, these data suggest that Chinese export porcelain becomes more common as the 18th century progresses and upper-class Charlestonians become wealthier and more numerous. This trend is mirrored at the market, though the data suggests little use for porcelains at the market site.

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 in Charleston. Just how and when these wares were used in Charleston has been a persistent issue. The proportions of North Devon gravel-tempered ware supports this proposed period of manufacture and use. This ware comprises a significant proportion of the market square assemblage, comprising nearly 5% of the ceramics. It declines slightly in the early market period, to 3.1% of the ceramics. It continues to decline in significance in the Beef Market era, comprising slightly more than 1% of the late assemblage. The Sgraffitto slipwares are a slightly different situation, though. These are less common, and comprise .5% of the market square assemblage. They peak in popularity in the 1739-1760 period, comprising 2.2% of the ceramics. They decline again in the third period, comprising .5% of the Beef Market assemblage. This suggests that Sgraffitto slipwares are most popular in Charleston at a time near the end of their manufacture, between 1730 and perhaps 1750-60.

Manganese mottled ware has been recovered consistently in Charleston and on other British colonial sites, but its period of use is poorly understood. Scholars have suggested that it was developed in 1680 and used through the first half of the 18th century. The recent recovery of this ceramic in closed contexts at Charles Town Landing led Michael Stoner to propose a 1670 date of manufacture instead (Stoner and South 1991). A large amount of this ware was recovered at the market. Mottled ware comprises 5.6% of the period I ceramics and 6.0% of the period II ceramics. It declines in popularity to 2.8% of the period III ceramics. This is consistent with the most recent evidence, which suggests that mottle ware was still being produced as late as 1780 (www.jefpat.org). Clearly the late 17th to early 18th century was the period of peak popularity for this ware, but it remained an important component of the Charleston kitchen into the second half of the 18th century. Similar to the mottled ware is the slip coated ware, which has been recovered only rarely on Charleston sites. Though this is only a minor component of the market ceramic assemblage, it generally increases in popularity through the 18th century, from .2% to .32% to .5% of the ceramics from the three periods.

Combed and trailed slipwares have been a prominent feature of 18th century ceramic assemblages in Charleston, averaging 20% of the 18th century ceramics. Combed and Trailed slipware was in production by 1670, and was manufactured through 1795. These wares evidently increase in use at the market throughout the 18th century, and were intended for middle and lower class kitchens and dining tables, as well as taverns (www.jefpat.org). They are nearly 13% of the market square assemblage, increasing to 20% of the early market ceramics, and nearly 28% of the Beef Market ceramics.

Red-bodied slipwares manufactured in the mid-Atlantic colonies were used in Charleston alongside the more common English wares. Carl Steen (1999) and others have suggested that these wares were exported to other colonies in significant numbers in the second half of the 18th century; the tightly-dated proveniences at the market support this suggestion. Only a small number of these wares were recovered from phase I and phase II proveniences (.2% and .5%, respectively). American slipware is much more common in the Beef Market assemblage, comprising 1.6% of the later ceramics. The proportions of both

the Staffordshire slipware and the American slipware at the Beef Market are twice that of the Charleston average.

Given the fact that they are universally dining or tea wares, delft ceramics are surprisingly common at the market site. They comprise over a quarter of the ceramics from the market square assemblage, and peak in the second quarter of the 18th century; they are 30% of the 1739-1760 assemblage. Delft declines in use during the late 18th century, but is still 18% of the 1760-1796 assemblage. Material researchers suggest that delft was manufactured throughout the 18th century, but its popularity declined precipitously after development of more durable ceramics, particularly white saltglazed stoneware in the 1740s and creamware in the 1760s. Charleston sites average less delft than the market site, 24% delft in the 1720-1760 period, and 10% in the second half of the 18th century.

The purported replacements for delft – white saltglazed stoneware and creamware – are not as common at the Beef Market as they are on domestic sites in Charleston of the same period. White saltglazed stoneware peaks in popularity at the market in the post-1760 period, comprising 4.3% of the ceramics. This ware averages 11% of the ceramic assemblage for domestic sites. So, too, creamware comprises 5.4% of the Beef Market assemblage while it averages 25% of the ceramics on domestic sites of the 1760-1820 period.

French and Spanish ceramics are a small, but consistent presence in the market ceramic assemblages. These include utilitarian earthenwares such as French green glazed coarse earthenware and Spanish Olive Jar, as well as tablewares such as Spanish majolica and French faience. French ceramics consistently comprise nearly 1% of the market ceramics; they are .8% of the market square assemblage, and .6% of the later two assemblages. Spanish ceramics are less common in the phase II assemblage, but increase in significance in the second half of the 18th century. This may reflect the legalization of trade with Spanish colonial merchants in St. Augustine after 1750 (Deagan 2005). This trend is mirrored in the general Charleston data, but overall the market assemblage contained a greater proportion of French and Spanish ceramics than do Charleston domestic sites.

Colono wares were the biggest surprise of the ceramic assemblage. It was anticipated that an elevated number of these might be recovered at the site, given the documented dominance of African American hawkers and vendors on the Charleston market scene (Morgan 1998) and the documented sale of Native American pottery in Charleston by itinerant Catawba traders (Crane 1993). Instead, colono wares were less common at the market than on other Charleston sites. Colono wares typically are more common in the early 18th century, peaking in the 1740s and declining rapidly in the last quarter of the 18th century (Joseph 2002; Hamby and Joseph 2004). They average 22% of the Charleston ceramics in the 1720 to 1760 period, and 5% in the 1760-1820 period at urban domestic sites. Colono wares are most common in the market square assemblage, but comprise only 8.3% of the ceramics in these deposits. They decline to less than 4% of the ceramics in the early market and beef market assemblages. There is some horizontal variation to this pattern, and this will be explored in the subsequent chapter.

Detailed quantification of the three market assemblages has refined our understanding of artifact usage in Charleston through the colonial period. The new dates of usage derived from the present project will be useful in dating and sequencing materials from other Charleston sites, including those that are less

intact. Differences between the ceramics and other artifacts used at the market and those recovered from domestic sites will be explored further in the next section.

Table 4-7: Relative proportions of ceramic types (% of total ceramics)

Ceramic type	1690-1739	1739-1760	1760-1796
Chinese porcelain	1.0	3.7	7.1
Slip dipped stoneware	4.8	2.8	3.2
White saltglaze stoneware	2.4	2.7	4.3
Nottingham stoneware	.8	.81	.88
British brown stoneware	.2	.41	.2
North Devon gravel temp. ware	4.5	3.1	1.2
Sgraffito slipware	.5	2.2	.5
Manganese mottled ware	5.6	6.0	2.8
Slip coated ware	.2	.3	.5
Combed and trailed slipware	12.9	20.2	27.9
American slipware	.2	.5	1.6
Delft (all types)	25.6	30.7	18.0
French ceramics	.8	.6	.6
Spanish ceramics	.8	.16	.58
Colono ware (all types)	8.3	3.8	3.9

Table 4-8: Quantification of the City Hall Assemblage

	1690-1739	1739-1760	1760-1796
Porcelain, blue-on-white	4	195	310
Porcelain, overglazed	0	13	30
Brown saltglazed stoneware	27	13	205
Westerwald stoneware	6	229	162
Gray saltglazed stoneware	9	129	103
Nottingham stoneware	3	45	42
Slip-dipped saltglazed stoneware	18	158	156
White saltglazed stoneware	9	151	206
British brown stoneware	1	23	10
Scratch blue stoneware	--	--	11
Elers ware	--	--	4
Black basalte stoneware	--	--	6
North Devon gravel tempered ware	19	56	173
Sgraffitto slipware	2	25	123
Manganese mottled ware	29	137	333
Slip-coated ware	1	24	18
Staffordshire combed and trailed	59	1325	1113
Buckley ware	--	14	22
Lead-glazed coarse earthenwares	35	270	499
French green-glazed earthenware	1	6	17
Saintonge earthenware	1	6	6
Olive jar	2	2	8
Delft, undecorated	52	630	293
Delft, blue-on-white	40	685	370
Delft, polychrome	7	68	45
Delft, bisque	1	276	151
Faience, var.	1	21	7
Majolica, var.	1	7	19
Tonola ware			1
American slipware	1	28	78
Astbury ware	--	3	35
Agate ware	--	2	11
Jackfield ware	--	6	28
Whieldon ware	--	--	5
Creamware	--	--	257
Pearlware, undecorated	--	--	47
Pearlware, hand painted	--	--	20
Pearlware, shell edged	--	--	6
Pearlware, annular	--	--	9
Pearlware, transfer printed	--	--	10
Colono ware, Yaughan	13	19	26
Colono ware, Lesesne lustered	9	94	79
Colono ware, River Burnished	1	20	12
Colono ware, residuals	13	76	69
Historic Native American	8	64	32

Olive green bottle glass	220		2952		2689	
Clear container glass	14		107		230	
Aqua pharmaceutical glass		14		138		202
Table glass	5		131		58	
Cutlery	--		--		4	
Wrought nail	61		103		148	
Unidentifiable nail	84		603		636	
Nail fragment	124		711		730	
Window glass	111		223		658	
Hardware	--		5		6	
Roof tile	3		10		6	
Lead came	--		2		--	
Copper nail	--		--		1	
Delft tile	--		2		2	
Lead shot	2		6		4	
Gunflint	1		5		3	
Flint debitage	17		317		265	
Projectile point	1		--			
Sword handle	--		--		1	
Brass button	3		4		12	
Buckle	--		1		1	
Bone button	--		--		9	
Bead	--		5		6	
Straight pin	--		5		5	
Scissors	--		2		--	
Thimble	--		--		1	
Coin	--		--		4	
Wig curler	--		--		2	
Jaw harp	--	--	--	--		1
Brush	--		--		1	
Upholstery tack	--		4		11	
Curtain ring	--		--		3	
Hardware, misc.	--		2		2	
Figurine	--		--		1	
Kaolin pipestem fragment	110		1470		1456	
Pipe bowl/fragment	46		408		331	
Barrel strap	12		39		56	
Flower pot	--		1		1	
Tool	--		--		1	
Fishing weight	1		4		--	
Marble/toy	--		5		2	
Saddle boss	1		2		--	
Scrap brass	3		31		28	
Brass wire	--		5		14	
Scrap lead	2		5		8	
Scrap iron	--		108		86	

Chapter V
Animal Remains From
The 2004 Charleston City Hall/Beef Market Project
(by Gregory S. Lucas and Elizabeth J. Reitz)

Although extensive excavations have been conducted in Charleston over the past two decades under the auspices of The Charleston Museum, most of the materials studied are from residential or mixed-use sites occupied during the late eighteenth century through the middle of the nineteenth century. Data from sites occupied during the early eighteenth century and sites whose function was primarily commercial are particularly limited. Thus, recent archaeological research at the Charleston City Hall/Beef Market site is important for two reasons. This research provides additional data from the early eighteenth century and from a clearly commercial site directly involved in the circulation of foodstuffs in the city. This greatly expands our knowledge of the commercial role of animals in the city.

Recent research into the role of animals in Charleston focuses on three related issues. One of these is an apparent increase in the incidence of commensal animals, particularly of 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 wild mammals, small domestic animals such as pigs, sheep or goats, and chickens, large domestic mammals such as 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.

Studies of these issues are limited by the fact that, for the most part, interpretations are based on data recovered from nineteenth-century residential sites. This dominance of 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 similar evidence from contemporaneous markets, it is not possible to define characteristics of each which might enable us to distinguish between these two broad sources of meat in Charleston and ultimately to examine the development of commercial life in the city. The dominance of data from the nineteenth century also has made it difficult to study animal husbandry in the urban landscape. Recent work at the Charleston City Hall/Beef Market site enhances our ability to consider both issues.

Review of Previous Work

Previous work with vertebrate animal remains recovered from Charleston archaeological sites has enabled the formulation of several hypotheses. As Charleston became more urbanized, commensal taxa generally, and rats in particular, appear to increase in some types of archaeological assemblages. Sawing also increased, perhaps because the purchase of commercially-available meats from markets, butchers, or other vendors became a more common household practice. Although domestic animals become somewhat more common at Charleston sites over time, large domestic animals actually decline at residential sites and small domestic animals become more common. A study of cattle and pig specimens recovered from Charleston sites suggests that the types of skeletal portions represented at these sites may distinguish between on-site slaughter of household animals and purchased meats. The young age of the pigs and cows slaughtered indicate these animals were primarily raised for meat. In addition to these aspects of animal use in the city, the number of taxa used increases so that domestic animals are less dominant in assemblages from the late 1800s than they are in assemblages from the early 1700s. Data addressing each of these points are summarized in Table 1 and reviewed in more detail below.

The possible increase in commensal animals, particularly of Old World rats (*Rattus* spp.) may be associated with the development of the urban landscape (Table 1; see Methods below for a definition of "commensal taxa"). Commensal taxa of all types increase between the 1720 - 1740 and the 1860 - 1900 period, from 10 percent of the minimum number of individuals (MNI; see Methods below) to 14 percent. Many of these are pets and this may reflect increasingly smaller lots such that pets were buried closer to structures than formerly (Reitz 1986). The increase in rats is one of the more interesting aspects of this phenomenon. Rats increase from 8 percent of the individuals to 9 percent between the 1720 - 1740s and 1860s - 1900s, but at some later sites rats and mice are very common. For example, in deposits associated with the Pringle-Frost occupation at the Brewton House from the 1840s - 1880s, rats and mice comprise 16 percent of the individuals (Zierden 2001a). Rats comprise 12 percent of the individuals in 1857 - 1908 deposits at the Nathaniel Russell House (Zierden and Reitz 1995). In one particularly memorable deposit, a well at 70 Nassau Street filled from the mid to the late 1800s, rats comprised 69 percent of the individuals (Reitz 1990). Such an abundance of rodents is clearly related to urban sanitation, health, trash disposal, and the development of the urban environment (Zierden 1996b, 2000; Zierden and Reitz 2001, 2002).

The high numbers of rodents in some locations may well indicate that the amount of urban garbage grew as the amount of space in which trash could be discarded shrank. This presented an attractive food source that could sustain a growing rodent population. The expectation is that as the temporal assignments of Charleston archaeological materials are improved, a trend will be seen in which rats as a percentage of individuals in each time period increases, as will the incidence of animal remains that were gnawed by rodents. The question for the present report, however, is whether rats were common at the Beef Market. The early date for the site suggests not; though the Market was surely a place where food was available.

Sawing (here defined to include clean-cut specimens, see Methods below) is a way to process meat that produces smaller portions than does hacking and is usually associated with butcher shops rather than with home-butchered. If sawing was a common commercial technique and an uncommon household treatment, it may be that percentages of sawed bone indicate the level to which commercially-prepared meats were used in the city by different social groups. Sawing appears to increase through time at Charleston sites. Sawing is present on 7 percent of modified animal remains from the 1720 - 1740 period; but 52 percent of the modified specimens are sawed in collections deposited after 1860 (Table 1). Sawed specimens are particularly common at public, middle class, or mixed function sites such as President Street (15 percent of the modified specimens in the early component and 16 percent in the later one), 66 Society Street (10 percent of the modified specimens), 40 Society Street (8 percent), and the 70 Nassau Street privy (7 percent; Reitz 1990; Reitz and Dukes 1993; Ruff and Reitz 1992; Zierden 1990; Zierden, Grimes, Hudgens, and Black 1988; Zierden and Raynor 1988). If sawing is a marker of commercially-prepared meats, this suggests that middle-status households were more likely to purchase meats than were upper-status ones. Interestingly, as sawing becomes a more common method, hacking and cutting decline in frequency. Hacking and cutting may be early commercial butchering methods, but they may also be evidence of household butchering activities.

The third issue pertaining to the developing urban character of the city relates to the growing participation in the national commerce in meat products (Zierden and Reitz 2001). This may be indicated by increased reliance on meats prepared elsewhere, replacing local resources. In particular, non-domestic foods such as turtles, wild birds and wild mammals might be replaced by domestic pork and beef. Fishes might be from larger commercial fishing grounds in the northern Atlantic or offshore rather than from the local harbor. The decline in white-tailed deer (*Odocoileus virginianus*), most likely a locally-procured wild resource, from 4 percent of the individuals in the 1720 - 1740 period compared to less than 1 percent of the individuals in the 1860 - 1900 period might be evidence of greater focus on commercial domestic meats (Table 1). On the other hand, Canada geese (*Branta canadensis*) and turkeys (*Meleagris gallopavo*) are represented in similar percentages in both early and later deposits. These birds, however, were probably local wild resources in the 1700s and domesticated resources in the late 1800s. Distinguishing between wild and domestic Canada geese and turkeys in the Charleston collections is difficult and a satisfactory resolution has not yet been reached. Fish remains also decline, but the fish used continue to be local fishes from nearby waters rather than offshore or northern Atlantic fishing grounds.

If the animal remains recovered from residential properties in the city largely reflect on-site, rather than commercial sources of meat, increased urban crowding might also be reflected in an increased use of small animals that could be raised within the increasingly constricted space of urban residential lots and a decrease in the remains of large animals. It appears that, through time, the remains of large domestic mammals decline at residential lots and that small animals, specifically chickens (*Gallus gallus*), increase. Chickens could be raised on kitchen debris in pens in small backyards, whereas slightly larger, but more smelly, animals such as pigs (*Sus scrofa*) and large animals such as cows (*Bos taurus*) are less compatible with crowded urban settings. This may be a reflection of increased use of purchased meats and a reduction in the

amount of bone waste discarded on-site; but it may also indicate that keeping large animals in town was less feasible and people raised smaller animals, such as chickens, instead.

The number of taxa present in Charleston faunal assemblages increased over time (Table 1). This might be associated with the increased sample size; the number of identified specimens (NISP; see Methods below) increases from 2,321 to 7,722 specimens from the 1720 - 1740 period to the 1860 - 1900 period. Assuming for the sake of argument that richness actually does increase over time and is not simply a function of sample size; the greatest increase in richness is in wild birds, with slight increases in wild mammals and commensal taxa. The result is that domestic animals are less dominant in assemblages from the late 1800s than they are in assemblages from the early 1700s.

Related to these questions is another issue: 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? Logged ratio diagrams (see Methods below) are used to summarize pig and cattle specimens from Charleston sites occupied between the 1730s and the 1870s to address this question (Figures 1, 2; Reitz, Ruff, and Zierden 2005; Reitz and Zierden 1991).

In the case of pigs, specimens deposited at sites occupied between 1712 and the early 1900s were studied to test the hypothesis that patterns in pig specimens recovered reflect temporal, functional, and social variables (Figure 1; see Reitz, Ruff, and Zierden [2005] for a list of the sites covered; Figure 1 includes Beef Market data published in Calhoun et al. [1984]). This study of 2,172 pig specimens indicates that pig use was similar at most sites regardless of function or status, with very little variation related to time period. One explanation for this is that pigs were raised on urban properties until the end of the nineteenth century. The greatest variation exists in late nineteenth-century collections, when most households likely purchased pork.

This same technique was used to examine 1,607 cattle specimens for variations related to site function and status. It appears that site function correlates strongly with cattle specimens, more so than does status (Figure 2; see Reitz and Zierden [1991] for a list of the sites covered; Figure 2 includes Beef Market data published in Calhoun et al. [1984]). A distinctive residential pattern contrasts sharply with the commercial Beef Market pattern derived from 1984 data and with that for entertainment facilities such as Lodge Alley. This comparison suggests that a combination of home-grown cattle and some purchased beef characterizes Charleston residential sites regardless of status; but it was primarily merchants operating public function sites such as Lodge Alley who purchased beef from markets, stores, or vendors. Consequently, deposits at Lodge Alley and those recovered from the Beef Market in 1984, though mirror images of each other, are both very different from deposits at residential sites. At the time this study was done, the Charleston data were not subdivided into temporal components, so this pattern describes combined cattle specimens recovered from Charleston from a variety of deposits dating from the 1730s into the late 1800s.

These studies show that skeletal specimens from the entire pig and cow skeletons are recovered from sites of all socio-economic affiliations. No clear association has been found between status and portions of either the pig or the cow carcass that might be more highly valued because they yield more meat. Specimens recovered from Charleston sites suggest that pigs and cows were kept and used differently within Charleston. A more detailed study of cattle specimens is needed before this contrast can be fully considered.

Another sign of the growing dominance of markets as a source of meat might be an increase in the slaughter of young pigs and cows, indicating that animals were raised specifically for meat and slaughtered at an optimal age for weight gain. Between roughly 1720 and the 1820s, 63 percent of the pig individuals and 56 percent of the cow individuals were slaughtered before reaching adulthood (Tables 2, 3). In the 1800s, 62 percent of the pig individuals and 49 percent of the cow individuals were slaughtered before reaching adulthood (Tables 4, 5). Apparently Charleston residents could afford to raise animals primarily for food, routinely slaughtering young, tender animals. This preference changed little over time and is more obvious for pigs than for cattle. Thus, it is not anticipated that a growing commercial use of purchased meats would alter this aspect of urban animal use.

The Charleston Beef Market Site

As the above review indicates, some earlier work has been conducted at the Charleston Beef Market site. In 1984, archaeological research in Washington Square Park, adjacent to Charleston's present-day City Hall, tested what was thought to be the location of an eighteenth-century Charleston market (see below for the site's history; Calhoun et al. [1984]).

The 1984 study was notable for the large quantity of vertebrate material recovered at the Beef Market site compared with that recovered from other sites in Charleston (Calhoun et al. 1984:74). Although a single 5 x 10 ft unit was excavated, 10,378 specimens were recovered from contexts that could be dated. These materials were divided into 1720 - 1750 (NISP = 7,719; MNI = 48), 1750 - 1796 (NISP = 2,052; MNI = 19), early nineteenth-century (NISP = 606; MNI = 11), and twentieth century (NISP = 1; MNI = 0) components. Although the amount of animal debris recovered from Charleston sites is highly variable, the only project to produce more animal remains than this single 1984 unit was the much more extensive work conducted at Charleston Place (Honerkamp, Council, and Will 1982; Zierden and Hacker 1987).

The majority of the Market data are from the 1720s - 1750s occupation and these data have been interpreted primarily as evidence from an early eighteenth-century commercial venue for this reason. The 1984 excavation provided both an early eighteenth-century and a commercial comparative base that has been used in all analysis of Charleston animal remains since 1984. However, they are deleted from the preceding review of animal use in Charleston here and in Table 1 with the exception of the study of cattle specimens (Figure 2). Readers comparing Table 1 with earlier comparative tables should be aware of this difference between the data summarized here and those summarized in previous reports and publications.

In terms of the issues identified above, the 1984 Beef Market results offer an interesting perspective. For example, rats constitute 1 percent of the vertebrate individuals in the 1984 Beef Market collection (Calhoun et al. 1984). Sawing is uncommon in the 1984 Beef Market samples (less than 1 percent of the modified specimens). Over 90 percent of the modified specimens are hacked. Local, non-domestic, non-commensal animals constitute 46 percent of the individuals. The dominant domestic animals are cows (21 percent of the individuals), followed closely by pigs (19 percent of the individuals). Small domestic animals are 9 percent of the individuals. The types of pig specimens recovered appear to mirror those found in all Charleston collections (Figure 1); but the types of cattle specimens recovered contrast sharply with those recovered at residential and entertainment venues (Figure 2). The cattle specimens recovered also more closely approximate a complete cow skeleton than do pig specimens, which generally diverge away from the distribution of elements in a complete pig skeleton. The majority of the pig and cow individuals were juveniles and subadults: 71 percent of the pig individuals and 77 percent of the cows were slaughtered before reaching adulthood. Clearly much more than beef was sold at this market; 21 different taxa are represented in the 1984 species list.

