Excavations in the Kitchen Cellar: Nathaniel Russell House, 2021

Archaeological Contributions 53

The Charleston Museum

Prepared for Historic Charleston Foundation

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Excavations in the Kitchen Cellar
Nathaniel Russell House
May 2021

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Acknowledgements

The opportunity to excavate in the kitchen cellar arose from discussions between Grahame Long, Director of Museums at Historic Charleston Foundation and Jon Marcoux of Clemson University. Marcoux conducted a Ground Penetrating Radar (GPR) in the kitchen cellar and proposed locations for excavations. The excavation project was organized by Marcoux and Corey A.H. Sattes, then of Drayton Hall and College of Charleston, currently at the Thomas Jefferson Foundation, Monticello. Marcoux and Sattes invited Martha Zierden to participate in the fieldwork. Grahame Long arranged the project and secured funding from Historic Charleston Foundation for the principal excavators (Sattes and Zierden). Grahame Long later secured funding from Historic Charleston Foundation for analysis of the cultural materials and preparation of this report.

Funding for analysis of a sample of the recovered faunal remains came from a National Science Foundation grant to Dr. Barnet Pavao-Zuckerman of the University of Maryland. The NSF project on the Colonial Cattle Economy was a joint effort between the University of Georgia and University of Maryland, included geochemical research on select cattle remains from Charleston and zooarchaeological analysis of legacy collections. The timely recovery of the large faunal sample from the Russell House excavation and the availability of funding permitted the study included here. The faunal analysis was conducted by Ph.D. candidate Cam Walker, with assistance from Valerie Hall. Samples from the 1995 Russell House project were part of the geochemical study conducted by University of Georgia. Preliminary interpretations of the present assemblage are included in the final project report, Archaeological Contributions 52.

The May 2021 excavation project was successful because of a large and diverse group of volunteers. At HCF, Grahame Long, Properties Manager Justin Schwebler, and Intern Neale Grisham prepared the site for excavation and for associated interpretation and visitation, and kept the project running smoothly.

The dig presented an opportunity for some hands-on experience in the Covid era, when many excellent students were unable to participate in fieldwork. The excavations were conducted principally by Corey Sattes, with help from three archaeology students, Emma Gilliland, Hannah Kolzer, and Massy Jordan, as well as recent graduate Georgette Rivera. Several students from the Clemson Master's Program, archaeologists from around the state, and longtime local volunteers helped with the screening. Juliana Falk (volunteers for The Charleston Museum), Stan Younce and Chris Rosendall (volunteers for Drayton Hall), Chad Stewart (Clemson MSHP), Riley Morris, Sarah Stroud Clark (Drayton Hall), David Jones (SCPRT). Many more of our friends and colleagues visited the dig and offered words of encouragement.

In the laboratory, Massy Jordan and Hannah Kolzer conducted the first round of washing, sorting, and identifying material during the summer of 2021. Massy continued this work as a College of Charleston intern during the Fall 2021 semester. Intern Izzy Floyd continued these efforts in Spring 2022, completing the analysis and cross-sorting the ceramics for vessel reconstruction. Long-time volunteer (and Museum Board member) Juliana Falk devoted her volunteer efforts throughout 2022 to vessel restoration, completing this task on December 30. Brass artifacts were conserved by Ron Anthony and student interns. Follow his retirement from

the Museum in 2021, Jeff Sherard of Brockington kindly conserved a few additional items, including the rosary crucifix. At the Museum, Jessica Peragine took the artifact photos and prepared them for publication.

Following completion of this project, all cultural materials and analyzed faunal materials were returned to Historic Charleston Foundation for permanent curation, along with field and laboratory records. A copy of the records is maintained at The Charleston Museum with records from previous excavations (the 1990, 1994-1995, and 2003-2006 projects). Faunal material from two proveniences (FS 573 and 577) was deeded to The Charleston Museum as part of the permanent zooarchaeological collections (Accession # 2021.26, ARL 52235-52236). A special thanks to Dr. Chantel White and Dr. Kate Moore of the Penn Museum for consulting and coordinating faunal and botanical analysis throughout the project.

Chapter I
Introduction and Background

In May 2021 a consortium of archaeologists from local institutions, students from the College of Charleston and Clemson University MSHP, and docents from Historic Charleston Foundation met at the Nathaniel Russell House to explore