Thus, the 1984 Beef Market data in some respects are similar to the limited data from other early sites in the city summarized in Table 1; but their interpretation is hampered by the need for greater temporal discrimination. None of the major questions can be resolved by the additional material reported here from the 2004 Charleston City Hall/Beef Market project but the project does offer an opportunity to re-evaluate the data available for the early part of the Charleston occupational sequence, to improve temporal resolution for the market itself, and to enlarge the sample size for a commercial source of meat in the city.

Methods

The Beef Market is located under the present-day City Hall and in the adjacent Washington Square Park, in Charleston, South Carolina. The market was established in this location in 1692 when the colonial Assembly established a market square at the corner of Broad and Meeting streets. Numerous complaints suggest that the market was poorly regulated; it was likely an informal, open area. In 1739, a large brick market building was constructed directly on Broad Street, and strict regulations were passed. By 1760, this market was deemed unfit and a "neat building, supported by brick arches and surmounted by a belfry" was constructed on the same site and the name was changed to Upper Market or Beef Market. This distinguished it from the Fish Market on Queen Street and the Lower Market on Tradd, two new markets built at this same time. In 1796, the Beef Market was destroyed by a fire which began in Lodge Alley. By this time, Broad Street was a professional district and a market no longer was suitable for the location. Therefore, in 1804 a new market was constructed on Market Street and the former Beef Market was overlain by a structure which served first as a bank and now as Charleston's City Hall. It appears that about half of the former market extends out from under City Hall into Washington Square Park. For sake of simplicity, the entire market is referred to as the Beef Market regardless of which time period is actually under discussion.

The field work at the Beef Market was conducted in 2004 by Martha Zierden of The Charleston Museum. A 3-inch mesh was used to recover vertebrate animal remains during excavation. Three temporal subdivisions are present. The earliest time period is defined by the informal Market Square, used from approximately 1692 to 1739. The First Market Building is dated to 1739 - 1760. The last subdivision is the Beef Market period from 1760 to 1796. There is a nineteenth-century temporal subdivision, but the materials for that period are not included in this study because they do not pertain to the marketing activities that are the focus of this report. The present study also merges the 1720 - 1796 data from the 1984 excavation with the 2004 data, thereby replacing the 1984 study. A list of the proveniences studied and their temporal assignment is provided in Appendix A.

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 Gregory S. Lucas. 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), because the 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. Some mollusc remains are present in the Beef Market samples, but are not reported here.

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 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. The aggregation of archaeological samples into analytical units (Grayson 1973) 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 three analytical units (Market Square, First Market Building, and Beef Market), all faunal remains associated within each unit are grouped together.

In most cases, MNI is estimated for the lowest taxonomic level. An exception to this rule is made for sheep (*Ovis aries*) and goats (*Capra hircus*) where only a few specimens could be identified to species while a larger number of specimens are identified to sub-family (Caprinae). This is also the case for sea basses, for which more individuals were identified to genus (*Centropristis* sp.) than to rock sea bass (*Centropristis philadelphica*), and for Old World rats, for which more individuals were identified to genus (*Rattus* spp.) than to Norway rat (*Rattus norvegicus*). In these cases, MNI is estimated for both taxonomic categories. The higher MNI estimate is used in subsequent calculations. The lower MNI estimate is included in the species list in parentheses for information only and is not used in subsequent calculations.

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 Appendix C.

The species identified from the Beef Market 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 Commensals. 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.

Canada geese and turkeys are placed in the Wild Bird category, but may actually belong in the category of Domestic Birds. According to the American Poultry Association (1874), standards of excellence for these birds 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 Canada geese and turkeys are present in South Carolina, the more conservative

interpretation is to consider the archaeological specimens as pertaining to the wild form, especially at this early date.

Taxa classified as commensals are blue jays (*Cyanocitta cristata*), robins (*Turdus migratorius*), rats (*Rattus* sp.), dogs and wolves (*Canis* sp.), and cats (*Felis domesticus*). 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. 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 Beef Market 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 specimens from these specimens are classified as 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 on 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 this category is often 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; 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, worked, burned, calcined, rodent-gnawed, carnivore-gnawed, and metal-stained.

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 would have been employed as the carcass was being dismembered, 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).

Worked specimens, such as those which have been grooved and snapped, flaked, or polished, are those which 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.

Burned and calcined specimens may result from exposure to fire when a cut of meat is roasted or if specimens are burned intentionally or unintentionally after discard. While NISP for specimens identified as Indeterminate vertebrate is not included in the species lists, burned Indeterminate vertebrate specimens are included in the modification tables. 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 indicates that specimens were not immediately buried after disposal. While burial would not insure an absence of gnawing, exposure of specimens for any length of time might result in gnawing. Rodents would include such animals as mice, rats, and squirrels. Carnivores would include such animals as dogs and raccoons. Gnawing by carnivores and rodents would result in loss of an unknown quantity of discarded material. Kent (1981) demonstrates that some 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.

Copper and rust stains are evidence that the specimen was deposited in the same location as a metal object. These modifications appear as green or rust discolorations on the surface of the specimen and are noted when observed.

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

I. Market Square, ca. 1692 - 1739

The earliest temporal subdivision in the analysis also contains the smallest sample of material. A total of 1,377 specimens weighing 6,440.14 g were identified, containing the remains of at least 11 individuals from eight taxa (Table 6). Domestic mammals contribute 54 percent of these individuals and 99.6 percent of the biomass (Table 7). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and a sheep or goat (Caprinae). Cow individuals are slightly more abundant than pigs. Beef contributes 94 percent of the biomass and pork only 3 percent. The only domestic bird is a chicken (*Gallus gallus*). Wild terrestrial animals, a turkey (*Meleagris gallopavo*), contributed 9 percent of the individuals and aquatic animals contributed 18 percent of the individuals. The aquatic animals are a black drum (*Pogonias cromis*) and an alligator (*Alligator mississippiensis*). Wild animals did not contribute substantial percentages of biomass. Nine percent of the individuals are commensals but the only commensal animal identified is an Old World rat (*Rattus* sp.). 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 - 7. Pig specimens are primarily from the Head, primarily teeth (NISP = 6). This is largely due to the distinctive morphology of pig teeth which makes them highly identifiable. Specimens from the Head, Forequarter, and Hindquarter are all over-represented compared to the standard pig (Figure 6). The absence of specimens from the lower leg (Forefoot, Hindfoot, Foot) of the pig is unusual, even for a collection that contains few specimens. Cow specimen distribution data reveals a high incidence of vertebra and rib specimens (35 percent of cow specimens identified), followed by forequarter specimens (24 percent). Other parts of the carcass are less abundant. Compared to the standard cow (Figure 7), specimens from the Head and lower leg (Foot) are under-represented and specimens from the Forequarter and Hindquarter are over-represented.

Juvenile, subadult, and adult individuals are present. Epiphyseal fusion data 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 caprine individual was an adult at death (Table 11).

Hacking is the most common modification in the material, being observed on 73 percent of the modified specimens (Table 12). Other modifications include sawing, clean-cutting, cutting, calcined, and metal-staining. Sawing and clean-cutting are present on 8 percent of the modified specimens. Two worked bone specimens are present. The first (FS# 62) is an Indeterminate mammal fragment that was sawed into a thin, flat piece and polished. It is likely an inlay for the handle of a tool. It also has a cut mark across one surface. The second worked specimen (FS# 192) is an artiodactyl metapodium that was sawed or cut into what appears to be a handle. The outer surfaces of the bone shaft were sawed, or clean cut, to form an irregular polygon. The inner surfaces of the bone shaft seem to be enlarged and a groove is cut around the circumference of one end. A rod of heavily oxidized metal extends into the hollow bone shaft, which itself has also been modified. This is undoubtedly a tool.

II. First Market Building, 1739 - 1760

The second temporal subdivision studied is that of the First Market Building. A total of 13,007 specimens weighing 23,800.21 g were identified, including the remains of a minimum of 36 individuals from 22 taxa (Table 13). Domestic mammals contribute 31 percent of these individuals and 98 percent of the biomass (Table 14). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and sheep or goat (Caprinae). At least one of the caprines is a sheep (*Ovis aries*). Caprines contributed a surprising 27 percent of the biomass during this period. Pigs constitute 8 percent of the individuals and 7 percent of the biomass; cows constitute 17 percent of the individuals and 63 percent of the biomass. The only domestic birds are four chickens (*Gallus gallus*). Wild terrestrial animals contributed 22 percent of the individuals and aquatic animals contributed 31 percent of the individuals. Among the aquatic animals is a sea turtle (Chelonidae). Neither group contributed substantial percentages of biomass. Six percent of the individuals are commensals. The commensal taxa are a robin (*Turdus migratorius*) and a domestic cat (*Felis domesticus*). No evidence is present for the sex of these animals.

Specimen distribution data for pigs, deer, cows, and caprines are summarized in Table 15 and Figures 8 - 11. Pig specimens are dominated by teeth (NISP = 57) and other fragments from the Head. Compared to the standard pig, only specimens from the lower leg (Forefoot, Hindfoot, Foot) are under-represented (Figure 6). Only two deer specimens are present, yielding little information about this taxon other than its availability for sale in the market. Cow specimens are abundant and half of these are from the Head and the Vertebra/rib portions; another 28 percent are from the Forefoot, Hindfoot, and Foot. The remaining specimens are relatively evenly distributed among the other skeletal portions. Compared to the standard cow, only Forequarter and Hindquarter specimens are over-represented (Figure 7). The cat is represented by a single specimen, a fused distal radius fragment.

Subadults and adults are present in the collection. Epiphyseal fusion data for pigs indicate that one individual was a subadult when it died, one was an adult, and the age of the third could not be estimated (Table 16). One cow individual was a juvenile when it died, three were subadults, and two were adults (Table 17). One caprine was a subadult when it died and the other individual was an adult (Table 18); thus, the sheep was an adult.

Hacking is the most common modification in the material, observed on 75 percent of the specimens (Table 19). Sawing and clean-cutting is observed on 1 percent of the specimens. Other modifications include pathologies, cutting, burning, calcined, carnivore-gnawing, and metal-staining. Six worked specimens are present, all of which are Indeterminate mammal. The two worked specimens in FS# 57 are probably handle inlays. The worked specimen in FS# 61 is sawed and polished; elaborate cutting at one end suggests it was an inlay for a handle. FS# 101 contains a thin fragment that is sawed, polished, and drilled or punctured; the fragment in FS# 106 is probably a tool handle inlay; and the specimen in FS# 169 is a thin, elongated fragment that is sawed and polished.

III. Beef Market, 1760 - 1796

The third temporal subdivision studied is that of the First Market Building. A total of 15,949 specimens weighing 21,159.42 g were identified, including the remains of at least 42 individuals from 23 taxa (Table 20). Domestic mammals contribute 24 percent of these individuals and 97 percent of the biomass (Table 21). The domestic mammals are pigs (*Sus scrofa*), cows (*Bos taurus*), and a sheep (*Ovis aries*). Pigs constitute 12 percent of the individuals and 6 percent of the biomass; cows constitute 9 percent of the individuals and 90 percent of the biomass. The only domestic birds are four chickens (*Gallus gallus*). Wild terrestrial animals contributed 12 percent of the individuals and aquatic animals contributed 43 percent of the individuals. Neither group contributed substantial percentages of biomass. Wild terrestrial animals contributed 12 percent of the individuals and aquatic animals contributed 43 percent of the individuals. Among the wild animals is a diamondback terrapin (*Malaclemys terrapin*). Twelve percent of the individuals are commensals. The commensal taxa are a blue jay (*Cyanocitta cristata*), three Old World rats, one of which is a Norway rat (*Rattus norvegicus*), and a dog or wolf (*Canis* sp.). The latter is most likely a dog, though the single specimen (an incisor) could not be identified as such with confidence. No evidence is present for the sex of these animals.

Specimen distribution data for pigs, cows, and caprines are presented in Table 22 and Figures 12 - 14. Pig specimens are dominated by specimens from the Head, particularly by teeth (NISP = 53). Compared to the standard pig, only specimens from the lower leg (Forefoot, Hindfoot, Foot) are under-represented (Figure 6). Cow specimens are abundant, and the specimen distribution data reveals a high incidence of specimens from the Head and Vertebra/rib portions (46 percent). Compared to the standard cow, only Forequarter and Hindquarter specimens are over-represented (Figure 7).

Juveniles and subadults are present in this collection. Epiphyseal fusion and tooth eruption data for pigs indicate the presence of one juvenile and four individuals of indeterminate

age at death (Table 23). One cow individual was a juvenile at death, one was a subadult, and the age of two could not be estimated (Table 24). The sheep was a subadult at death (Table 25).

Hacking is the most commonly recorded modification in the material, and was observed on 78 percent of the modified specimens (Table 26). Sawing and clean-cutting is present on 3 percent of the modified specimens. Other modifications include cutting, burned, calcined, carnivore-gnawing, and metal-staining. Five specimens Indeterminate mammal specimens are worked. Four worked specimens are thin fragments of sawed, polished bone (FS#s 43, 75, 81, 131). FS# 86 contains a thin, disc-shaped bone fragment with smooth surfaces and a hole drilled in the middle of it; probably a button.

Discussion of the Charleston City Hall/Beef Market Site

The three temporal subdivisions analyzed in this study reveal a high degree of continuity in the 100-year history of the Charleston City Hall/Beef Market site and some noteworthy differences (Figures 6, 7; Table 27). Some of these differences may be due to sample size biases rather than to substantive differences in marketing and butchery practices at the site over time; but others appear to represent changes in marketing habits and life in the city.

The abundance of commensal taxa in the three Beef Market collections is very similar to that for other eighteenth-century sites, 6 to 12 percent of the individuals at the Beef Market compared to 6 to 10 percent of the individuals at other eighteenth-century sites (Tables 1, 27). Commensal taxa generally increase through time in the Market materials, a trend that continues into the nineteenth century non-market materials. Although rats are common in the 1692 - 1739 Beef Market component (9 percent of the individuals), they are absent from the 1739 - 1760 one. Rats apparently were not any more common at the Market than elsewhere in the eighteenth-century city. No rodent-gnawed specimens are found in the Market assemblage, but rodent-gnawing increases in the city-wide pattern to the point that rodent-gnawing is found on 7 percent of the modified, late nineteenth-century specimens.

The relatively low percentage of commensal taxa, particularly of rats, at the Beef Market may be an indication of conditions at the Market compared to contemporary sites elsewhere in the city. It is possible that fewer quiet hiding places were available at the Market and that residential and other commercial properties in the city had more hiding places where rats could be rest and reproduce undisturbed. Alternatively, the increased crowding in the nineteenth-century city may have offered many more opportunities to rats such that their numbers increased, in some cases dramatically, long after the Beef Market had closed. It is also possible that the Market cats did their job effectively.

Patterns in the modifications observed on specimens indicate some aspects of butchery which may be markers for household activity and some which may not be. (For this discussion, worked and stained specimens are omitted.) Although the 1692 - 1739 component is very small, 8 percent of the modifications are either sawed or clean-cut; a percentage which declines to 3 percent in the 1760 - 1796 component (Tables 1, 27). This percentage is in the range of city-

wide sawing in the eighteenth century (7 percent), a percentage which increases to 52 percent by the end of the nineteenth century. The similar percentages of sawed specimens in both Market and eighteenth-century city refuse suggests that sawing may be a good commercial butchery signature, assuming that meats that originated from both commercial and household sources were combined in refuse discarded at the non-market sites. The incidence of hacking and cut marks in the Beef Market material increases slightly from 87 percent of the modifications in the 1692 - 1739 component to 89 percent in the 1760 - 1796 component, as sawing becomes less common in the Market assemblage.

It is not clear whether or not the percentages of hacked and cut specimens distinguish between home butchery and commercial butchery. The percentage of hacked specimens is much higher in the eighteenth-century Market than in the eighteenth-century city but cut marks are less common on Market specimens recovered than elsewhere in the eighteenth-century city. It remains to be seen if distinctions can be drawn between home butchery and commercial butchery using cleavers. Cutting undoubtedly does reflect a household treatment of meat once it reached the kitchen and table.

The range of animals recovered from the Market indicates that local resources were an important part of the Charleston diet and were not supplanted by non-local resources or by domestic pork and beef. In fact, the percentages of wild terrestrial and aquatic animals sold in the Market steadily increased over the 100 year study period (Tables 1, 27). In particular, fishes increase to a third of the meats sold there, supplanting domestic animals. Prominent among these are sea catfishes and drums. Freshwater fishes are represented by freshwater catfishes (Ictaluridae), though some of the marine fishes sometimes enter upper reaches of estuaries and even freshwater streams. The presence of diamondback terrapin and sea turtle indicates further exploitation of marine resources and the presence alligator, pond turtles, and ducks indicate continued use of freshwater habitats. All of these wild animals could be taken from near-shore waters, nearby islands, or local plantations.

Although the percentages of chicken individuals increases in the city at large from the eighteenth to the nineteenth centuries, this increase is not evidence in the Market (Tables 1, 27). Perhaps the Market deposits are too early to reflect this transition, or perhaps the increase in small barnyard animals was a domestic phenomenon that did not penetrate the Market. More information on nineteenth-century marketing is needed in order to determine if the nineteenth-century residential pattern comes from market forces or is a residential pattern independent of markets.

A decline in the larger domestic animals is clear in the Market materials and is more pronounced for cattle than for pigs (Tables 1, 27). The decline in cattle individuals is mirrored in the eighteenth-century city-wide data, though the Market decline in pigs is not reflected in the city-wide pattern. It may be that smaller meats, fishes in particular, were more frequently sold at the Beef Market toward the end of its operation, reflecting its central city location where livestock were increasingly unwelcome. This presumes that live animals were kept at the Market and sold from there either dead or alive. This practice may have been more common in the early

years of the Market's operations and declined as the location itself assumed a more up-scale role in the city.

The preceding discussion has focused on MNI, but the merits of biomass are apparent in this analysis. Although most of the "individuals" sold from the Market were not domestic mammals; the vast majority of the biomass was beef. Beef constitutes 94 percent of the biomass in the 1692 - 1739 period, 63 percent in the 1739 - 1760 period, and 90 percent of the biomass in the 1760 - 1796 period. Pork contributes between 3 and 7 percent of the biomass. The decline of beef in the 1739 - 1760 period is due a brief increase in lamb and mutton at that time (27 percent of the biomass). This may have been an unsuccessful attempt to increase local consumption of a meat source that had been, and subsequently was, a minor food.

One way to conceptualize the distinction between MNI and biomass is to envision a number of stalls. At the beginning of the Market's operation, approximately 30 percent of those stalls sold fish and other wild meats. By the end of the century, over 50 percent of the stalls sold wild meats, particularly fish. However, the beef stalls sold much more meat compared to the small packages of fish, duck, turkey, and turtles sold from the wild game stalls. Thus, though domestic mammals, particularly cows, provided the bulk of the meat present at the Beef Market, a wide range of other taxa contribute from 45 percent of the individuals (1692 - 1739) to 76 percent of the individuals in the 1739 - 1796 components.

This is reflected in the number of taxa for which MNI was estimated, otherwise known as richness. The small 1692 - 1739 collection has eight taxa, whereas the larger 1739 - 1760 and 1760 - 1796 collections have 23 taxa. The most pronounced difference in terms of richness is that fish taxa increases from 12 percent of the taxa in the 1692 - 1739 collection to 39 percent in the 1739 - 1760 collection and 43 percent in the 1760 - 1796 collection. Further research is necessary to determine if this due to sample size or if it reflects an expanded city menu. In the city-wide pattern, the increased richness is largely due to an increase in wild mammals and birds other than Canada geese and turkeys (Table 1). In the Market, the increased richness in fishes (Table 27).

Analysis of the domestic meat portions represented at the Market, particularly the pigs and cows, reinforce the notion of continuity of butchery and marketing practices at the site. The pig logged ratio diagrams are similar, with the exception of the 1692 - 1739 period, which has no Foot specimens. The absence of Foot specimens is consistent, however, with the general pattern in which Foot specimens are under-represented compared to the standard pig not only at the Market but throughout the city in both the eighteenth and nineteenth centuries. Otherwise, the logged ratios for pig specimens recovered from the Market are essentially identical to the pattern for the city as a whole (Figures 1, 6; note that Figure 1 contains 1984 Market data; Reitz, Ruff, and Zierden [2005]). One difference which may eventually prove significant, however, is the lower Forequarter values in the 1739 - 1796 Market materials compared to the city-wide ratios (Figure 6). 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.

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 (most dramatically) Forequarter specimens (Figures 2, 7). (The figure labeled Figure 2 in this report was originally published as Figure 3 by Reitz and Zierden [1991] using common logarithms and was recalculated for the Reitz, Ruff, and Zierden [2005:Figure 3] manuscript using natural logarithms to conform to the style used in the 2005 article. Changing the base did not alter the overall pattern originally described in 1991 and presented as Figure 2 here.) The original figure published in 1991, republished in 2005, and duplicated here as Figure 2 showed a consistent difference among residential sites, sites used for entertainment, and the 1984 Beef Market. The Beef Market pattern was based on the 1984 materials (Calhoun et al. 1984).

The new Market logged ratio diagram (Figure 7 in this report) suggests that the Market data more closely match the pattern for residential sites and that this pattern is the same during all three Market periods. The difference between the 1984 pattern (published in Reitz and Zierden [1991]) and the new 2005 Beef Market data is pronounced and will require more research to explain. However, the 1984 Beef Market collection contained materials which recent analysis showed to be from the nineteenth century and the materials used to generate the residential pattern were almost entirely nineteenth century. It is possible that there were changes in the portions of beef between the eighteenth and nineteenth centuries both at the Market and at residential sites that are masked in Figure 2. Clearly recalculating Figure 2 using greater temporal resolution and incorporating the volume of new data accumulated since 1991 is a high priority. It may also prove significant that the logged ratio (d ; the vertical axis) in the city-wide pattern is much smaller than it is for the Beef Market. The city-wide pattern much more closely mirrors an undisturbed skeleton than does the new Beef Market pattern.

As anticipated, juvenile and subadult pigs and cows were a consistent part of the Market's meats (Tables 2, 3). The percentages of young pigs in the Market collection is much lower (30 percent), however, than in the eighteenth-century (63 percent of the individuals) and nineteenth-century city (62 percent). The percentages of young cattle in the Market collection (61 percent) is higher compared to the eighteenth-century (56 percent of the individuals) and nineteenth-century city (49 percent). No explanation offers itself at this time for these differences, though perhaps a characteristic of commercial meats was that these were from older, tougher pigs compared to what households slaughtered for themselves. The difference in young cattle is primarily attributable to a decline in juvenile calves. Calves comprised 23 percent of the Beef Market cattle individuals; 20 percent of the eighteenth-century city-wide cattle, and 14 percent of the nineteenth-century cattle. It may be that households fattened and slaughtered their own young cattle instead of purchasing it.

Ironically, we are now in a position to say that what is needed for the early time period are residential data. The 1720 - 1820s period is represented by data from Atlantic Wharf (1790s - 1820s; Zierden and Reitz 2002), the 1750 - 1770 component from the Miles Brewton House (Zierden 2001a), the Charleston Exchange and Customs House (1750 - late nineteenth century; Reitz 1988; Zierden and Hacker 1986), First Trident (1740s - 1790s; Zierden, Calhoun, and Pinckney 1983), Lodge Alley (eighteenth-nineteenth century; Zierden, Calhoun, and Paysinger 1983) McCrady's Tavern and Longroom (1720 - 1780s; Zierden, Reitz, Trinkley, and Paysinger

1982), the Post Office/McKenzie House (1725 - 1769; Reitz and Ruff 1987), the Powder Magazine (1712 - 1820; Zierden 1997, 2000), the Russell House (1730 - 1808; Zierden 1996a; Zierden and Reitz 1995), and Rutledge House (1730s - post-1820s; Zierden and Grimes 1989). Only four of these are residential assemblages, and of those four only the Brewton and McKenzie data are clearly eighteenth-century rather than nineteenth century. Work anticipated at the Heyward-Washington house should improve our understanding of this early period. In addition, many of the collections reported in the 1980s and early 1990s should be re-analyzed to conform to improvements in our understanding of Charleston's archaeological sequence and site formation processes.

Conclusion

Research at the Charleston City Hall/Beef Market provides additional data from an eighteenth-century market that expand our understanding of the circulation of food stuffs in the city and the relationship between meats available from markets and those used by households. This greatly expands our knowledge 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 pigs, cows, and fishes. These patterns reflect use of the outlying areas and accommodations to growth within the city itself. In many respects, the Beef Market materials are very similar to those from other sites in Charleston. Further research will need to explore the relationships between other eighteenth-century sites in the city and to continue studies of the relationship between commercially-available meats and household consumption patterns.



Above: Collections of The Charleston Museum.

Right: Courtesy of CawCaw Creek Pastured Pork



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Materials retrieved from Test Unit 18, Zone 6. Test Unit 18 contained the greatest concentration of fragmented bone in the water-washed sand. The amount of bone relative to cultural and architectural materials is evident in the screen. In contrast, the left portion of the screen below contains a sample from Zone 10.



Chapter VI Environmental Analyses

Because of the unique soil profile exhibited at the market, the site's central location and the intact nature of the early 18th century deposits, samples from the market were subject to chemical, palynological, and parasitological analyses by three specialists (see chapter VI). In addition, the faunal remains and the soil profiles themselves informed on environmental conditions at the market site through the 18th century. These particular lines of inquiry were selected after careful consideration of the recovered data. Recovery of floral data from Charleston sites has been limited, despite two decades of research and seven individual site studies. Macrobotanical remains are evidently compromised by post-depositional disturbance characteristic of urban settings. Though the results have been uneven, based on individual site conditions, pollen analysis has provided a broader database for Charleston sites. The expected presence of livestock at the market site, plus the discovery of the highly organic soils at the base of the excavated units, prompted a search for parasites. Finally, the intact nature of the soil deposits, and the unusual degradation of glass and metal artifacts within the soil layers, prompted the first attempt at professional soil chemistry analysis. Each of the three environmental consultants analyzed samples from both the market and the contemporary Heyward-Washington site, and their individual reports include results from both sites.



Sample profile from the Beef Market. Zone 6 (water-washed sand from 1760 market), zone 7 (sand floor from 1760 market), zone 9 (midden from the 1739 market), and zone 10 (dark soil from 1690s market square) were the focus of environmental analyses.

Archaeoparasitology Analysis of Sediments from the Charleston Beef Market

(by Karl J. Reinhard)

Introduction

Archaeoparasitology, the study of parasite remains from sites, is a well-established field with several applications (Reinhard 1990, 1992). Archaeoparasite data has been used to test the validity of hypotheses concerning the emergence of some of today's major health hazards such as Chagas disease (Aufderheide et al. 2004; Reinhard et al. 2003). Similar data have been used to trace migrations on local and global scales (Reinhard 1992). On a population level, archaeoparasitology, integrated with other lines of evidence, has been used to describe the pathoecology of disease (Martinson et al. 2003). Paleoepidemiology has also been explored through archaeoparasitology (Reinhard and Buikstra 2003). Parasites of domestic and wild animals sometimes are found and provide clues as to the fauna of an archaeological site (Dittmar and Teegen 2003).

Archaeoparasitology has made some of its strongest contributions in historic archaeology. Whether from the perspective of environmental archaeology (Jones 1985), urbanization (Bain 2001), or disease control (Reinhard 1994), the field is focused on the mechanisms of disease spread in the unsanitary conditions that developed in, and spread from, Europe. Because historic archaeologists have particularly good control of dating, demography and ethnicity, parasitological investigations can come to very fine tuned conclusions. For example, researchers have been able to look at the effects of class on parasitism (Bouchet et al. 2003; Reinhard 2001; Reinhard et al., 1986). Herrmann and Schultz (1986) were able to identify a variety of demographic and behavioral factors that influenced parasitism. Reinhard (1984) was able to demonstrate resistance to improved sanitation in one locality, while at another locality Fisher et al. (in press) were able to use the same types of analysis to trace the positive effects of improved sanitation. Most studies are facilitated by the remarkably high numbers of parasite eggs that contaminated historic village, town, and city environments.

Because archaeoparasitologists have been successful in recovering animal parasites (for example, Bouchet and Bentrad 1997), I undertook the analysis of samples from the Beef Market excavations in Charleston, South Carolina, to examine the diversity of parasites that lived in that city's human and animal inhabitants.

Materials and Methods

My analysis methods have been developed and perfected over the last 25 years based on experimentation with clinical and archaeological sediment analysis methods (Reinhard et al. 1986; Warnock and Reinhard 1992). The main goals of my work are to identify the diversity and quantity of parasite eggs by taxon in sediments. Identification of taxa is based on laboratory atlases of medical, veterinary, and wildlife parasite eggs,

with comparison of eggs with reference collections in my laboratory, and with my experience of working in veterinary and wildlife diagnostic labs.

The goal of quantification is to determine the approximate numbers of eggs per milliliter of sediment. Quantification is based on extracting and concentrating eggs from the sediments. Reinhard et al. (1986) presented the comparative results of clinical, chemical, and dilution methods for parasite analysis of sediments. Clinical methods of parasite egg flotation were unproductive due to the failure of ancient eggs to respond to flotation media because of changes in buoyancy of the eggs over time and the fact that the eggs were often trapped in soil matrices. Dilution methods were effective with sediments that contained large numbers of eggs, but when the numbers of eggs were less than 1,000 eggs per ml, the method was not reliable. Chemical extraction of eggs using hydrochloric acid and hydrofluoric acid was very effective in releasing the eggs, cleaning the eggs, and dissolving the soil matrix. Warnock and Reinhard (1992) presented a modified palynological procedure with the application of pollen concentration methods of extract and quantify the numbers of eggs per ml of sediment.

The proveniences for the features are presented in Table 1. The samples were processed following the general methods of Warnock and Reinhard (1992) with some refinement based on analysis of historic sites in recent years (Fisher et al., in press). For this analysis, *Lycopodium* spore batch 212761 was used. Previous analysis shows that approximately 12,500 spores are present in each tablet (values presented from different analyses of tablets are 12,432, 12,489, and 12,542). I quantified the parasite eggs for 0.02 milliliters of processed sediment for each sample in order to standardize the results of each analysis. I then scanned an additional 0.06 to 0.08 milliliters of processed sediment to identify trace parasite eggs.

Sediment was removed from each sample bag. The sediment was freed of large fragments of detritus. A search for artifacts in the sediment was done. From the loose sediments, 30 milliliters were removed. Then, three *Lycopodium* spore tablets were added to each 30 ml sample (about 1,250 *Lycopodium* spores were added to each milliliter of sediment). Three *Lycopodium* spore tablets were dissolved in a few drops hydrochloric acid in 100 ml beakers. Then the sediment sample was added to the beaker. If there was a reaction with the hydrochloric acid, distilled water was added with 5 milliliters of acid. More water and dilute acid was added until the reaction between the acid and the sediments stopped.

Once dissolved in acid, the samples were transferred to 300-milliliter beakers and treated with the swirl technique. The contents of the beaker were swirled until all particles were in suspension. The beaker was placed on a flat surface for 30 seconds. After 30 seconds, the fluid was poured through a 300-micrometer mesh. This was repeated twice. The macrofossils on the mesh were examined for indicators of night soil, especially the presence of *Rubus* seeds. Then the screened fluid was concentrated by centrifugation in 50 ml centrifuge tubes. The sediments were washed three times in distilled water. Preliminary scans were made of the samples to determine if further chemical processing was necessary.

High content of fine silicates required further processing. The sediments were transferred into 500-milliliter polypropylene beakers. Hydrofluoric acid was added to each beaker and the sediments were thoroughly mixed in the acid. The samples were left in the hydrofluoric acid for 24 hours and were stirred occasionally during this period. Then the sediments were concentrated by centrifugation in 50-milliliter centrifuge tubes. The acid was disposed into a hazardous materials container. The sediments in the tubes were then washed three times in distilled water.

Drops of the sediments were transferred to glass microscope slides with Pasteur pipettes. The sediment drops were mixed with glycerin and covered with glass cover slips. For each sample, 25 *Lycopodium* spores were counted along with all parasite eggs found in the process of counting the spores. The parasite eggs were measured with a calibrated ocular micrometer. After counting, at least three more microscope preparations were counted to assess the presence of trace amounts of parasite eggs.

The concentrations of eggs of each species was calculated using the following formula:

Egg concentration = $((p/m) \times e) / v$, in which p = parasite eggs counted, m = marker *Lycopodium* spores counted, e = *Lycopodium* spores added, and v = volume of sediment.

Identification of the genera of the parasite eggs was done by morphological analysis. In the case of trichurid eggs, the dimensions of the eggs were measured and compared to those of trichurid species from a variety of hosts including humans, domestic animals, and rodents that commonly infest habitations. Because of the poor recovery of parasite eggs in this analysis, the counting was repeated to insure that I did not miss positive samples.

Results

The laboratory numbers and proveniences are listed in Table 1. The results are listed in Table 2. Only two samples, lab numbers 11 and 12, were positive for parasite eggs. Eggs consistent in size and shape with the *Trichuris trichiura* (human whipworm) or *Trichuris vulpis* (dog whipworm) were found in these samples. Only one egg was observed in sample. The calculated egg concentration for both of these samples is 50 eggs per milliliter. One broken egg was found in sample 9. It was impossible to assign this egg to any species.

Some fungal spores can be confused with parasite eggs. Laboratory numbers 1,2 and 4 contained fungal spores that look superficially like tapeworm eggs. Figure 1 presents a comparison of these fungal spores compared to a *Taenia solium* tapeworm eggs from my comparative collection.

The results of this study were not as rewarding as hoped. The variety of proveniences sampled were optimal for the recovery of domestic animal parasite eggs. I believe that the near absence of parasite eggs relates to soil conditions. Laboratory samples 1-6 were relatively sandy. When the sand was removed in processing, the

resulting sediments were composed of black, opaque fragments (ash?) combined with mostly decomposed organic material and fungal spores. I think that these soils had a relatively low organic content due to decomposition which removed the parasite eggs. Samples 7-12 were less sandy, but black, opaque fragments were very abundant, as were fungal spores. I noticed that even the pine pollen grains in the samples appeared to be in less than ideal preservation. I think that the organic content of these samples, except for relatively inert ash, were largely decomposed. The last sample, laboratory 13 from the tack room, had some minced plant fiber consistent with fiber in herbivore feces. However, even in this sample, black opaque fragments and fungal bodies predominated.

Even the best sampling strategy can be thwarted by soil conditions that result in the decomposition of the target microfossils. In this case, fungal decomposition appears to have eliminated the parasite eggs in these soils. Even after redoubled analysis efforts, I could not address the nature of parasitism that certainly existed at one time in the Beef Market area.

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Table 1: Provenience data for samples.

Lab #	Unit	Zone	FS #	Description
1	3	11	74	Sheet deposit, original surface
2	11	11	269	Sheet deposit, original surface
3	8	10	181	Sheet deposit, pasture yard
4	3	10	62	Sheet deposit, pasture yard
5	9	10	180	Sheet deposit, pasture yard
6	4	10	110	Sheet deposit, pasture yard
7	1	2	73	Sheet deposit, midden
8	8	7	166	Sheet deposit, living/floor surface
9	14	7	248	Sheet deposit, living/floor surface
10	11	7	210	Sheet deposit, living floor/ surface
11	5	15	164	Feature, drain fill
12	7	5a6o2	150	Layer of soil and refuse in stable center
13	5	1236o1	112	Dark midden soil&refuse in tack room center

Table 2: Analysis Results.

Lab #	Description	Observations
1	Sheet deposit, original surface	No parasite eggs or larvae observed
2	Sheet deposit, original surface	No parasite eggs or larvae observed
3	Sheet deposit, pasture yard	No parasite eggs or larvae observed
4	Sheet deposit, pasture yard	No parasite eggs or larvae observed
5	Sheet deposit, pasture yard	No parasite eggs or larvae observed
6	Sheet deposit, pasture yard	No parasite eggs or larvae observed
7	Sheet deposit, midden	No parasite eggs or larvae observed
8	Sheet deposit, living/floor surface	No parasite eggs or larvae observed
9	Sheet deposit, living/floor surface	1 broken egg observed
10	Sheet deposit, living floor/ surface	No parasite eggs or larvae observed
11	Feature, drain fill	1 trichurid egg
12	Layer of soil in stable center	1 trichurid egg
13	Dark midden in tack room center	No parasite eggs or larvae observed

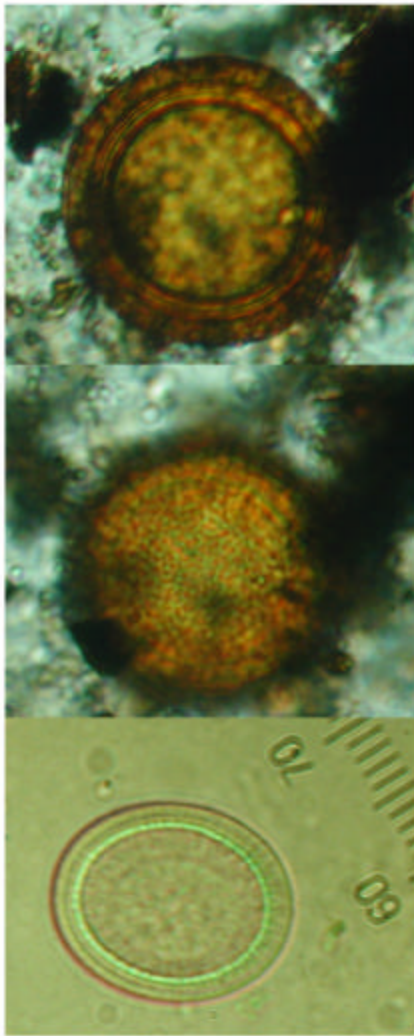


Figure 6-1: Fungal spores can look like parasite eggs. The general shape and wall morphology of the spore shown in the upper two pictures is similar to taeniid tapeworm eggs. However, comparison with a modern egg (bottom picture) shows important differences in size, coloration, and internal structure.

Pollen Analysis from the City Hall/Beef Market Locations, Charleston, South Carolina

(by John G. Jones)

Introduction

A total of 10 sediment samples from the City Hall/Beef Market excavations were submitted to the Washington State University Palynology Laboratory for pollen analysis. These samples, from a variety of buried 18th Century deposits, were selected for analysis based on their strategic provenience, and their likelihood of containing well-preserved fossil pollen. Proveniences are provided in Table 1. It was anticipated that a detailed examination of the fossil pollen identified in the samples might shed light on past vegetation growing in the site area, and provide insights into site usage.

Table 1
Proveniences of the City Hall/Beef Market Pollen Samples

Sample Number	FS#	Provenience
1	46	TU 3, Zone 7
2	74	TU 3, Zone 11
3	164	TU 5, Feature 19, Interior
4	185	TU 6, Zone 6
5	200	TU 6, Zone 10
8	181	TU 8, Zone 10
9	210	TU 11, Zone 7
10	233	TU 14, Zone 7
11	266	TU 14, Zone 9A, Level 2
12	155	TU 7, Zone 8, Level 2

Methodology

Pollen samples were processed at the Palynology Laboratory at Washington State University. Recognizing that fossil pollen was likely to be present in the organic-rich fill sediments, relatively small sediment samples were selected for analysis. The Beef Market sediment samples were first quantified (10mls), placed in sterile beakers, and a known quantity of exotic tracer spores was added to each sample. Here, European *Lycopodium* spp.

spores were chosen as an exotic, because these spores are unlikely to be found in the actual fossil pollen assemblages from this region. Tracer spores are added to samples for two reasons. First, by adding a known quantity of exotic spores to a known quantity of sediment, fossil pollen concentration values can be calculated. Second, in the event that no fossil pollen is observed in the sediment sample, the presence of *Lycopodium* tracer spores verifies that processor error was not a factor in the pollen loss.

Following the addition of the tracer spores, the samples were washed with concentrated Hydrochloric Acid. This step removed carbonates and dissolved the bonding agent in the tracer spore tablets. The samples were then rinsed in distilled water, sieved through 150 micron mesh screens, and swirled to remove the heavier inorganic particles. Next the samples were consolidated, and 50% Hydrofluoric Acid was added to the residues to remove unwanted silicates. After the silicates had been removed, the residues were rinsed thoroughly, and sonicated in a Delta D-5 sonicator for 30 seconds. This step deflocculated the residues, effectively removing all colloidal material smaller than two microns.

Next, the samples were dehydrated in Glacial Acetic Acid, and were subjected to an acetolysis treatment (Erdtman 1960) consisting of 9 parts Acetic Anhydride to 1 part concentrated Sulfuric Acid. During this process, the samples were placed in a heating block for a period not exceeding 8 minutes. This step removed most unwanted organic materials, including cellulose, hemi-cellulose, lipids and proteins, and converted these materials to water-soluble humates. The samples were then rinsed in distilled water until a neutral pH was achieved.

Following this treatment, the samples were next subjected to a heavy density separation using Zinc Chloride (Sp.G. 2.00). Here, the lighter organic fraction was isolated from the heavier minerals. After this treatment, the lighter pollen and organic remains were collected and washed in 1% KOH to remove any remaining humates. The residues were then dehydrated in absolute alcohol, and transferred to a glycerin medium for curation in glass vials.

Permanent slides were prepared using glycerin as a mounting medium, and identifications were made on a Nikon compound stereomicroscope at 400x magnification. Identifications were confirmed by using published keys and the Palynology Laboratory's extensive pollen reference collection. Minimum 200-grain counts, standard among most palynologists (Barkeley 1934), were made for each sample. Pollen counts of 200+ grains are thought to be fairly reflective of past vegetation and paleoenvironmental conditions.

Concentration values were calculated for all samples. Hall (1981) and Bryant and Hall (1993) note that concentration values below 2,500 grains/ml of sediment may not be well reflective of past conditions, and usually record a differentially preserved assemblage. As a result, counts with low concentration values should be viewed with caution.

Results

Generally well-preserved fossil pollen was identified in all of the Beef Market samples, and a minimum of 23 non-arboreal and 29 arboreal taxa were identified (Tables 2 and 3). Additionally *Osmunda* (cinnamon or royal fern) spores were counted and included in the tables, but were not included in the total percentages of the assemblages. Counts and percentages are presented in Table 4.

Pollen concentration values were generally in the acceptable category, with values ranging from 2784 to 37,782 fossil grains/ml of sediment. A single sample (FS# 46) contained a relatively low concentration of pollen with 422 grains/ml. Taxa noted in this assemblage are generally types that are considered to be fairly durable or easily recognizable when degraded, thus this count probably reflects a somewhat degraded assemblage and should thus be viewed with caution. It is valuable, however, as it provides a listing of plants once in the collecting locality.

Discussion

As is generally the case, most pollen samples identified in the Beef Market/ City Hall samples represent background taxa. These are pollen types that rely on the assistance of wind for pollination, and are thus produced in large quantities. Further, many of these types are particularly durable, and can be readily recognized, even when highly degraded. Non-arboreal background pollen types identified in these samples include Low Spine Asteraceae (ragweed or goldenrod types), Chenopods (pigweed, goosefoot), Cyperaceae (sedge) and Poaceae (grass) types. Arboreal background types identified in the assemblage include over-abundant locally common types, such as *Pinus* (pine) and *Quercus* (oak), as well as other taxa that are likely to represent common elements in

Table 2
Non-Arboreal Pollen Taxa Identified in the City Hall/Beef Market Samples

Taxa	Common Name
<i>Alternanthera</i> -Type	Globe Amaranth, Celosia
Apiaceae	Parsley Family
<i>Artemisia</i>	Sage, Wormwood
Asteraceae Low Spine	Ragweed, Goldenrod Group
Brassicaceae	Mustard Family
Caryophyllaceae	Pink Family
Cheno-Am	Goosefoot, Pigweed
Cerealea	Domesticated Old World Grain
Cyperaceae	Sedge Family
<i>Hedera helix</i>	Ivy
Lamiaceae	Mint Family
Liliaceae	Lily Family
<i>Lonicera</i>	Honeysuckle
<i>Plantago</i>	Plantain
Poaceae	Grass Family
Polemoniaceae	Phlox Family
Polygonaceae	Knotweed Family
Rosaceae	Rose Family
<i>Rumex</i>	Dock
<i>Trifolium</i>	Clover
<i>Trifolium repens</i> -Type	White Clover Type
<i>Zea mays</i>	Corn

Table 3
Arboreal Pollen Taxa Identified in the City Hall/Beef Market Samples

Taxa	Common Name
<i>Acer</i>	Maple
<i>Alnus</i>	Alder
<i>Carpinus</i> -Type	Hornbeam
<i>Carya</i>	Hickory, Pecan
<i>Castanea</i>	Chestnut
<i>Cercis</i>	Redbud
<i>Cornus</i>	Dogwood
Fabaceae	Legume Family
<i>Gleditsia</i>	Honey Locust
<i>Ilex</i>	Holly
<i>Liquidambar</i>	Sweetgum
<i>Liriodendron</i>	Tulip Tree
<i>Malus/Pyrus</i>	Apple/Pear
<i>Myrica</i>	Wax Myrtle
<i>Nyssa aquatica</i>	Tupelo
<i>Nyssa sylvatica</i>	Black Gum
<i>Ostrya</i>	Hop-Hornbeam
<i>Pinus</i>	Pine
<i>Platanus</i>	Sycamore
<i>Prunus</i>	Cherry, Peach, Plum
<i>Quercus</i>	Oak
Rhamnaceae	Buckthorn
<i>Rhus</i>	Sumac, Poison Ivy
<i>Salix</i>	Willow
<i>Symplocos</i>	Sweet-Leaf
TCT	Juniper, Arbor Vitae, Bald Cypress
<i>Tsuga</i>	Eastern Hemlock
<i>Ulmus</i>	Elm
<i>Viburnum</i>	Viburnum
Indeterminate	Too Poorly Preserved to Identify
<i>Osmunda</i>	Cinnamon or Royal Fern

Table 4
Pollen Counts and Percentages Identified in the City Hall/Beef Market Samples

Taxa	Provenience				
	FS#46	FS#74	FS#164	FS#185	FS#200
<i>Alternanthera</i> -Type				1 (0.5)	
Apiaceae	1 (0.5)				
<i>Artemisia</i>	3 (1.5)	1 (0.5)	1 (0.5)		1 (0.5)
Asteraceae Low Spine	3 (1.5)	4 (2.0)	8 (3.9)	3 (1.5)	4 (1.7)
Brassicaceae					
Caryophyllaceae				2 (1.0)	
Cheno-Am	23 (11.2)	2 (1.0)	2 (1.0)	4 (1.9)	2 (0.8)
Cerealea	1 (0.5)			22 (10.7)	1 (0.4)
Cyperaceae	42 (20.6)	17 (8.3)	6 (2.9)	5 (2.4)	38 (15.8)
<i>Hedera helix</i>			2 (1.0)		
Lamiaceae					
Liliaceae			2 (1.0)		
<i>Lonicera</i>					
<i>Nicotiana</i>				1 (0.5)	
<i>Plantago</i>	1 (0.5)	4 (2.0)	8 (3.9)		
Poaceae	17 (8.3)	12 (5.9)	8 (3.9)	13 (6.3)	18 (7.5)
Polemoniaceae		1 (0.5)			
Polygonaceae	1 (0.5)	1 (0.5)	1 (0.5)		3 (1.2)
Rosaceae		1 (0.5)	3 (1.5)	3 (1.5)	1 (0.4)
<i>Rumex</i>				1 (0.5)	
<i>Trifolium</i>		1 (0.5)			
<i>Trifolium repens</i> -Type					
<i>Zea mays</i>					1 (0.4)
<i>Acer</i>					1 (0.4)
<i>Alnus</i>	1 (0.5)				
<i>Carpinus</i> -Type	4 (2.0)	5 (2.4)	1 (0.5)	8 (3.9)	8 (3.3)
<i>Carya</i>	2 (1.0)	4 (2.0)	6 (2.9)	4 (1.9)	1 (0.4)
<i>Castanea</i>	1 (0.5)	1 (0.5)	3 (1.5)		
<i>Cercis</i>					
<i>Cornus</i>		1 (0.5)	1 (0.5)	1 (0.5)	
Fabaceae	2 (1.0)	4 (2.0)	5 (2.4)	3 (1.5)	2 (0.8)
<i>Gleditsia</i>					
<i>Ilex</i>			1 (0.5)		
<i>Liquidambar</i>		4 (2.0)	5 (2.4)	1 (0.5)	1 (0.4)
<i>Liriodendron</i>					
<i>Malus/Pyrus</i>			1 (0.5)		1 (0.4)
<i>Myrica</i>		1 (0.5)	5 (2.4)	8 (3.9)	6 (2.5)
<i>Nyssa aquatica</i>	1 (0.5)	4 (2.0)	3 (1.5)	3 (1.5)	
<i>Nyssa sylvatica</i>		2 (1.0)	1 (0.5)		5 (2.1)
<i>Ostrya</i>					
<i>Pinus</i>	65 (31.9)	60 (29.3)	39 (19.0)	78 (37.9)	82 (34.0)
<i>Platanus</i>	1 (0.5)	3 (1.5)	6 (2.9)	2 (1.0)	5 (2.1)
<i>Prunus</i>	1 (0.5)	2 (1.0)		1 (0.5)	
<i>Quercus</i>	20 (9.8)	47 (22.3)	64 (31.2)	30 (14.6)	41 (17.0)
Rhamnaceae					
<i>Rhus</i>		1 (0.5)		1 (0.5)	
<i>Salix</i>	1 (0.5)	5 (2.4)	4 (2.0)	3 (1.5)	2 (0.8)
<i>Symplocos</i>			1 (0.5)		
TCT	4 (2.0)	6 (2.9)	4 (2.0)	3 (1.5)	6 (2.5)
<i>Tsuga</i>					
<i>Ulmus</i>					
<i>Viburnum</i>					
Indeterminate	9 (4.4)	11 (5.4)	14 (6.8)	5 (2.4)	11 (4.6)
Total	204(100)	205(100)	205(100)	206(100)	241(100)
<i>Osmunda</i>		6	9		4
Concentration Value	422	25711	8035	3094	37782

Table 4, Contd.
Pollen Counts and Percentages Identified in the City Hall/Beef Market Samples

Taxa	Provenience				
	FS#181	FS#210	FS#233	FS#266	FS#155
<i>Alternanthera</i> -Type					
Apiaceae			1 (0.5)		1 (0.5)
<i>Artemisia</i>					
Asteraceae Low Spine	6 (2.8)	6 (3.0)	6 (2.9)	1 (0.4)	1 (0.5)
Brassicaceae			1 (0.5)		
Caryophyllaceae	1 (0.5)		1 (0.5)		2 (1.0)
Cheno-Am	4 (1.8)	42 (20.7)	3 (1.4)	10 (3.8)	8 (4.0)
Cerealea		1 (0.5)	1 (0.5)		
Cyperaceae	40 (18.3)	20 (9.8)	4 (1.9)	45 (17.3)	18 (8.9)
<i>Hedera helix</i>					
Lamiaceae					3 (1.5)
Liliaceae			1 (0.5)	1 (0.4)	
<i>Lonicera</i>	1 (0.5)				
<i>Nicotiana</i>					
<i>Plantago</i>	1 (0.5)	3 (1.5)	2 (1.0)	2 (0.8)	4 (2.0)
Poaceae	14 (6.4)	8 (3.9)	3 (1.4)	16 (6.2)	26 (12.9)
Polemoniaceae					
Polygonaceae	4 (1.8)		2 (1.0)	1 (0.4)	4 (2.0)
Rosaceae					
<i>Rumex</i>					
<i>Trifolium</i>	1 (0.5)				
<i>Trifolium repens</i> -Type					1 (0.5)
<i>Zea mays</i>					
<i>Acer</i>				1 (0.4)	
<i>Alnus</i>					
<i>Carpinus</i> -Type	4 (1.8)	3 (1.5)	8 (3.9)	5 (1.9)	6 (3.0)
<i>Carya</i>	1 (0.5)		1 (0.5)	1 (0.4)	1 (0.5)
<i>Castanea</i>	3 (1.4)	2 (1.0)	2 (1.0)		3 (1.5)
<i>Cercis</i>	1 (0.5)				
<i>Cornus</i>			1 (0.5)	1 (0.4)	2 (1.0)
Fabaceae	1 (0.5)	3 (1.5)	4 (1.9)	3 (1.1)	3 (1.5)
<i>Gleditsia</i>		3 (1.5)	1 (0.5)	1 (0.4)	1 (0.5)
<i>Ilex</i>					
<i>Liquidambar</i>	1 (0.5)		1 (0.5)	2 (0.8)	3 (1.5)
<i>Liriodendron</i>				1 (0.4)	
<i>Malus/Pyrus</i>			1 (0.5)		
<i>Myrica</i>	3 (1.4)	4 (2.0)	2 (1.0)	3 (1.1)	3 (1.5)
<i>Nyssa aquatica</i>	1 (0.5)	2 (1.0)	15 (7.2)	5 (1.9)	4 (2.0)
<i>Nyssa sylvatica</i>	1 (0.5)	3 (1.5)	2 (1.0)	1 (0.4)	7 (3.5)
<i>Ostrya</i>				1 (0.4)	
<i>Pinus</i>	76 (34.9)	45 (22.2)	47 (22.7)	107 (41.2)	51 (25.2)
<i>Platanus</i>	1 (0.5)	2 (1.0)	3 (1.4)	2 (0.8)	2 (1.0)
<i>Prunus</i>		2 (1.0)			
<i>Quercus</i>	44 (20.2)	36 (17.7)	69 (33.3)	34 (13.1)	33 (16.3)
Rhamnaceae	1 (0.5)				
<i>Rhus</i>			2 (1.0)		
<i>Salix</i>		2 (1.0)		1 (0.4)	
<i>Symplocos</i>					
TCT	4 (1.8)	7 (3.4)	11 (5.3)	8 (3.1)	5 (2.5)
<i>Tsuga</i>	1 (0.5)				
<i>Ulmus</i>					1 (0.5)
<i>Viburnum</i>		1 (0.5)			
Indeterminate	3 (1.4)	8 (3.9)	12 (5.8)	7 (2.7)	9 (4.4)
Total	218(100)	203(100)	207(100)	260(100)	202(100)
<i>Osmunda</i>	6	6	11	7	5
Concentration Value	7195	37719	4515	7167	2784

nearby forested areas. It is important to realize, however, that many of these types were used as ornamentals along streets and gardens. These types include *Alnus* (alder), *Carpinus* (hornbeam), *Carya* (hickory), *Castanea* (chestnut), *Liquidambar* (sweetgum), *Liriodendron* (tuliptree), *Myrica* (wax myrtle), *Nyssa* spp. (tupelo, black gum), *Ostrya* (hop-hornbeam), *Platanus* (sycamore), *Salix* (willow), *Symplocos*, TCT (Taxodiaceae, Cupressaceae, *Thuja*: bald cypress, juniper or arbor vitae), *Tsuga* (eastern hemlock) and *Ulmus* (elm).

Other pollen types are insect pollinated: Their pollen is produced in much lower numbers and their grains are more poorly dispersed. Their occurrence in the Beef Market/City Hall samples likely reflects the cultivation of these plants in the immediate site area. A number of non-arboreal types fall in this group and may represent the past cultivation/utilization of these plants or flowers, and include *Alternanthera*-type (globe amaranth, celosia), Apiaceae (parsley family), *Artemisia* (sage), Brassicaceae (mustard family), Caryophyllaceae (pink family), *Hedera helix* (ornamental ivy), Lamiaceae (mint family), Liliaceae (lily family), *Lonicera* (honeysuckle), *Plantago* (plantain), Polemoniaceae (phlox family), Polygonaceae (knotweed family), Rosaceae (rose family) and *Rumex* (dock). Arboreal members of this group include *Acer* (maple), *Cercis* (redbud), *Cornus* (dogwood), *Gleditsia* (honey locust), *Ilex* (holly), *Malus/Pyrus* (apple, pear), *Prunus* (cherry, plum), *Rhus* (sumac, poison ivy) and *Viburnum*.

Finally, several Beef Market pollen types represent potential cultigens, whose pollen was introduced either through local cultivation, of dispersal through economic activities. These cultigens include Cerealea (domesticated grain, either wheat, barley, oats or rye), *Zea mays* (corn or maize) and *Trifolium* spp. (clover types).

Temporally, pollen samples can be broken into three general categories: The Market Period I of 1692-1739, represented by pollen samples 5, 8 and 2; Market Period II of 1739-1760, represented by pollen samples 12 and 11; and Market Period III of 1760-1796, represented by pollen samples 1, 9, 4, 3 and 10.

Market Period I, 1692-1739

The Market Period I, representing the earliest period of historical occupation in these sediments, spans the period of 1692 to 1739. Three sediment samples date to this time period; FS200 (sample 5), FS181 (sample 8) and FS74 (sample 2). All samples from this period contain relatively high percentages of Cyperaceae, Poaceae, *Pinus* and *Quercus* reflecting natural background pollen types.

Although present in low frequencies, several taxa may represent ornamental or economically cultivated species, including *Artemisia* and Rosaceae both found in two samples, Polemoniaceae, Caryophyllaceae and *Lonicera*. Additional evidence of disturbance is marked by the presence of introduced *Plantago* and *Trifolium* grains, both found in two samples. In FS200, single grains of both Cerealea and *Zea mays* likely reflect the cultivation of these plants somewhere in the area, but probably not too near the

property. This is the only Beef Market/City Hall sample that contains maize pollen. An alternative explanation is that these grains were taken in by animals through fodder and may represent decomposed fecal material. Probable *Coprinus* spp. fungal spores were noted in most samples, but in small quantities. These spores are associated with the natural decomposition of ruminant fecal matter, and their presence suggests that some manure found its way into nearly all of the sediments from these excavations.

The relatively high percentages of background non-arboreal (Asteraceae, Cyperaceae and Poaceae) and arboreal types, especially *Pinus*, *Quercus* and *Carpinus* suggests that wooded areas surrounding the developed portions of the city may have been less modified than at later times. Pollen from *Gleditsia*, likely to have been a local ornamental tree, is wholly lacking in all of the Period I samples, again possibly reflecting less development in the area compared to later times. The presence of the only occurrence of *Zea mays* pollen, as well as several potential economic or ornamental types hints at the presence of garden plots somewhere in the site vicinity.

Market Period II, 1739-1760

Two pollen samples, FS155 (sample 12) and FS266 (sample 11), were examined from the second Market Period, dating from 1739 to 1760. As a whole, the pollen assemblages here are similar to other samples from this site; however, there are minor differences which may be suggesting some changes in the market area. Weeds are still represented in the samples, by a slight increase in *Plantago* in both Market Period II samples. A single *Trifolium repens*- type grain (white clover) was also identified in FS155. This introduced plant was widely used as a forage/fodder/soil builder, and might be expected as a background weed in a lawn, or may possibly represent an animal food source. Consistent with the urban development of the area, we see a decrease in low spine Asteraceae pollen (a single grain occurrence in both samples). These plants would most likely be expected in an open or weedy field environment.

Potential ornamental or cultivated plants are also represented in the assemblage, although in low frequencies. Pollen from Apiaceae, Caryophyllaceae, Lamiaceae and Liliaceae may all represent cultivated economically-significant plants. What is notable is that probably cultivated arboreal elements are more common during this period. *Gleditsia* is a tree native to interior South Carolina, and is widely used as an ornamental. This tree produces relatively little pollen that is poorly dispersed thus would not be expected to be found far from its source. Single grains of this rare plant are found in both of the Market Period II pollen samples, suggesting this tree was being planted in the vicinity. *Cornus* pollen is likewise normally rare in archaeological samples, and its occurrence in both Period II samples suggests a tree or trees were near the sampling location in the mid 18th Century. Finally, a single grain of *Ulmus* was identified in sample FS155. Two factors might influence the occurrence of this pollen type. First, elm pollen is fairly fragile, and although it is easily recognizable when degraded, its occurrence in archaeological samples seems to be fairly low. Second, elm appears to be relatively scarce in the Charleston area, as reflected by the pollen record. Elias (1980) lists several species of elm

that are known to occur in coastal South Carolina, including winged elm (*Ulmus alata*), American elm (*U. americana*) and slippery elm (*U. rubra*). Additionally, at least two species of elm have been introduced from the Old World and have been widely planted as ornamentals, including English elm (*U. procera*) and Siberian elm (*U. pumila*). While any interpretations based on a single pollen grain occurrence must be viewed with caution, the possibility that the elm pollen represents the deliberate cultivation of this ornamental tree must be considered.

Market Period III, 1760-1796

A total of five sediment samples dating to Market Period III (1760-1796) were examined. Here sediments from FS46 (sample 1), FS210 (sample 9), FS185 (sample 4), FS164 (sample 3) and FS233 (sample 10) were studied.

The pollen assemblages from Market Period III are similar to the earlier assemblages overall, but some minor differences hint at changes in the local vegetation. Two samples (FS46 and FS210) have significantly higher percentages of Chenopodiaceae pollen than all other samples, while FS46 also contains a very high percentage of Cyperaceae pollen. Both of these samples come from Zone 7, a compacted floor layer composed of orange clay. It is likely that the material from which this zone is composed was brought in from a distant source, as the pollen assemblages are somewhat anomalous. Thus these high percentages likely don't represent local vegetation, but rather weeds found at a remote location, the source of the probable construction clay.

Cerealia grains were noted in four of the Market Period III samples, but were present in a highly significant quantity in Sample FS#185 from Zone 6. This zone is composed of water-washed grey sand containing numerous fragments of animal bone. This material is thought to have washed into the deposits from the market area. The high amount of Cerealia pollen (10.7%) in this sample suggests that either domesticated grain fodder or decomposed fecal matter was introduced into the sediments. The lack of high percentages of *Coprinus* fungal spores probably rules out the latter explanation.

Pollen grains from a diverse array of economic plants, although present in low frequencies, are common in the samples dating to this period. Potential economic or ornamental types include *Alternanthera*-type, Apiaceae, *Artemisia*, Brassicaceae, Caryophyllaceae, Liliaceae and Rosaceae. The arboreal types *Malus/Pyrus* found in two samples, and *Prunus* identified in four samples are also represented in sediments from this period. Pollen grains of these types might be expected in sediments made up of market stall sweepings, as all of these types represent potential market plants.

Two plants from this period are noteworthy: *Nicotiana* (tobacco) and *Hedera helix* (ornamental ivy). The presence of tobacco pollen might be expected in a Southeastern market context, and is only significant in that it demonstrates that the plant was likely sold here. However, *Nicotiana* can also be used as an ornamental plant, and it is possible that the pollen here represents an ornamental usage. *Hedera* pollen almost

certainly represents an economic ornamental usage, as this plant has been widely used as both a building and ground cover.

Several arboreal types were identified in the Market Period III samples that are thought to represent ornamental trees, including *Cornus*, *Gleditsia*, *Ilex* and *Viburnum*. All of these types are insect pollinated, and their pollen grains are poorly dispersed and scarce. It seems highly probable that these plants were cultivated in the immediate site area in the past. It is also possible that the pollen from *Malus/Pyrus* and/or *Prunus* (cherry, plum, peach, apricot, almond) might represent locally present ornamental trees.

Summary

A total of ten archaeological sediment samples were examined from the Beef Market/City Hall excavations in Charleston South Carolina. These samples were collected from a variety of contexts and represent three periods of public market usage: Market Period I 1692-1739, Market Period II 1739-1760, and Market Period III 1760-1796. Pollen was generally well preserved with concentration values ranging from 422 to 37,782 fossil grains/ml of sediment. Pollen grains identified in the assemblage represent at least 23 non-arboreal and 29 arboreal taxa.

A number of economic and potentially economic pollen types were present in the samples, including Apiaceae, *Artemisia*, Brassicaceae, Lamiaceae, Liliaceae, *Nicotiana*, Rosaceae, *Trifolium* spp., Cerealea and *Zea mays*. All of these types might be expected in a market context. Several potential ornamental pollen types were also identified including *Alternanthera*, *Hedera helix*, *Lonicera* and Polemoniaceae. These taxa are all normally poorly represented in the archaeological record, and their presence suggests they were being cultivated or marketed in the area.

Potential ornamental trees were also identified in the Beef Market/City Hall samples. Pollen from *Cornus*, *Gleditsia*, *Ilex* and *Viburnum* are normally scarce because they are poorly dispersed and are produced in relatively low numbers. Their presence in these sediments argues that they were once found in the immediate vicinity. Likewise, pollen from *Malus/Pyrus*, *Prunus* and *Ulmus* may also hint at trees once present in the site area.

Pollen trends through time are less apparent in the Beef Market sediment samples. *Zea mays* was identified only in one sample from Market Period I, suggesting that the area might have been more open during that time. In Market Period II, there is an appearance of *Gleditsia* pollen, as well as an increase in *Cornus* pollen, suggesting that these trees were used locally as ornamentals. During this period there is a decrease in low spine Asteraceae pollen suggesting that this part of Charleston was less open and weedy. In Market Period III times, the ornamental trees represented in mid 18th Century deposits continue and are augmented by *Ilex*, *Viburnum* and possibly *Malus/Pyrus* and *Prunus*. Pollen grains from all of these trees are relatively scarce and their presence in the Beef Market sample suggests they were grown nearby.

One samples from FS185 representing a sandy zone associated with Market Period III, contained a high percentage of Cerealea pollen. This sample likely represents decomposed fodder/grain, rather than fecal material.

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Analysis of Soil Samples from the Beef Market Site and the Heyward Washington House in Charleston, South Carolina

(by John E. Fosse)

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 Heyward 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 Heyward 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 colors 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 Heyward 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 Heyward 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.

Heyward Washington House

The dominant soil texture at the Heyward 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
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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.

Heyward Washington House

Table 3 gives the elemental composition of the soils sampled at the Heyward 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 Heyward 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.

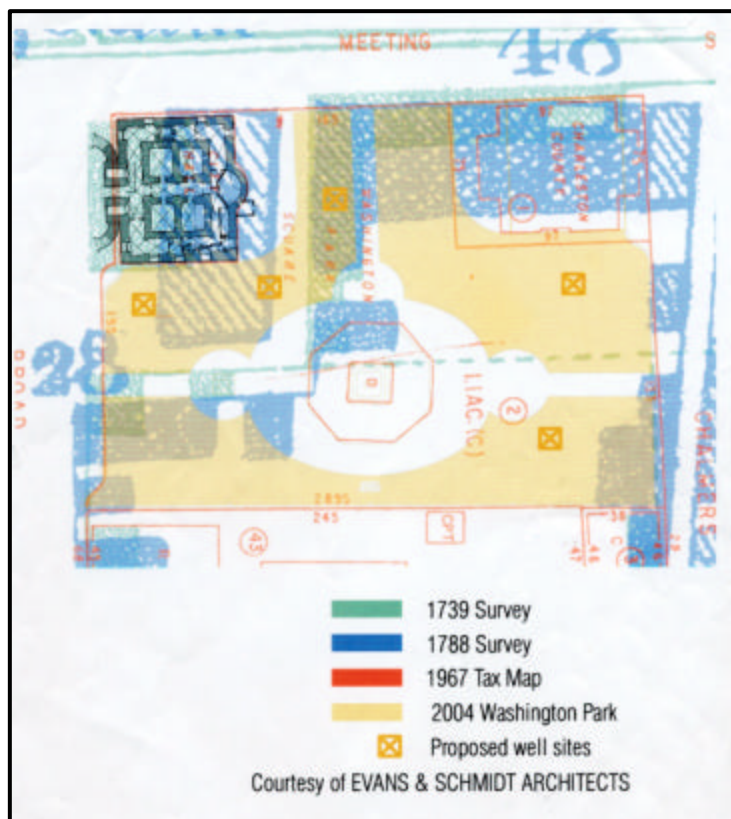
Soil chemical analysis of samples from the Heyward Washington House was in general similar to those analyzed from the Beef Market Site. Differences in chemical composition were noted between zones 5 and 6, however.

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.

Chapter VII Interpretations

Architectural Evidence for the Market Buildings

Archaeological testing and subsequent restoration activities in and around City Hall exposed foundations and features associated with the market building constructed in 1760. Exposure of the market building and exploration of construction details was a secondary goal of the present project; thus test units were not necessarily located to encounter the buildings themselves, but rather the debris that accumulated at the market. Nonetheless, exposure of the building foundation and the drain in Test Unit 2 prompted subsequent exploration of this building. Additional features were encountered in Units 4, 5, 11, and 15. The excavations on the exterior of City Hall produced additional data, while the trenching on the building interior for service lines revealed yet more sections of this building. Taken together, it is possible to describe some aspects of the 1760 market in detail.



The limited cartographic and documentary details available for the market site suggest that market square, as set aside on the Grand Modell, was formally recognized by 1692. There is no evidence that any permanent structures were built on this site before a formal market was authorized and constructed in 1739. The Roberts and Toms map of that same year shows a rectangular building fronting directly on Broad Street and near the edge of Meeting Street (a 1:1.5 ratio). Superimposition of the 1739 map on modern maps suggests that the east, south, and west walls of this market would be located outside of

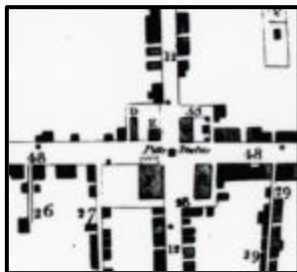
the footprint of City Hall. The northern wall could be located inside the northern half of City Hall. There is little documentation of the construction methods and materials for this market, but it is presumed that the building would be substantial, and the foundation, at least, would be brick; architectural historian Carl Lounsbury described it as a “one-story brick market house” (Lounsbury 2001:15). This building was replaced in 1760 with

“a neat building” which, while described in a few more passages, is also poorly documented. The 1788 Petrie map of Charleston suggests this structure was located behind the earlier market building, set back from Broad Street. The structure was narrower than the 1739 building, but much longer (1:2.25 ratio). It is currently unknown if the early market remained standing while the later market was constructed, or if the first was demolished to make way for the second. It is also unknown if the two buildings shared a foundation, or were built beside each other, or if the footprints overlapped. Both the 1739 map and the 1788 map suggest that a street, of an unknown level of formality, surrounded the market on the north and east. By the time of the sale of the site to the Bank in 1800, Market Alley was designated and measured 26’ in width. The market square measured 86’ north/south by 113’ east/west.

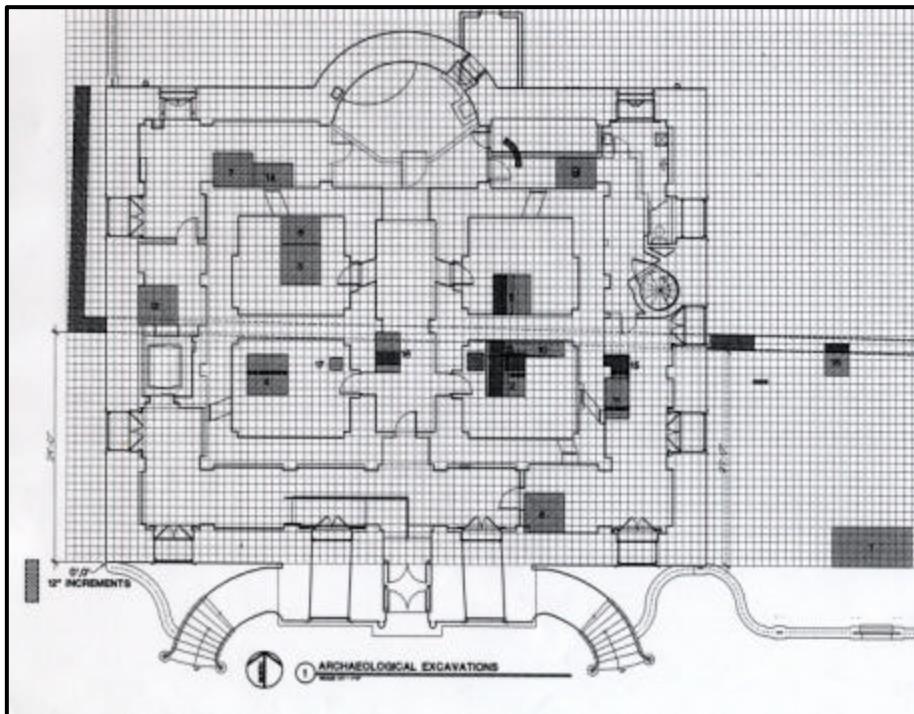
Lounsbury (1994:225) provides the following general description of urban markets of the colonial period:

“The centerpiece of this corporate market was the market house, a one- or two-story, brick or wooden structure that provided permanent stalls and spaces for butchers and other vendors to display their wares. Following English precedent, most American market houses were rectangular structures that stood open on all or part of the ground floor. Arches or stout timber posts supported the second story or roof above as well as the large hooks and poles driven or embedded into their sides. These were used by butchers to hang sides of beef, game, and other items. Deep eaves often provided additional shade for the provisions on display. The most modest market houses were no more than large, open-sided sheds, while the more pretentious were arcaded brick structures that housed public entertaining rooms and courtrooms above the ground-floor market space.”

Two descriptions of the Beef Market provide some clues to the appearance of the building, even if their appraisal differs. At the time, it was described a “neat building, supported by brick arches, surmounted by a belfry” (Bridenbaugh 1955: 82). In 1774 it was described by an “English traveler” as “only a low dirty looking brick market house for beef” (Merrens 1977:282). Both passages suggest the market was brick, likely supported with brick pillars. The second, in particular, suggests the building was a single story. This is indirectly supported by Charles Fraser’s 1792 watercolor of Broad Street, facing east. The lack of a visible roofline in the location of the market suggests a lower building (Lounsbury 2001:48).



Extensive evidence for the layout of the 1760 market was encountered during the present project. Some of the archaeological features presented new details on the layout and functioning of the market. The first bit of evidence was encountered prior to archaeological excavations, during foundation investigation by the architectural team. An exploratory pit adjacent to the northwest corner of the southeast interior room revealed a brick wall unrelated to City Hall. This remained exposed when archaeological investigations commenced, and so the first unit excavated (Test Unit 2) was deliberately located adjacent to this foundation. Excavations of Unit 2 and later Units 10 and 13 revealed a continuous brick foundation 1.8' in width and four courses deep. The foundation continued through the southeast interior room into the eastern exterior room,

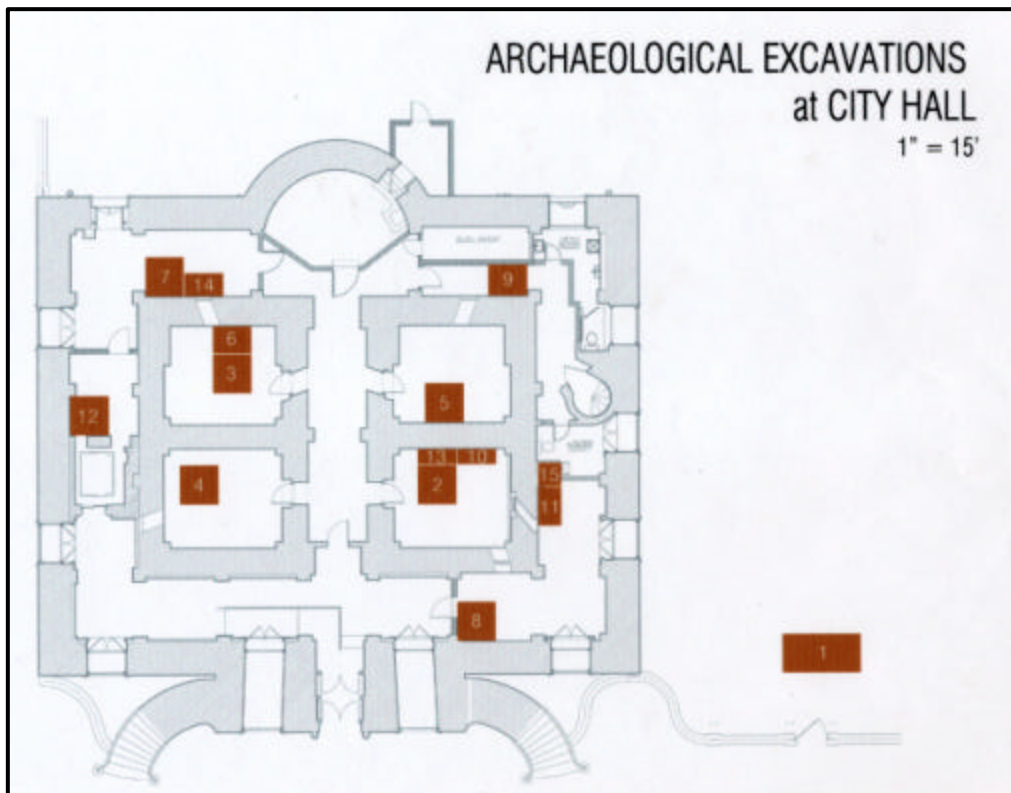


where it was encountered in Unit 15. It was subsequently exposed in the central hall in Unit 16. In total, a 30' of section of wall was exposed in the interior excavations. We were surprised, therefore, when the wall did not continue on the same plane further westward. There was no evidence of feature 10 in Unit 4 in the southwest interior room, or in Test Unit 17 in the same room.

Further evidence of the market was exposed on the exterior of City Hall during foundation repair. A 5' wide trench around the perimeter of City Hall exposed a continuing section of the southern market wall on the east side of City Hall. The perimeter trench on the west side of City Hall exposed the remaining section of this south wall, plus the southwest corner and a significant portion of the west wall of City Hall. Finally, excavation of Test Unit 18 on the east side of the building encountered another section of the south wall. In total, a 99' length of the south wall was exposed, and 31' of the west wall was revealed.

The confusion engendered over the absence of feature 10 in the southwest interior room continued when the various sections of feature 10 were placed on a site map. The sections encountered on the interior of the building and the sections encountered on the exterior were parallel, but they did not align. The interior 30' was located 4' south of the sections discovered on either side of City Hall. Several explanations for this discrepancy were considered, beginning with mapping errors, but none were found. A tentative suggestion that the interior portion might represent a central projection or pediment was confirmed in a timely manner during excavation of service trenches inside City Hall. Excavations in the southeasterly exterior room revealed the two corners of this portico, connecting the section noted in Unit 15 and that on the eastern exterior of City Hall. The north/south wall exposed in this trench was 4' long.

Other features encountered during the excavations provided additional details on the facilities at the market building, and provided supporting data for determining the dimensions of the portico. Also encountered early in the project, in Unit 2, was a substantial brick drain, running north/south through the site. The drain featured a domed top, straight sides, and a brick floor. Interior dimensions were approximately 2.5' in height and 2.5' in width. Feature 19 was encountered in Units 2 and 5, and again in the service trenches in the southern exterior room. This suggests that the drain continues to Broad Street. A well-defined construction trench for the drain was present (feature 13), and artifacts retrieved from this feature suggest that the drain could pre-date the 1760s foundation. However, the careful construction of the foundation over the drain suggests they are contemporary. Unit 2 revealed that feature 10 was carefully constructed with a jack-arch spanning the drain, supported by a deeper foundation adjacent to the side of the



drain. Excavation of service trenches in the northeast exterior room revealed another feature likely associated with the 1760 market. This was a large brick well shaft. The feature was exposed in an area of limited visibility, and it was not possible to excavate around it to locate a construction trench or any associated structures, but it has been tentatively interpreted as associated with the market. Lounsbury (1994, personal communication) suggests that most city markets had wells somewhere on or near the site of the market house. Wells supplied the necessary water for the clerk of the market to wash down the market floor after the close of the market. A brick drain could be part of this same endeavor. Drains of all types and sizes are a common component of 18th century construction in Charleston (see Zierden 2001, 1996:306).

Both the drain and the well appear to be at, or very near, the center of the market building. Presuming that they are in the center allows further speculation on the dimensions of the central portico. As discussed above, 30' of the projecting wall was exposed on the building interior. The interior edge of this portico was located 18' east of the center of the drain. If the drain is located at the center of the portico, then the total length of this projection would be 36'. It is clear from the absence of this wall in Unit 4 and Test Unit 17 that the portico must be less than 40' in length. The western edge of the portico was likely located just east of Test Unit 17, and possibly destroyed by construction of the City Hall foundation.

Following this same sequence of assumptions – namely, that the drain and well represent the center point of the market building, we can make some projections about the overall dimensions of the building. The well and drain are 53' east of the southwest corner of the market. This would suggest a structure approximately 100'-105' in length



If the proportions suggested on the 1788 map are correct, then the north/south dimensions of the building are between 45' and 50'. This is somewhat deeper than contemporary markets in other colonial cities. The Fredericksburg, Virginia market measures 97' by 33', while the Norfolk market was approximately 120' by 22'. Both markets are somewhat later than the Charleston market, and it is interesting to note that Charleston's early 19th century market on Market Street, whose proposed dimensions in 1788 were 200' by 26' (City Gazette and Daily Advertiser 1788).

Yet another set of archaeological data is relevant to the architecture of the 1760 market. This is a series of postmold and post hole features noted in a number of the test units. The post features varied in their clarity. Those posts identified in units where the zone 7 deposits were a dark brown soil were more difficult to identify than those initiating in the yellow sand. Moreover, a number of these were located in the center of units, rather than an edge where intact profiles were available following excavation. Laboratory analysis of the artifacts retrieved from the posts, and careful reevaluation of the field maps indicate that all of these posts initiated at the top of zone 7, regardless of the point at which they were first identified. This suggests they were deposited after the 1760 ground surface was in place, and are thus associated with the 1760 market. Posts were located in several units, and some appear to align with the center of the market structure. Units 7, 14, and 9 contained a series of posts – features 28, 40, 31, 41, and 43, all more or less aligned east-west. Again, the position of the well remnant indicates that these posts are roughly in the center of the building. A second group of posts was discovered in Units 4 and 11, just outside of the south wall of the market. Test Unit 18, east of City Hall, also contained a well defined post initiating in zone 7, located 2' south of feature 10. These could be associated with the wide eaves described for markets. Both sets of posts could be structural supports, but it is more likely that they were used to support hooks for hanging meats and other products. Such features were a common component of colonial markets (Lounsbury 1994:225).

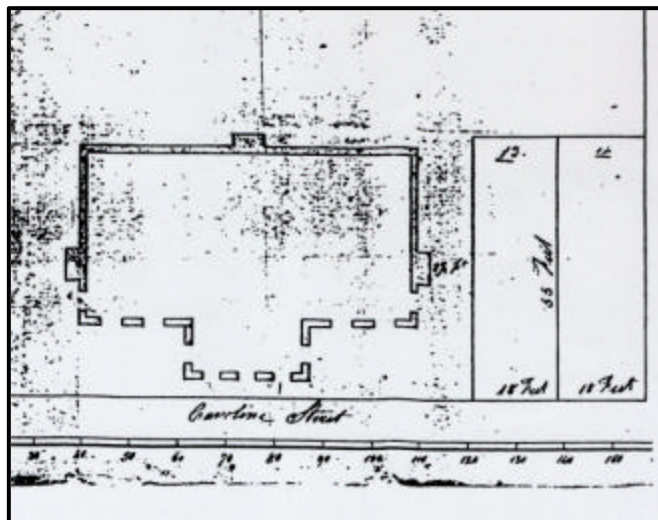


The c. 1804 market at Old Salem features such posts. The Salem market is supported by walls of open brick arches, which could be secured at the end of the day with wooden gates. Inside the market, square posts, about 8"by 8", were set into the ground about 2' inside the foundation wall. These were tied into wooden rafters. Both the vertical and horizontal wooden members featured a series of small and large iron hooks, as well as wooden

pegs, embedded into the sides. These were used by butchers to hang sides of beef, game, and other items. The location and dimensions of these featured posts match those discovered at the Beef Market almost exactly. Such posts could also be placed under the eaves, but outside the walls of the market building, and function in the same manner.



Lounsbury notes that 18th century market houses “followed certain standard design criteria”. He notes they were open to allow maximum ventilation and visibility. The ventilation helped preserve meat and draw off bad odors. An open building gave maximum exposure to the goods for sale. The open construction, on posts or arched brick openings, accomplished both. Markets were generally long and narrow to provide



Previous page: Views of the 1804 market at Old Salem, North Carolina. One half of the building served as the fire house, while the left side was open for a market. The interior featured posts fitted with hooks and pegs for hanging.

Left: 1790 plat of the market at Fredericksburg, Virginia, featuring a central projection and arched supports (from Lounsbury 1986 and Kelso 1985)

maximal access to the outer edge of the market, for exposure and for ease of loading and unloading from carts and wagons. Another common feature was long overhanging eaves. These provided additional shaded space, and allowed for additional, temporary stalls.

While the portico suggests a more elaborate market building than the one illustrated on the 1788 Petrie map, the archaeological evidence still provides little in the way of evidence for the façade or roofline of the market building. Given the likelihood that the market was a single story, it is possible that this feature is simply a projected central section, without a stylish portico above. Lounsbury (personal communication 2005 and 1994:287) suggests instead a projecting central section that stood on arches. A c. 1790 plan of the market house at Fredericksburg, Virginia shows such a projection on the south side, with arched supports (Lounsbury 1986). The archaeological record is also largely mute on the subject of above-ground features and finishes. Though the foundation of the market is remarkably intact, it was clearly sheared along the top to the level of the City Hall basement floor. While the documentary data suggests that the arched walls, or supports, were brick, we have no direct evidence of this. Lounsbury suggests that such construction was common, and the arched openings could have been enclosed with weatherboarding or oversized doors, or it may have been kept open. Stalls consisted of tables, with a series of overhead hooks, poles, and spikes for hanging goods (Lounsbury 1986:28).

Likewise, no evidence of flooring was encountered. Descriptions of contemporary urban markets (Lounsbury 1994:225; 1986; Kelso 1985) suggest a brick, or at least paved, floor that could be washed regularly. Further, these paved floors were usually elevated above the ground surface, usually one or two steps (Lounsbury 1986: 25). The presence of the well and drain would suggest that the market was paved, likely

in brick. If, in fact, the floor was raised, then it was likely necessary to remove it entirely for construction of City Hall. On the other hand, zone 7, consisting of packed sand, exhibited characteristics of a walking surface. Though imperfect, distribution of the yellow sand was in agreement with the building footprint. The accumulation of the washed sand in zone 6 on top of the packed sand suggests primary refuse. The archaeologically well-preserved colonial market in Fredericksburg contained evidence of successive sand floor layers (Kelso 1985:figure 4).

The recovery of fragments of terra cotta pantile and the relative absence of roofing slate suggests that the market feature a tile roof. While the documents are frustratingly mute on the construction details of the Beef Market, there is a detailed proposal for reconstruction of the Fish Market at Queen Street that echoes the features suggested by Lounsbury. A 1797 notice in the City Gazette and Daily Advertiser requests proposals for a building,

“the foundation to be sufficiently thick and compact to admit a Cistern under the whole, and to be raised 16 inches above the level of the street. The Roof to be supported by Arched Pillars, 10 feet high, to be covered with glazed Pan Tiles, and the eaves to project 7 feet over the Pillars on every side. A cupola sufficient to hang a Good Bell, to be erected on the center of the roof.”

Based on the documentary and archaeological evidence available, it is assumed that the Beef Market at Broad and Meeting was similar in construction and appearance. The Beef Market, in fact, was repaired a year before the above advertisement appeared (South Carolina State Gazette 1/15/1796).

As noted in Chapter II, Charleston supported at least three market sites after 1760. Shortly after the second market building was constructed at Broad and Meeting, and renamed the Beef Market, a Fish Market was constructed at the foot of Queen Street and the Lower Market was built at the foot of Tradd Street. While the fish market was used predominantly for that purposes, the Lower Market appears to have been a multi-purpose venue. An ordinance of 1786 noted that the “two markets” [the Beef Market and the Lower Market], “all kinds of butcher’s meat, poultry, fruit, vegetables, and all other articles and provision shall and may be sold...” The ordinance further noted that “six stalls shall be reserved in the market, fronting on Tradd Street, for the use of the planters, that bring or send their own stock to market...” It is expected that the City would meet similar demands with similar facilities.

We have virtually no evidence for the dimensions and appearance of the earlier market building. No descriptions are available of this building, and no architectural features were encountered during the controlled excavations. A small section of brick foundation, south of the 1760 structure and 3’ further west, was encountered on the west side of City Hall during construction activities. This was designated feature 52. This has been tentatively interpreted as a portion of the 1739 foundation, since no other colonial buildings were expected in that location. A 5.2’ long section was exposed in the construction excavations. These were outside of the 5’ wide trench that encircled the City

Hall foundations, and this area was excavated to accommodate service facilities to City Hall. The exposed section was present in the western profile of this service excavation.

Though it was not possible to conduct controlled excavations around this foundation, the location and dimensions provide fairly certain evidence that the feature represents the 1739 market. Dimensions were somewhat different than those of feature 10. The wall represented by feature 52 was 1.55' wide, slightly less than feature 10. Like feature 10, the surviving section of feature 52 was four brick courses deep.

Location of the north wall of the 1739 market, presumably within the footprint of City Hall, remains a mystery. Neither the interior units nor the exterior construction trenches produced any evidence of this wall. The most plausible explanation at this point is that it was incorporated into the foundation of the 1760 market, or removed at that time. A trench of disturbed soil, with a rounded bottom, was noted in Units 10 and 13, on the north side of feature 10. This was tentatively interpreted as evidence of removal of the foundation, but this is far from certain. No architectural evidence of any kind was discovered in the exterior excavations. The entire expanse of City Hall was trenched for service lines. The east hall and the central hall, in particular, were excavated along the entire length, and no foundations related to the 1739 market were identified.

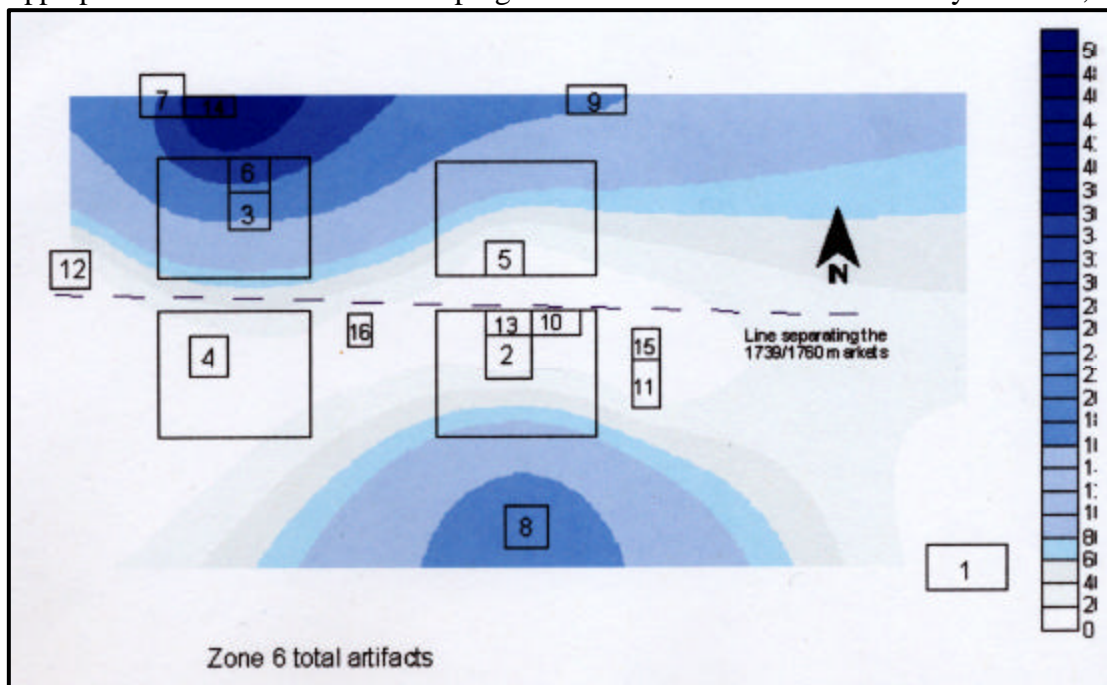
The data presently available does not indicate the presence of any structures on the site prior to 1739. Zones 10 and 11 appeared devoid of features. The single exception may be in the vicinity of Unit 11. Here, zone 10 contained a high concentration of charcoal and nails, and three poorly defined features may represent posts or poles. Likewise, the fairly even distribution of nails shown in figure __ suggests scattered, temporary shelters exhibiting no particular pattern. It is possible that these features represent minimal sheds or stalls. Lounsbury suggests that Charleston was similar to other colonial towns in providing a broad open market space where vendors could set up moveable wooden stalls or other temporary fixtures, such as small stands and tables (Lounsbury 1986:3). While the sample size is small, the present exposure of zone 10 would suggest that the early market was devoid of permanent structures. The architectural debris present in this deposit, as discussed in Chapter 4, is principally from construction of the 1739 building.

Horizontal Patterning and Site Formation

Excavations at City Hall were designed to cover as much of the available site as possible, and as evenly as possible within the time constraints of the project. Sixteen units were excavated within the available areas of City Hall interior. When the two exterior units excavated on the east side of the building are included, the physical coverage of the site includes the footprint of the 1739 market, the southern half of the 1760 market, and a portion of the yard in front of the market on the southeast side. Unit 1, in particular is in close proximity to the eastern section of Market Alley.

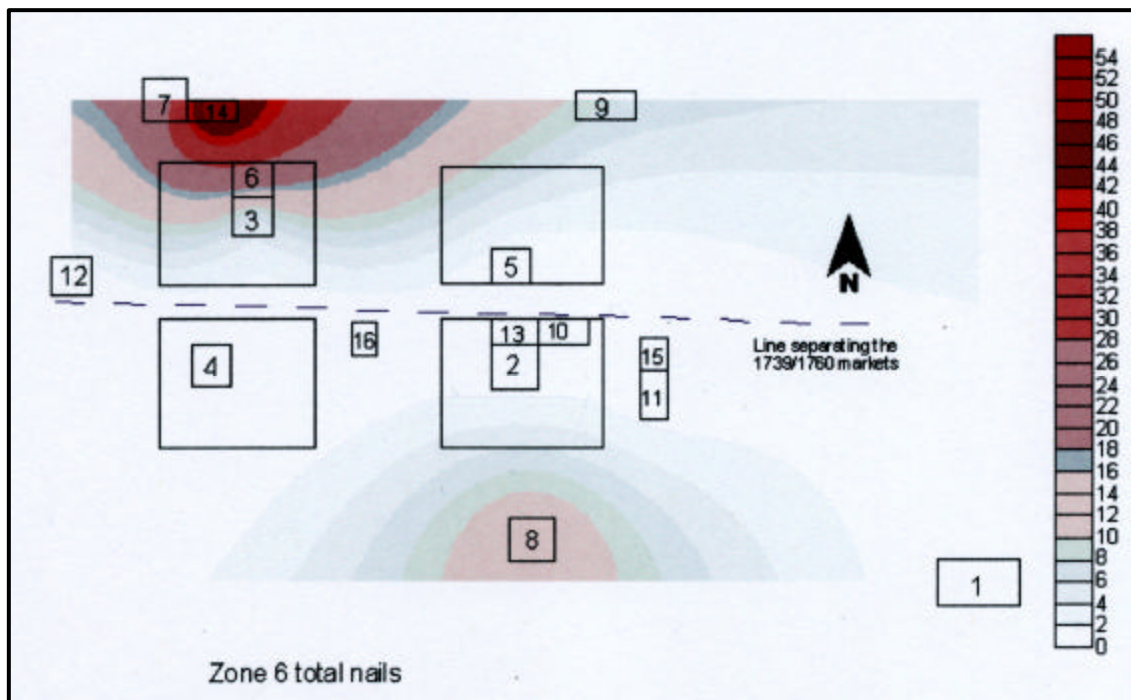
Based on this fairly even horizontal coverage, and the recognition of contiguous zone deposits across the site, it was possible to analyze horizontal distribution of various materials across the site and through time. This should further refine our knowledge of building and activity location at the site. To do this, the assemblage was quantified by unit as well as by temporal association (or in some cases by particular zone deposits). Certain diagnostic artifact categories were then selected for distributional analysis using a computer-generated mapping program (SURFER). As the depth and density of the various zone deposits varied across the site, the number of artifacts was calculated against the amount of soil excavated. Where this method was used, these are shown as number of artifacts per cubic foot of soil excavated (item/ft³).

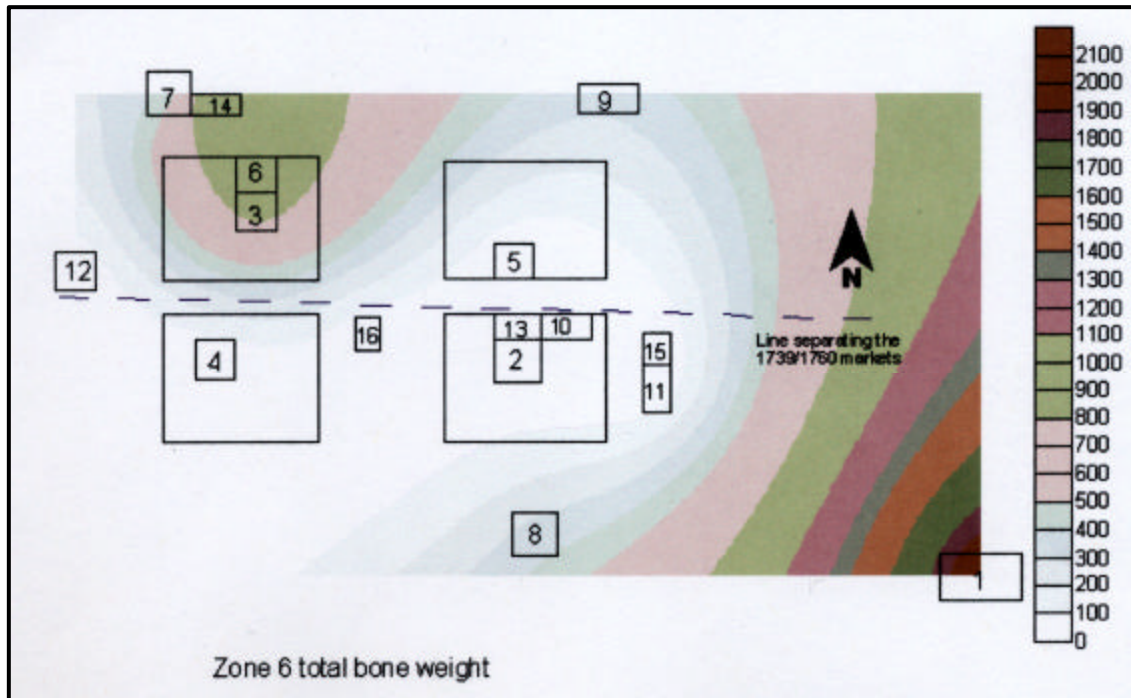
SURFER 8 is a statistical contour modeling program used to create maps of terrains and landscapes. Archaeologists have utilized this program for creating artifact density diagrams for several years. SURFER works on a standard X, Y, Z coordinate system. For our purposes, the X and Y values correspond to northing and easting lines of the archaeological site grid. The Z coordinate is traditionally an elevation, but for our purposes it can be an artifact count, weight, or any other quantifiable entity deemed appropriate. The Microsoft Excel program is used to create a database by columns, with



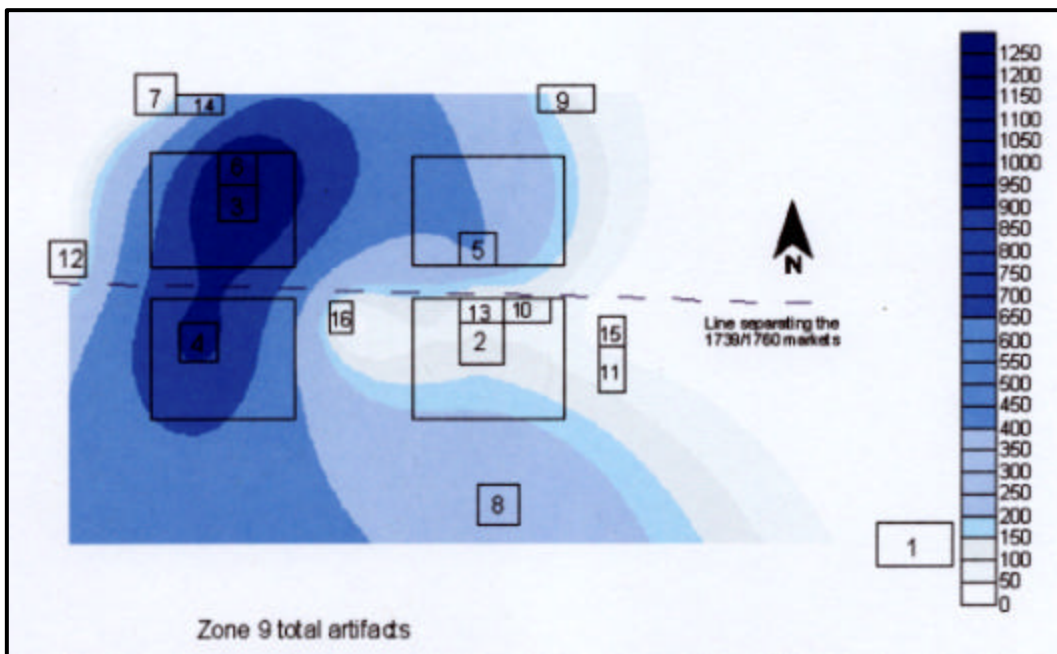
the first two corresponding to the X and Y values. Multiple columns of Z can then be listed. Once all of the data files are set, they can be used to generate contour maps that show positional artifact data across the grid. SURFER also predicts artifact densities around the units, shovel tests, or trenches. These are to be interpreted by the archaeologist, and do not reflect true artifact patterning. Only the grid points entered into the database, and the artifact data attributed to those points, should be considered actual representations of how the artifact assemblage was recovered from a site. This predictive modeling can be useful for guiding future excavations, and for interpreting site patterning from data retrieved. SURFER was used in the latter role for the market site.

The first deposit subjected to distributional analysis was zone 6. This is the layer of water-washed sand and bone fragments, overlying the sand-clay floor, associated with the 1760 market. Horizontal variation in this deposit was noted during the fieldwork. This variation included presence of the zone itself as well as density of bone fragments and artifacts within the zone. The sandy soil was best defined along the southern side of the 1760 building footprint. It was also particularly dense in the eastern exterior units, near the alley. Densities were calculated for total artifacts, for nails, and for bone separately. The resulting maps suggest that the artifacts are associated with the footprint of the market (For reference, the south wall of the market is located in units 10, 13, and 16). Artifacts are concentrated in units 3, 6, 7, 9, and 14, within the footprint of the building. A second concentration was noted in Unit 8, in an area of open space in front of the market building. The nail distribution mirrors this pattern. Bone is also concentrated within the footprint of the market, but there is a secondary concentration in the eastern yard units, adjacent to the alley. This suggests some efforts to clean the front of the market, while debris accumulated within the market building and in the surrounding alley. The water-washed sands are tangible evidence of the daily cleansing described by Lounsbury, and the pattern suggests washing the market floor to the south and, particularly, to the east toward the alley.





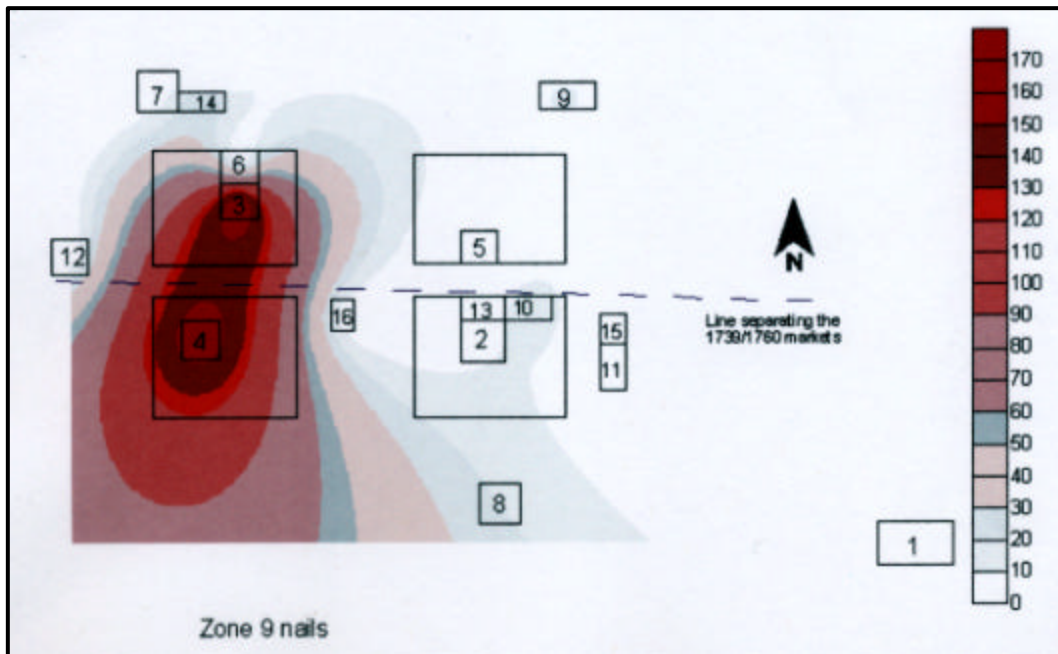
Zone 7 is also associated with the 1760 market but, as discussed in earlier sections, the majority of the artifacts contained in this soil are associated with the earlier occupation. Some of the zone 7 soils were likely moved to form the living surface for the market. The compaction of the soil, particularly the seconds of brown sand, suggest that at least some of the materials contained in the soil are primary deposits, generated and moved by daily foot traffic after 1760. Given the fact that the cultural deposits are a



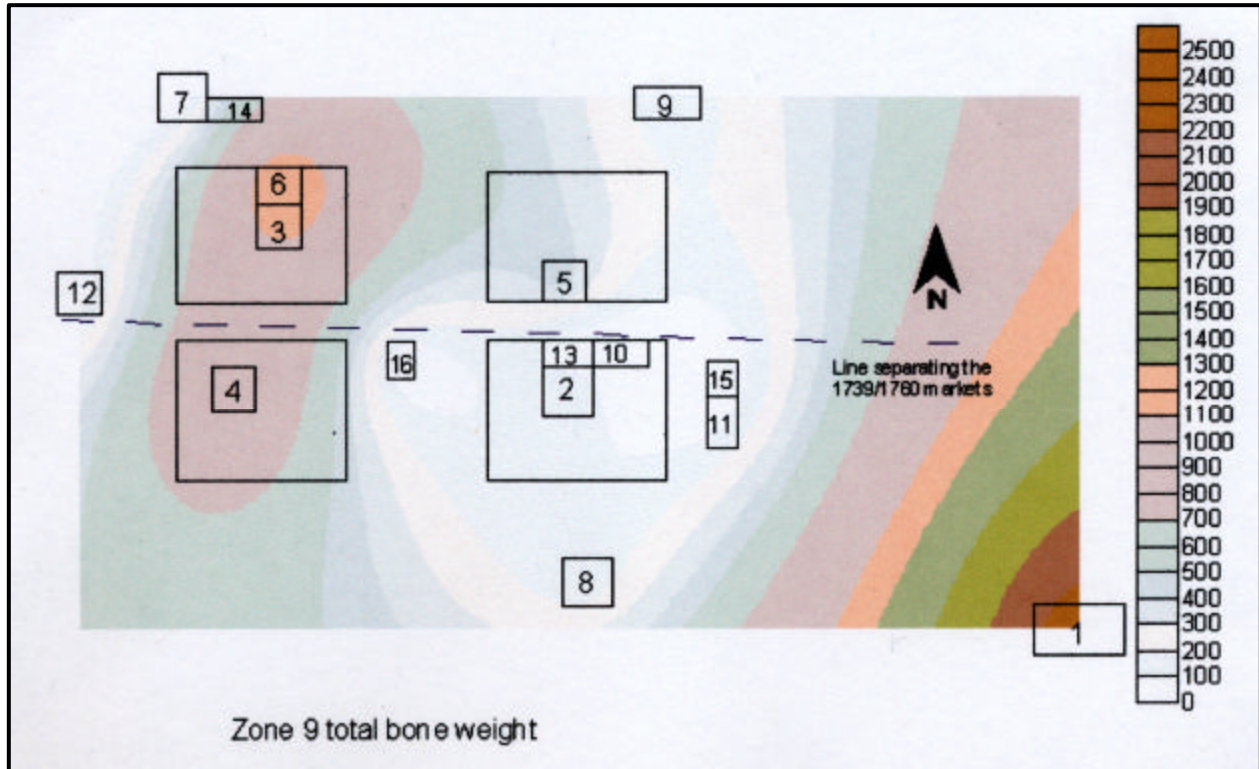
mixture of two events, it was not surprising that the distribution is slightly different than the above zone 6. Debris is again concentrated within the footprint of the 1760 market, with a secondary concentration in front of the market in Unit 8. All three categories –

artifacts, nails, and bone – exhibit the same distribution pattern. The bone concentration adjacent to Market Alley apparent in zone 6 is absent from zone 7.

Zone 9, the dense gray-brown midden layer associated with the 1739 market building, exhibits a different distribution altogether. And once again, the concentration of bone varied from the nails and artifacts. Based on the limited cartographic data, units 2, 4, 8, 10, 11, 13, and 16 are likely within the footprint of the 1739 building. Artifacts in general were concentrated in the western portion of the site, in the vicinity of the northern edge of the market (in units 6 and 3). As the figures show, there was some variation between the overall concentration of materials and the number of artifacts per cubic foot. With the latter calculation, artifacts are more evenly distributed east to west within the footprint of the market. Materials are also dense along the northern edge of the building footprint. There is a heavy concentration of nails between units 3 and 4, a location likely the center of the market building. These nails may reflect construction of the market, undocumented repair during the course of its use, demolition of the building, or some combination of these events.

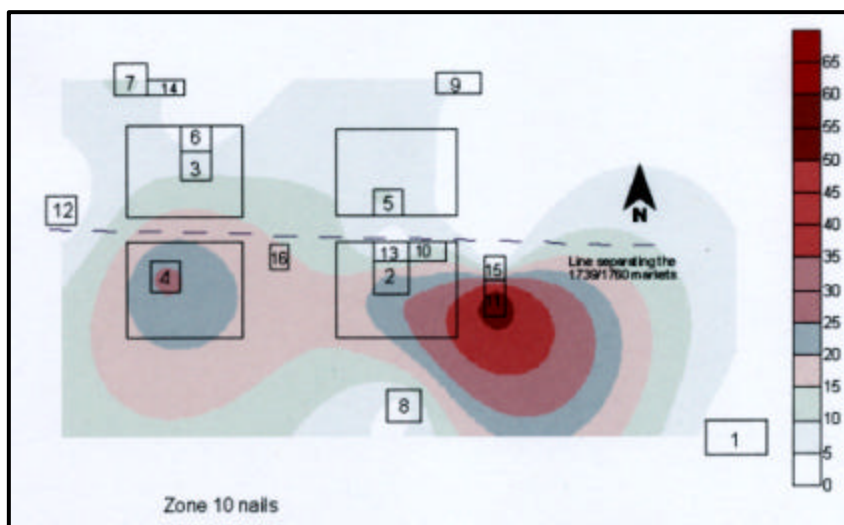


Bone again varies from this pattern. While there is a concentration of bone in the center of the market footprint, in the same location as the artifacts, there is a heavier concentration east of the market, adjacent to Market Alley. The bone distribution is a bit more even when calculated by cubic footage. Bone is distributed within, and just north of, the market building. A heavy concentration remains associated with the east side of



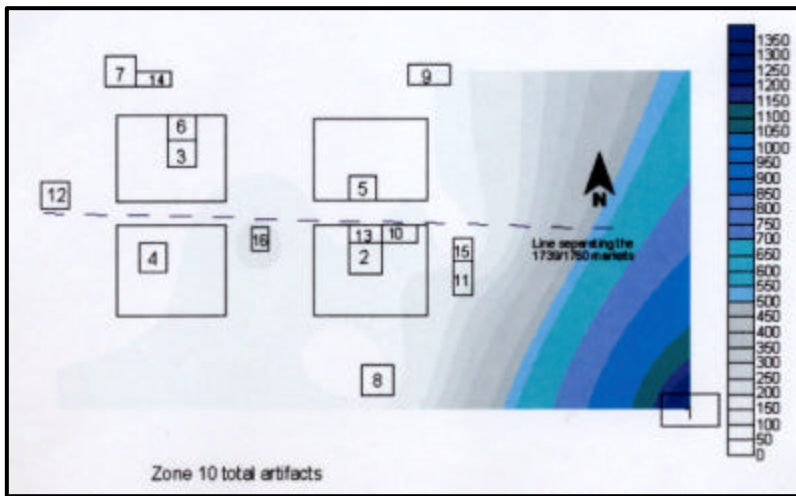
the market and the surrounding alley. Whether this represents primary refuse – the site of sale or butchery – or secondary refuse from cleaning the market site is unknown. Some level of cleanup is the most likely explanation. In terms of appearance, zone 9 was the soil layer most likely imported or disturbed, but the patterned distribution suggests this is not the case.

Zone 10, the highly organic soil associated with the earliest use of the property as



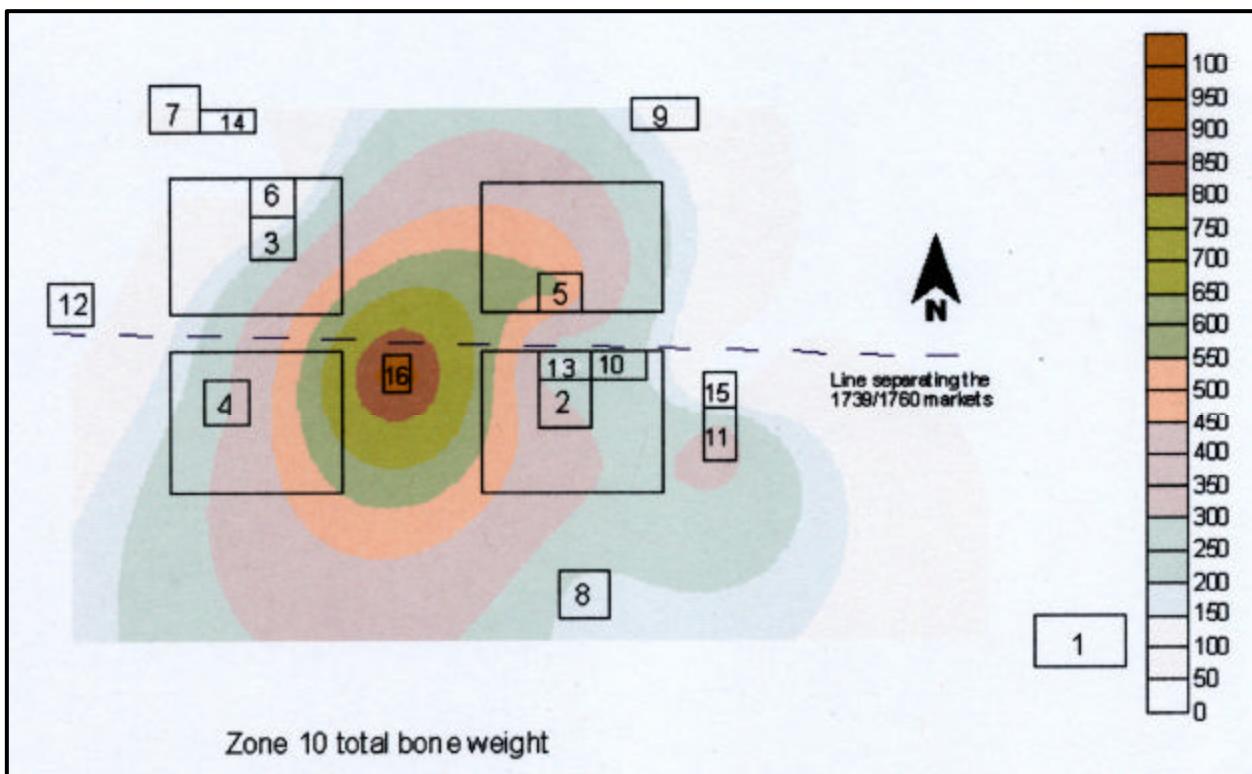
an informal market square, shows the greatest variation in distribution. Each of the categories – bone, artifacts, nails, and ceramics – displays a different pattern. Artifacts are concentrated along the eastern side of the site, particularly in Unit 1. They are

virtually absent from the remainder of the site, in comparison. This was particularly true for colono wares, which comprised nearly half of the ceramics in Unit 1, but less than 5% in the remaining units.



Quite a different pattern is apparent in the overall ceramic count, though; ceramics are concentrated in Units 10 and 16 (this was observed in the field, as well). This suggests a concentration of activities that use ceramics in the center of the market square. Nails are relatively scarce, and the few recovered are distributed in a fairly even pattern across the site. There is a concentration of nails in Unit 11. As this was the

only unit to contain features and charcoal in the zone 10 matrix, this may reflect



construction of an undocumented, perhaps temporary, building or shed in this location during the early period. The concentration of nails and charcoal may indicate that this structure burned and the materials left in situ. Bone, again, shows a different distributional pattern, with a concentration in Unit 16. This indicates that bone is concentrated in the center of the site, in a pattern similar to the ceramics.

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 provide clues to the formation of the archaeological site. 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 deposited 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 often unarticulated 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. 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 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

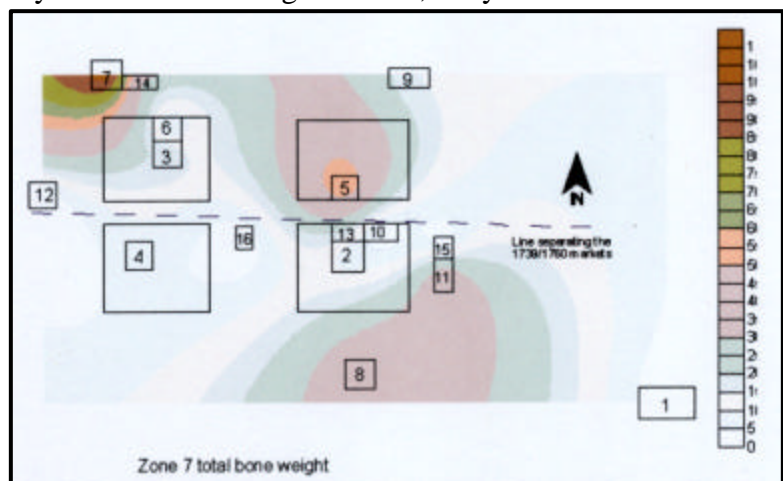
reflects, in Nicholas Honerkamp's view, mostly idiosyncratic activities such as lost toys and pet burials (Honerkamp and Council 1984; Zierden and Calhoun 1986).

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.).

With this background in mind, let us consider the formation and integrity of the Beef Market site. We began research at the Beef Market in 1984 with two questions – Was this the Beef Market? And does it have a unique, recognizable archaeological signature? Excavation of Test Pit 1 answered "yes" to both questions. The quantities of bone retrieved from that pit, and the artifacts associated with the bone suggest that this was indeed the market, and that it was different from other Charleston sites of the same time period. Based on these results, we approached the 2004 project at City Hall with two more questions - Is the site relatively undisturbed, despite the construction of City Hall in 1800? And are all of the materials present the result of activities AT the Beef Market?

The stratigraphic profiles of all of the units excavated answered the first question. As described in Chapter III, the layers that accumulated throughout the 18th century were nearly untouched by construction of City Hall in 1800 and almost all activity subsequent to that (renovations in 1882 and installation of water lines, elevator shaft, and other services having relatively minor impact). The site exhibited early soil layers that appeared natural (zones 10 and 11) and midden layers that reflected construction (zone 7) and refuse accumulation (zones 8 and 9; zone 6). An important consideration, though, was the source of the midden layers. Were they accumulations of on-site refuse, or was soil imported to fill low areas, to raise the level of the site, or to set a foundation for construction? Alternately, was relatively sterile soil brought on-site, only to fill with market-generated refuse as daily activities proceeded?

As was the case in 1984, the quantities of bone strongly support interpretation of this site as a market. Moreover, the horizontal and vertical variation in the bone suggests that all of the refuse was generated on site. The changing characteristics of the bone

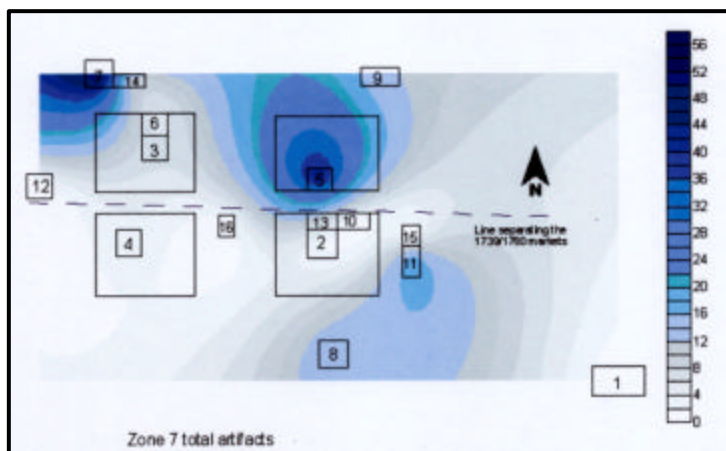


assemblages reflect changes in refuse disposal as butchering practices and marketing activities changed. Zone 10, filled with large bone fragments evidently *in situ*, zone 6, filled with hacked fragments of mammal bone, and zone 7, filled with small, trampled bone fragments, each exhibit suggest deliberate, specialized market activities. The difference in content between zone 10 and all subsequent zones also suggest a major shift in marketing practices.

If the bone assemblage is unique to the market and generated on site, it then follows that all of the cultural materials associated with the bone were also generated on site, and not imported with soil from another (possibly domestic) location. This is a critical foundation to exploration of the ceramics and the other seemingly domestic artifacts recovered from the site. As a public site, occupied in only a transitory way, it seems that such items as delft plates, porcelain tea wares, and kaolin wig curlers would necessarily be used and discarded at a market. It then becomes the task of the archaeologist to use these materials to explore the range of activities at a colonial market.

The variations in the horizontal distribution of materials, both through time and across space, lend further credence to interpretation of the artifacts as primary refuse. The physical appearance of zones 10 and 11 suggest that these are natural soil layers that were living surfaces. This is bolstered by the discovery of what appears to be wheel ruts cut into this surface in Test Pit 1 (Calhoun et al. 1984: 34). The large size of the bone and the artifacts retrieved suggest refuse that was deposited at the point of use and relatively undisturbed thereafter. This is supported by the distribution data, namely the marked difference among bone, ceramics, and nails. The marked differences in the distribution of these elements suggest primary, undisturbed refuse disposal.

Though the artifact assemblages appear to be more consistent internally, the distribution of artifacts in zones 6, 7, and 9 also support interpretation of on-site deposition. The concentrations of materials noted in zones 7 and 9 vary with the suspected footprint of the market building. Moreover, variations between bone and artifact distribution suggest deliberate disposal, or discard, practices for the more offensive debris. This difference is more pronounced in zone 6, which seems a direct reflection of on-site refuse disposal activities. Both the overall artifact assemblage profiles and the horizontal variations within those assemblages support interpretation that all of the materials retrieved are the result of activities at the market.



As the previous discussion implies, it appears that the great majority of the market materials are the result of daily discard. While some of the items may be present as the result of loss, there were no particular deposits, or proveniences, that directly reflect loss. Destruction was

reflected in the ash deposit encountered in feature 15, and in comparable materials designated feature 5 in Test Unit 1. In the latter, the charcoal and ash that resulted from the 1796 fire appear as a thin, compacted zone, or ground surface. Feature 15 reflects excavation and redeposition of this soil on top of the drain as part of subsequent construction and repair efforts to City Hall. A Terminus Post Quem of 1794/1795 for feature 15 indicates that reorganization and redeposition did not result in the introduction of later materials.

Finally, removal is indicated by negative evidence. The ground surface inside City Hall is nearly two feet below the exterior grade. The latest zone deposit (excluding the ash in feature 15) dates to the 1760s-70s. This indicates that the overall grade in the basement was lowered at the time of construction (or possibly later), and that deposits dating between c. 1770 and 1800 were removed. Again, an absence of later artifacts indicates that this activity did not introduce materials into the zones below.

Material Culture and Daily Affairs at the Market

Having established that the artifacts retrieved at the market site were generated from daily affairs on-site, we can now explore the materials recovered in terms of constructing a range of activities at the market. Changes through time are discussed in Chapter IV. Here we will consider each of the temporal periods separately, in comparison to artifact assemblages from Charleston and elsewhere. Similarities and differences among the assemblages will be discussed in terms of the activities represented.

Table 7-1: Proportions of Artifact Groups through time - Market

Artifact group	1690-1739		1739-1760		1760-1796		CAP
	#	%	#	%	#	%	%
Kitchen	622	52.9	8816	74.0	7730	69.3	60.3
Architecture	353	30.0	1657	13.9	2186	19.6	23.9
Arms	21	1.7	328	2.7	273	2.4	.5
Clothing	4	.3	13	.1	35	.3	3.0
Personal	0	--	0	--	8	.07	.2
Furniture	0	--	6	.05	18	.16	.2
Tobacco pipes	156	13.2	1871	15.7	1787	16.0	5.8
Activities	19	1.6	203	1.7	141	1.2	1.7

The beef market assemblages are first compared to the general Charleston profiles. These are based on the functional categories that form the Carolina Artifact Pattern, derived by Stanley South (1977). The Charleston assemblages were developed by quantifying a number of Charleston assemblages that are large, well-documented, and ascribed dates with a high degree of certainty. From the 20+ individual projects conducted in Charleston, 5 to 7 assemblages were selected 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. These general profiles are shown in the table below.

	<u>c.1720-1760</u>	<u>c.1760-1830</u>	<u>c.1830-1880</u>
Kitchen, % total	55.8	58.5	43.6
Architecture	26.0	33.6	48.3
Arms	.2	.3	.25
Clothing	.64	1.13	3.52
Personal	.29	.45	.61
Furniture	.25	.20	.18
Pipes	11.25	4.45	1.39
Activities	5.47	1.31	2.05

Overall, the Charleston market assemblage has a narrower range of material items than contemporary domestic sites in the city. Kitchen, or food preparation and consumption, items dominate the assemblages through the 18th century. They are most common in the early market building assemblage, comprising 74% of the artifacts, and least common in the market square assemblage, where they comprise 53% of the assemblage. The Beef Market assemblage contains only a slightly smaller amount, 70% of the assemblage.

The proportion of food-related items varies inversely with the quantity of architectural items recovered. This varies through time, and is likely associated with construction and/or demolition of buildings. Somewhat surprisingly, architectural items are most common in the market square assemblage, comprising 30% of the materials. This likely reflects the inclusion of materials relating to construction of the first market building in the zone 10 deposits. Architectural materials are proportionately fewer in the 1739 market assemblage and the 1760 market assemblage, comprising 14% and 19% of the assemblages, respectively. The higher number in the 1760s assemblage reflects destruction of the market in the 1796 fire, with this number somewhat muted by an overall larger number of food-related items in the assemblage.

Arms materials were much higher at the market site through the 18th century, compared to other Charleston sites. Arms materials ranged from 1.7% in the phase I assemblage to 1.75% in the phase II and a comparable level (2.4%) in the phase III

assemblage. The Charleston average for these periods is between .2% and .3%. The higher levels at the market are the result of the quantities of flint debitage retrieved, reflecting a unique on-site activity.

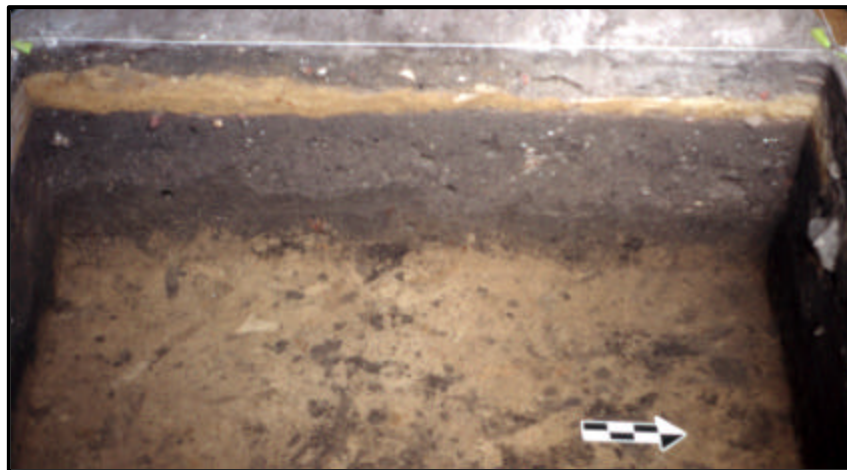
The generally domestic items of personal possession, adornment, and comfort are largely absent from the market site, and this is fairly consistent through time. Clothing comprises only .3% of the assemblage through the 18th century, and only .1% of the 1739 assemblage. Clothing items are at least twice, and sometimes four times as common on Charleston sites of the 18th century. Items of personal possession, which average .2% of the Charleston assemblages, were not recovered at all at the market. Only a few coins, comprising .07% of the assemblage, were recovered in the 1760s proveniences. A few furniture items, principally tacks, were present in the 1760s market assemblage, comprising .16% of the assemblage; none were recovered in the market square proveniences and such items comprise only .05% of the 1739 market assemblage. This is in contrast to Charleston domestic sites, where furniture items average .2% of the assemblage throughout the 18th century.

Tobacco pipes, which are highly variable and reflect personal habits, are unusually common at the market for all time periods, perhaps reflecting communal or social activities at this public site. Tobacco pipes are often more common in the early 18th century in Charleston, and decrease through time. They average 11% of the 1720-1760 period proveniences in Charleston and decrease to 4.5% of the assemblages in the 1760-1820 era. The proportion of tobacco pipes actually increases at the market through time. They are 13% of the market square assemblage, and increase to 16 % of the 1739 and the 1760s assemblages. These numbers are not only higher than the Charleston averages, they are higher than any other individual Charleston site. This is, perhaps, the strongest evidence of socializing, or leisure, activities at the market.

Specialized activities, another highly variable category, were comparable at the market to other sites. The individual artifact types were narrower at the market. The majority of the items recovered at the market were related to food storage (in the form of barrel straps) or craft byproducts (in the form of scraps of lead and brass). Activities items range from 1.6% of the market square assemblage to 1.2% of the 1760s assemblage; Charleston sites range from 5% to 1.5% of the items.

The Beef Market is not the only Charleston site with intact stratigraphy associated with temporally-specific events and narrow time ranges. The Heyward-Washington house site at 87 Church Street has been investigated archaeologically since the 1970s. This property features a brick double house constructed in 1772. Thomas Heyward's house, though, is the third construction episode on the property. The 1730 house of gunsmith John Milner burned in the fire of 1740 and was replaced by a brick single house in 1749. This was razed by Heyward in 1772, though the brick outbuildings constructed by John Milner Jr. in 1749 remained. These documented events are reflected in the archaeological record. In 2001, controlled excavations were conducted inside the c. 1750 carriage house revealed intact stratigraphy associated with John Milner's 1730-40 occupation, the fire of 1740, and John Milner Jr's occupation from 1740-1749, prior to

construction of the carriage house. These large, temporally discrete assemblages provide good baseline data on an urban domestic site.



The seven excavation units revealed a series of zone deposits contiguous over the site, with some horizontal variations. The twentieth century soil layer was less than an inch thick, and the underlying 19th century layer only a few more. Within six inches, we encountered a layer of sterile sand that was a prepared surface for constructing the building. Builders trenches dug through this layer revealed that the suggested 1750s date of construction was accurate, and that the well that is visible beneath the stable foundation was likely dug, or rebuilt, at the same time. Beneath the layers of building construction was a deep trash zone (zone 5) from the 1740-50 period, followed by a lens of ash and charcoal from the 1740 fire (feature 119). Yet another midden layer was below the ash, this one dating to John Milner's occupation from 1730 to 40 (zone 6). Beneath this trash layer and the yellow subsoil was a thin lens of dark organic soil, the original grass and vegetation layer that signaled the beginning of human occupation of the property. Zones 5 and 6 are directly comparable, temporally, to the first market building and the market square assemblages. Specific artifact and ceramic types, as well as the overall artifact profiles, are discussed below.

The general artifact profile (the functional groups) was generally comparable between the market square assemblage and the Heyward zone 6 assemblage. Kitchen materials comprised 53% of both assemblages, and the architectural materials were similar in proportion at 30% to 32% of the assemblage. The arms group was larger at the market, lending further credence to the assumption that the flint recovered at the market reflects on-site manufacture of gunflints or other tools; the arms group at the Heyward site is larger than the Charleston average and is the product of a gunsmith!

The items of personal adornment and possession – the luxuries – that were absent from the early market assemblage are also absent from the Milner household. There were no clothing, personal, or furniture items recovered at either site. Together, these assemblages may reflect the relative paucity of such items in early Charleston, prior to the economic success engendered by rice production.

The Milner assemblage, as well as the general Charleston data, suggests that tobacco pipes are most common in Charleston in the early 18th century. While the Milner assemblage contained a relatively large number of pipes, the market square assemblage was larger still, supporting the interpretation of pipes as a reflection of socializing. The activities group is smaller at the market than at Milner's house, but the larger number may reflect Milner's on-site gunsmithing business.

As discussed in Chapter IV, the ceramic assemblage at the market was narrower than at Charleston sites in general, both in terms of types and vessel form. Tankards were the predominant form. A number of 18th century ceramic types were compared for the market and the Milner household. Delft is similar at both sites, comprising 25% of the ceramics. The next most common early 18th century ceramic, Combed and Trailed Slipware, is also comparable in frequency. Slipware is 12.9% of the market square assemblage and 10.4% of the Milner assemblage. As discussed above, drinking pots and mugs were the predominant vessel form at the market. Lead-glazed earthenware storage and cooking vessels were slightly more common at the market.

Temporally-sensitive tablewares were uncommon at both sites, but more so at the market. The early market assemblage contained 2.4% white saltglazed stoneware, but only 1.0% Chinese export porcelain, compared to 1.0% stoneware and 2.0% porcelain at the Milner household. Ceramics from French and Spanish sources were present at both sites, as they are throughout Charleston, but they were comparably scarce. The market square assemblage contained 1.6% foreign ceramics, while French and Spanish wares were 1.0% of the Milner household assemblage.

The biggest discrepancy was in the colono wares, a common component of 18th century lowcountry assemblages. They were remarkably scarce at the market in general. The market square assemblage contains 8.3% colono wares, the majority of these from Test Pit 1 on the eastern side of the site. The Milner household assemblage, in contrast, contained 28% colono wares. In his study of colonowares at the Judicial Center site,

	<u>Market Square</u> 1690-1739	<u>John Milner</u> 1730-1740
<u>Assemblage</u>		
Kitchen	52.9	53.5
Architecture	30.0	32.8
Arms	1.7	.76
Clothing	.3	0
Personal	0	0
Furniture	0	0
Pipes	13.2	10.5
Activities	1.6	2.27
<u>Ceramics</u>		
White saltglaze	2.4	1.0
Chinese porcelain	1.0	2.0
Delft	25.6	25.0
French/Spanish	1.6	1.0
Slipware	12.9	10.4
Lead glazed ware	9.4	13.5
Colono ware	8.3	28.1
Glass, % kitchen	62%	45%

across Meeting from the market, Joseph noted that colono wares peak in popularity in the 1730-40 period, when they are “a quarter of the assemblage.” Like the Heyward-Washington site, the block-long Judicial Center site was a predominantly residential area during this period.

There are bigger discrepancies between the market site assemblage and the Milner household assemblage in the next period. The early market building period, from 1739-1760 was compared to the post-1740 fire deposits by John Milner and his son, John Milner Jr. at the Heyward site between 1740 and 1750. This consists of zone 5, a layer of midden soil approximately .7' deep, deposited before construction of the stable building. The more expensive tablewares, for example, increase in frequency at the Milner household during this period; white saltglazed stoneware is 7.4% of the ceramics, while Chinese export porcelain is 7.2%. These wares do not become much more common at the market, where white saltglazed stoneware is 2.7% of the ceramics and porcelain is 3.7%. French and Spanish wares decrease in frequency at the market to a negligible .22% of the ceramics, while the increase in use at the Milner household to 4.1% of the ceramics. It appears that the newer, more expensive tablewares replace British delft at the Milner household, which decreases to 23% of the ceramics. Such a trend is common, and Noel Hume notes (1969:115) that the new stoneware rapidly replaces the less durable delft. Not so at the Market, where delft actually increases in frequency during this period to 30.7% of the assemblage.

Combed and Trailed slipwares increase in frequency during the second quarter of the 18th century at both sites, and are used comparably at both. Combed and Trailed Slipware is 23.6% of the Milner ceramics, and 20.2% of the early Market ceramics. The use of lead-glazed earthenwares declines in the Milner household to 7.7% of the ceramics, but they remain an integral part of the market assemblage, at 9.0% of the ceramics.

Table 7-4: Comparison – Middle Period

	<u>Early Market</u> 1739-1760	<u>Milner Jr.</u> 1740-1750
<u>Assemblage</u>		
Kitchen	74.0	64.3
Architecture	13.9	26.3
Arms	2.7	.42
Clothing	.1	.56
Personal	0	.14
Furniture	.05	.14
Pipes	15.7	7.2
Activities	1.7	.8
<u>Ceramics</u>		
White saltglaze	2.7	7.4
Chinese porcelain	3.7	7.2
Delft	30.7	15.1
French/Spanish	.22	4.1
Slipware	20.2	23.6
Lead-glaze ware	9.0	7.7
Colono ware	3.8	18.1
Glass, % kitchen	38%	27%

Colono ware decreases in frequency at both sites, but its use remains far less common at the Market than at the Milner house. Colono wares are 18.1% of the Milner ceramics, but only 3.8% of those used at the Market. Joseph has found that they remain popular, but decline to 10% of the ceramics a decade later at the Judicial Center site (Joseph 2002: 218).

To summarize, then, the early domestic assemblage (actually consisting of a portion of John Milner's household and his gunsmithing business) and the earliest market assemblage are quite similar. Each exhibits a relatively large proportion of tobacco pipes and a moderate amount of kitchen wares. Relative proportions of various ceramic types are similar, with the exceptions that are discussed above.

Differences are more pronounced between the post-1740 Milner assemblage and the first formal market assemblage. By this period, the Milner ceramic assemblage was more diverse, and encompassed more of the newer, more durable wares. Types typically associated with tea vessels were more common, in relation to the more common delft ware. Colono wares are much more common in the Milner household, and Staffordshire slipware has outpaced the utilitarian lead-glazed earthenwares. Non-English ceramics are more numerous at the domestic site. The market site, in contrast, features a relatively large amount of kitchen wares in relation to all other artifacts. The majority of these are ceramics; glass is less common in relation to ceramics at the market than at the Milner household. The household luxury items of furniture, clothing, and personal possessions become more frequent at the Milner household, but they remain quite sparse at the market.

Tobacco pipes and arms items, in contrast, remain a relatively strong component of the market assemblage. Tobacco pipes are twice as common at the market as at the Milner household. They are also more common than the Charleston average for the 1720-1760 period. Arms materials, particularly the flint debitage, are five times as common at the market than at the Milner household, and ten times the Charleston average for the same period. While the comparison to a single domestic site has not been carried forward for the later market period, the comparisons shown in table at the beginning of this discussion indicates that the same trends are evident in the later assemblage. The overall market assemblage, then, is remarkably similar throughout the 18th century, and exhibits measurable differences from domestic assemblages in Charleston.

The aspects that define the market assemblage – tobacco pipes, drinking glasses, some tableware, and cooking vessels – suggest a public setting for social activities. In the 18th century, taverns (more commonly called ordinaries in the early 18th century) provided the most common setting for such activities. Taverns were either dwellings or separate facilities for the accommodation of travelers and the entertainment of guests, and were strictly regulated. Carl Lounsbury notes that taverns provided the space for wide range of social affairs beyond the service of alcohol. Taverns offered food and lodging, as well as a venue for public and private entertainment. Such might include assemblies, balls, concerts, business meetings, dinners, and games. By the middle of the 18th century, many taverns had specialized rooms and fixtures (Lounsbury 1994:369). A number of

these sites have been investigated, including McCrady's Tavern and Longroom in Charleston (Zierden et al. 1982). While the archaeological assemblages from colonial tavern sites vary in detail, the material assemblages share overall characteristics, summarized by Kathleen Bragdon as follows: "A large number of vessels, a large percentage of drinking vessels in relation to the total ceramic sub-assemblage, a large percentage of those ceramic types most often found in the form of drinking vessels, specialized glassware, and a large number of pipestems" (Bragdon 1981:135). This description closely matches the particular aspects of the market assemblage described above.

To investigate this further, the market assemblage was compared to a number of archaeological tavern sites. The Shields tavern in Williamsburg, Virginia is particularly well-documented and extensively excavated. The careful analysis and insightful interpretations provides insight into the functions and materials of these sites (Brown et al. 1990). Further, the assemblage at Shields Tavern has been sorted by periods of ownership and function that are temporally similar to the market. Other sites suitable for comparison are the series of rural and urban taverns from New York and Massachusetts analyzed by Rockman and Rothschild (1984) and the c. 1725 Maryland tavern examined by Al Luckenbach (2002).



Rothschild and Rockman (1984) examined a series of late 17th/early 18th century taverns in the northeast, to examine differences between rural taverns and those in urban centers. They suggested that rural taverns were unspecialized and, as the only facility in the area, they served a variety of functions. Urban taverns, they reasoned, were more specialized, and were used primarily as meeting places. They argued that the meeting function would be reflected in tobacco pipe stems, where a range of ceramics would reflect a wider variety of services. They examined two urban and two rural taverns, and presented a ratio of ceramics to pipe stem fragments. These aligned neatly from the

earliest, most rural to the most urban, with proportions of pipes ranging from 25% in the rural assemblages to 80% at the urban tavern.

Brown et al. compared the Shields tavern in Williamsburg to the proportions proposed by Rothschild and Rockman. The early tavern period (1708-1738) fell within the range proposed for urban taverns, with 60% pipes. The later period at Shields tavern (1738-1751) contained a somewhat lower percentage of pipes, with 48% pipes, and thus was more closely aligned with the rural taverns in the Rothschild and Rockman samples. Brown et al. suggest that the lower percentage of pipes may be due to temporal changes in pipe and ceramic utilization. They do note, however, that Shields Tavern was likely less specialized in the later period, perhaps serving a wider clientele and providing a greater range of services.

The proportion of pipes to ceramics is similar for all three periods at the Charleston market. Pipe proportions range from 29% in the Market Square assemblage to 25% in the early market and 27% in the later market. While temporal variation in tobacco pipe popularity through the 18th century is likely a factor in the resulting proportions, the market assemblage does not match the urban tavern profile. This suggests that the social events and services at the market were more varied than at the urban taverns. The market assemblages suggest an emphasis on food service as well as relaxation over a pipe and conversation.

Table 7-5: Distribution of Pipes vs. Ceramics at Various sites
(from Rockman and Rothschild 1984; Brown et al. 1990)

(%)	<u>Pipes</u>	<u>Ceramic</u>	<u>Bottles/glasses</u>
Lovelace (1670-1706; urban)	65.6	6.0	28.4
Jamestown (1670-1700; urban)	35.0	26.5	38.5
Earthy's (c.1675-1700; rural)	37.1	61.8	1.2
Wellfleet (c. 1680-1740; rural)	24.1	69.3	6.0
Shields early (1708-1738; urban)	58%	42%	*not quantified
Shields late (1738-1751; urban)	47%	53%	
Market square (1692-1739)	13.5	32.2	54.2
Early Market (1739-1760)	27.3	48.4	24.1
Beef Market (1760-1796)	18.7	49.8	31.3

The market assemblage more closely resembles the Shields Tavern assemblage in the high percentage of drinking vessels and, to a lesser extent, tea wares. Specialized glass vessels were also notable in both assemblages. Direct comparison between the Williamsburg tavern and the Charleston market is muted by the fact that the tavern also housed the resident family, and so the tavern assemblage includes the materials of the resident household. The market, presumably, was home to no one, and so should reflect only social activities taking place outside of home. This may be the source of differences between the tavern and the market assemblages in the form of newer, more stylish tea wares. These were more common at the tavern for all periods than for the

market. Tea drinking does not appear to have been a common enterprise at the market. The two assemblages are similar in the fact that delft remains relatively common in the post-1740 period at both sites, suggesting continued usage of older, out-of-date plates and bowls. Finally, Brown et al. note a change in the tavern assemblage for the latest period, when the site no longer functioned as a tavern. Newer, more fashionable ceramics and more up-to-date teawares increase in frequency in the post-tavern period (1751-1800). Though there is some introduction of refined earthenwares, the later market period does not look radically different from the earlier period; rather the same patterns of ceramic and pipe usage persist. This suggests a continuity of on-site activities throughout the 18th century, despite changes in material fashion.

Another set of tavern data available for comparison comes from the study by Al Luckenbach at the Rumney/West tavern in London Town, Maryland. Here, Luckenbach recovered an assemblage of ceramic and glass vessels from a cellar pit filled c. 1725, as a new owner made improvements to the facility. Luckenbach, in turn, compared data from the West tavern to Freedman's Ordinary in Annapolis, an establishment that catered to a laboring class clientele around the turn of the 18th century. Both taverns were urban, and the recovered deposits were 'generated from the serving end of the tavern operations' (Luckenbach 2001:150). The higher-status London Town facility featured tea bowls, coffee pot, and coffee cups, as well as a pineapple bowl used for rum punch. Plates were also common at the West tavern. The lower-status Freedman's Ordinary contained fewer tea wares and fewer plates. But both taverns had significant numbers of wine bottles, wine glasses, mugs, and bowls. Mugs and cans of slip dipped saltglazed stoneware and English brown stoneware were particularly prevalent, as they were at the market.



This is not to suggest that the market site doubled as a tavern, or even that the market building(s) featured a second-floor public space that functioned as a tavern. As a major port city, Charleston featured a number of taverns, offering a range of facilities and

services. Those which advertised their services during the second half of the 18th century were clustered within the commercial district of the colonial city, along the Cooper Riverfront, and within the bounds of Queen, Meeting, and Tradd streets (Zierden and Calhoun 1982:66). Others were located along Meeting and King streets, the major thoroughfares entering the city from the interior. Some of the better-documented taverns featured longrooms. Longrooms were traditionally used for special occasions, and functioned as banquet halls, conference rooms, ballrooms, and theaters (Zierden et al. 1982:9). In his history of South Carolina, historian Walter Edgar describes the Charleston scene in the following manner:

“While some taverns offered space for large public gatherings, most were small places offering a variety of individual diversions. Many had billiard, backgammon, and card tables, and Thomas Nitingales on the road near Charleston had a bowling alley. The main rooms of the larger taverns served as halls for dances concerts, lectures, exhibitions, and public celebrations. A Cherokee Indian delegation was entertained at Nitingales, and Gov. Charles Montagu’s arrival feted at Dillon’s . The most elegant tavern in the colony may have been at the Sign of Bacchus on the bay. Operated by Benjamin and Catherine Backhouse, the establishment featured a dining room, long room, front room, piazza, cellar, garret, and cockloft. It was splendidly furnished with mahogany furniture, much of it probably made by Thomas Elfe. There were nineteen beds available for lodging, and if a guest wanted to get cleaned up, a bathtub. Eighteen slaves and Irish indentured servants staffed the Sign of Bacchus. In 1765 justices of the peace issued 66 tavern licenses; five years later the number had more than doubled. One half of the licensees were women. Taverns were public establishments, but they were also meeting places for clubs” (Edgar 1998:172).

Rather, the similarities between the market assemblage and colonial tavern assemblages suggest that the market was a vibrant public area, one used as a public gathering space, where residents might visit and converse, and perhaps share refreshment, as well as buy and sell wares. Whether such activities took place in a specified building or room, in a temporary or a permanent facility, or spilled over from nearby facilities, remains unknown at this point, but it is possible that the market buildings featured accommodations in some form. The similarity of proportions through the three market assemblages suggest a continuity of activities at the site, despite architectural changes to the site and social changes throughout the city.

In summary, the Market site possesses a unique material signature, one that is distinct from contemporary domestic sites and one that persists through the 18th century, despite changes to the market. The material assemblage is more limited than domestic sites, with a focus on food-related artifacts. Further, the range of ceramic and glass vessels suggests that social activities beyond shopping took place on site. The intact archaeological deposits, coupled with the unique faunal assemblage, suggest that the materials were generated at the market site and reflect on-site activities and disposal. These activities seem similar to those usually found at taverns, which provide food, drink, and meeting opportunities.

The Beef Market and the Urban Environment

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 that were 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 on the Charleston peninsula eventually reduced the natural relief of the 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) 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 recognizable 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. This is important to the interpretation of the dark color of zone 11 and the underlying sterile soil. Subsoil in Charleston, and throughout the lowcountry, has always been a yellow/tan sand or orange clay, and the black-colored sand is most unusual. The color and texture, however, does not match that of the filled wetlands encountered elsewhere in the city. Present interpretation is that the subsoil reflects high land that has been subject to an elevated level of organic inclusion.

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 further 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, juniper, 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 adjoining 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.

Though much more limited, the 1984 analysis of flotation samples from the Beef Market revealed a similar arboreal profile (Trinkley in Calhoun et al. 1984). The present pollen analysis by John Jones (Chapter VI) supports the early 18th century model presented by Hamby and Joseph. The recovery of corn (*Zea mays*) in the lowest levels suggests that the food crop was growing nearby. Pollen samples from the earliest period also contain a relatively high percentage of arboreal pollen, supporting a more forested environment. The second period (1739-1760) deposits contain pollen from possibly ornamental trees, particularly honey locust, dogwood, and elm. The presence of ornamental trees may reflect a more formalized urban environment. Both the period II and period III (1760-1796) assemblages contain weedy species, groundcover species such as clover, and a range of ornamental trees. The Beef Market

assemblage resembles the Judicial Center assemblage, with the presence of a number of economic plants, including fruit trees.

The soil analyses suggest that, despite the description as a ‘low, dirty-looking market for beef’, the Beef Market site was, in some aspects, rather clean. The dark, cloying appearance of zones 10 and 11 noted in the field led to the supposition that the soil had a very high organic content, and likely supported a dense population of livestock. Soil chemistry indicated elevated amounts of pollutants associated with human habitation, and likely animal habitation. This is particularly so for phosphorous, but also for Arsenic, Selenium, Barium, Manganese, and Magnesium; these are most common in zone 10 and zone 9, levels associated with market square and with the early market refuse deposits (Fosse in Chapter VI). Both of the soil levels interpreted as living surfaces – zones 7 and 10 – also contained elevated levels of these chemicals and speak to the use of the soils as living surfaces for a considerable length of time. The results of the parasitological research were less rewarding. Despite nearly optimal conditions for the recovery of parasites, none were found. Reinhard attributes this to soil conditions, namely decomposed organic material. John Jones’ pollen analysis revealed a number of cereal remains, particularly in zone 6, the water-washed sands associated with the 1760s market. These appear to be the result of grains for sale, or fodder for animals, rather than from fecal material. Manure does not appear to be the source of the cereal pollen.

The high organic content of the early 18th century soil has boundaries, was limited to the footprint of the market, and appears to directly reflect an intense amount of activity involving animals and plants in a circumscribed area. Though this was not reflected in the recovery of parasites, it was reflected in the color and material content of the soil. The large bone fragments suggests that on-site refuse disposal was common, and this is somewhat supported by the recovery of a number of rats from the zone 10 soils (9% of the individuals in the early market assemblage).

Despite the build-up of midden soils, it appears that the 1739 market was a bit cleaner. No rats were recovered from these soils. This may reflect deliberate attempts to keep the public spaces clean and free from debris. Alternately, it may simply indicate an open environment, one that harbored few hiding places for rats. Vermin increase in Charleston rather dramatically in the 19th century, as the city became more crowded; they are particularly common in and around outbuildings and along the wharves (Zierden and Reitz 2002; Zierden 2003). Both settings provide hiding places for mice and rats; an open market building, or one washed out on a regular basis, likely offered fewer such spaces. The later market, built in 1760, was evidently a bit more conducive to vermin habitation, as rats are again present in the faunal assemblage. By this time, the properties around Market Square were more densely settled, and the market site itself may have been more congested and more littered. Certainly the refuse density supports a messy site.

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.

Table 7-6: Bone and Artifact density at Charleston Domestic Sites

	<u>Bone, grams/ft.3</u>	<u>Artifacts/ft.3</u>
14 Legare, front garden	40.0	6.6
14 Legare, rear garden	29.0	12.5
14 Legare, work yard	16.3	9.4
14 Legare, filled swamp	26.0	10.9
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

*single, deliberate deposit to establish garden beds

Figures for the various zone deposits at the market are shown below. These reveal that the market site contained considerably more debris than the domestic sites throughout its history. This is particularly true of bone; the overall density of bone is, in fact, the signature of the market. There was some variation among zones, and between bone and other artifacts in various surfaces through time.

Table 7-7: Bone and Artifact Density at the Market

	<u>Bone, grams/ft.3</u>	<u>Artifacts/ft.3</u>
Zone 6 (water-washed sand, 1760)	224.4	60.4
Zone 7 (packed floor, 1760)	109.0	58.8
Zone 9 (midden, 1739)	90.8	87.2
Zone 10 (living surface, pasture, 1690s)	219.9	31.9

The two living surfaces, zones 7 and 10, contain large proportions of bone, compared to the artifact profiles. Zone 6, the layer of water-washed sand filled with hacked bone, contains the highest density of bone, and well as a reasonably robust amount of cultural materials. This

zone, in particular, seems to be full of the daily discard at the market. This is supported by the physical characteristics of the sand, which seem to match the documented practice of washing the market floor on a regular basis. It is interesting to note that zone 9, the midden layer associated with the 1739 market, displays the highest concentration cultural material and the lowest density of bone. This zone is the only deposit that exhibits characteristics of secondary refuse, or possibly displaced fill. Still, the contents and overall density of bone suggest the soil and refuse were generated on-site.

The artifact and bone density, then, supports the interpretation that the market was ‘dirty-looking’. Quantification suggests there was plenty of debris lying on the surface and trampled into the ground. This debris included remains from the butchers. The absence of vermin, then, may be attributed to the open nature of the site and an elevated level of daily traffic.

Provisioning the Charleston Market

Archaeological investigation of the Charleston market builds upon decades of research at a variety of domestic sites in the city, and provides an opportunity to examine details of the foodways of lowcountry residents, particularly those who lived in the urban center. Food is essential to life, and its production and sharing are at the core of cultural expression. Foodways distinguish resources that were desirable –ranging from simply edible to preferred – from among the resources that were available. Foodways consider the same food source prepared in different ways. Opportunities for change are often mediated by a general culinary conservatism, the desire to eat what is familiar and comforting. Foodways and eating habits are affected by local environmental conditions, by the migrations and mixing of different ethnic groups, and by regional, national, and global changes in the production and marketing of food and food-related materials. The result is a distinctive regional cuisine (Gabaccia 1998; Fisher 1989:9; Fenton and Kisban 1986; Mennell et al. 1992).

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 meat 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 is evident in the cookbooks and meal descriptions of colonial Charleston (Grimball Diary; Hooker 1984, 1981). Meat was plentiful in the lowcountry, as livestock flourished on the southern coastal plain.

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. 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.

Lowcountry residents of all backgrounds took advantage of the bounty of the woods and waters of the coastal plain. The environmental and economic success of rice made this grain the basis of lowcountry diet and cuisine. A wide range of vegetables – peas, beans, corn, peppers, tomatoes, peanuts – could be grown on the fertile sea islands. The wealth derived from plantation agriculture made accessible a variety of wines, spices, hot drinks, and delicacies through the trans-Atlantic trade.



The cuisine that developed in the lowcountry is a combination of European, African, Native American, and West Indian preferences and recipes with foods native to, or successfully cultivated in, the lowcountry. Each group introduced elements, preferences, and preparations into the cuisine. Lowcountry cuisine revolved around rice as a daily staple, served in a variety of ways.

European black pigs foraging on mast in the South Carolina woods. Image from *CawCaw Creek Pastured Pork*

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).

A host of wild game, fish, and shellfish formed the basis of many lowcountry dishes. Meats included a range of wild game as well as beef, pork, and poultry. West Africans traditionally ate little meat, but Europeans and Native Americans preferred a diet heavy in meat. For residents of the growing city of Charleston, the public market was one source for the desirable and the necessary foods. Meats were the principal product of the market building, and these are referenced through the 18th century. In his 1712 treatise “Profitable Advice for Rich and Poor”, Carolina planter James Freeman makes the following comments about lowcountry livestock,

“There is beef and pork very plentiful, many thousand barrels thereof sent off yearly to the West-Indian 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 made 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).

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. 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. One result of this, Bowen notes, was intra-regional variability, with variation in local agriculture playing a strong role in defining diet (Walsh et al. 1997:70).

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). Rules of municipal markets included:

1. setting prices for certain commodities
2. ensuring quality of food
3. controlling times and places of operation
4. renting out stalls at the market house
5. levying fines or punishments for infractions.

Market Square was established in 1692, and was likely an open, informal area. Numerous complaints suggest that the market was poorly regulated. In 1739, a large brick market building was constructed directly on Broad Street, and strict regulations "for preventing engrossing, forestalling, regrating, and unjust exactions" were passed. The market was open "from the rising sun" every day except Sunday. The Charleston market was formalized, both architecturally and administratively, by 1740. Twenty years later the market was again improved, and 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.

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 are among the questions basic to understanding the provisioning system for the town. Drs. Lorena Walsh, Ann Smart Martin, and Joanne Bowen have explored these issues in detail for colonial town of Williamsburg, Virginia. Their research provides

comparative data on the Chesapeake region during the 18th century and, in turn, provides a sound comparative data base with which to explore these issues for Charleston. Walsh et al. 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.

A significant source of goods sold in the city was the small garden plots of plantation slaves. As early as the 18th century, street vendors competed with formal markets. The majority were enslaved African Americans, working for their own wages and with approval of their owners. Slaves from the countryside sold their own eggs, chickens, and garden produce. 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).



Photo, Collections of The Charleston Museum

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.



Late 19th century image of the 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.

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). 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. 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. When they did shop the market, wealthy Charlestonians likely sent their house servants to make the purchases. Considerably more research is needed on this topic.

What did market customers purchase? Zooarchaeological analysis suggests the market supplied far more than beef. We have noted a rich array of animal products consumed in the city, with an emphasis on wild game and fish, and this array of animal products was evidently sold at the market. Wild taxa dominate the species recovered from the market for all periods. Moreover, the meats available at the market became more diverse even as the market's designation was changed to suggest a narrower role; a wide range of wild and domestic meats were sold at the market, and beef became a smaller portion of the total sales as the 18th century progressed. It may be that 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.

A related 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. Slaughtering at the market site is also likely 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). The zooarchaeological data, in the form of elements recovered, supports on-site butchery. This is particularly true for the earliest assemblage. Moreover, the soil chemistry profiles, suggest slaughter, or at least extensive butchery on-site.

According to legislation, however, any meats sold in the city were sold at the designated markets. Legislators specified that “fresh beef, pork, veal, mutton, lamb, or other meat” shall



only be “cut up and exposed for sale” at the public markets; further no “bullock, ox, cow or other grown neat cattle, intended for sale” could be killed within the limits of the city. “Sheep, swine, calves, and goats” were to be killed only in designated places.

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. 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. Data from both types of sites suggest that some domestic meats came from the market, but others were raised and slaughtered on site. Wild resources could have come from a property owner’s plantation, hunted or trapped by the owner or his resident slaves. But both the zooarchaeological and the documentary record suggest it is equally likely that they were purchased at the market.

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.

Summary

Excavation of 18 units inside and around City Hall revealed extensive evidence of activities at the Charleston market through the 18th century. Three periods of use were established, and evidence for each was retrieved. Seven successive zone deposits were noted across the site, associated with 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. These factors, together with documentary evidence, suggest that the artifacts and soil layers are from marketing activities.

Architectural evidence revealed that the 1760 market measured approximately 45' by 105'. The contiguous brick foundation measured 1.8' in width and four courses remained. The south side featured a central projection approximately 36' by 4'. Documentary and archaeological evidence suggest the building was brick, and likely a single story. A vaulted brick drain and a central brick well were integral parts of the market. The foundation was well-preserved inside City Hall, though the reduction in basement floor level for City Hall evidently removed evidence of the flooring. 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. The market walls were likely a series of arched openings, and the roof may have been pantile. Little architectural evidence of the 1739 building or any late 17th century structures was recovered.

Artifacts recovered from the multiple layers of refuse suggest the market was the scene of socializing. Kitchen or cooking wares dominated the assemblage, which also featured an elevated number of tobacco pipe fragments. Clothing and other luxury items were noticeably absent. Activity items included those associated with on-site manufacture, such as scraps of brass and lead. Also notable was the recovery of quantities of flint debitage, suggesting on-site manufacture of gunflints or other stone implements. But if the flint tools being knapped on site were used in butchering, they left little physical evidence on the animal bones, as cut marks were relatively rare.

The assemblage exhibited characteristics identified with tavern sites elsewhere in colonial America. The range of ceramics was narrower, and more stylistically conservative than elsewhere in the city. An unusually large number of drinking vessels – drinking pots, tankards, cans, - were present in the ceramic assemblage, while expensive tea wares were less common. Utilitarian cooking wares were common. These, plus the tobacco pipes in large numbers, suggest the market was a vibrant public space, one used for gathering and socializing, and possibly for drinking and eating. Moreover, the market assemblage remained remarkably consistent through the century, despite architectural changes to the site and social changes throughout the city. The market site possesses a unique material signature, one that is distinct from contemporary domestic sites and one that persists through the 18th century, despite changes to the market and to the city.

Colono ware, though, was noticeably absent. We expected that colono wares, made by African American or Native American residents of Carolina, might be sold in the market and that we would recover evidence of this activity. The documentary records suggest that African American men were the principal fishers, and that black women dominated the market scene. Plantation slaves and their gardens were major supplies of produce and poultry. Archaeologists have long suspected that they were also the producers of colono wares. While plantation sites have produced direct evidence of on-site production (Ferguson 1992, Zierden and Anthony 2003), no such evidence has been recovered from urban sites. We suspect that colono ware would be purchased or traded from rural settings to urban homes. One possible venue for these transactions was the market place. However, the amount of colono ware recovered was smaller than at any other contemporary Charleston site. If vendors were selling pots at the market, they did not remain on-site.

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. Smaller meats, particularly fishes, were sold more frequently at the end of the 18th century. 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.

Finally, the remarkable preservation of the site, and within the soil layers, provides important lessons for future archaeological research in Charleston and in other urban settings. The massive footprint of the 1800 building that houses City Hall was viewed as an impediment to retrieval of intact evidence. But foresight and careful planning by restoration architect Joseph Schmidt and accommodations by the City of Charleston created a situation where archaeological research could proceed at a deliberate pace without impacting the demolition and construction activities. The result was timely completion of an important research project, followed by productive and efficient retrieval of additional data during construction.

We expected the site beneath City Hall to be compromised by 19th century construction. Instead, the opposite was true. The 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. The discovery of an intact site in the basement of an historic building has important implications for the preservation and recovery of early Charleston beneath historic structures throughout the peninsula.

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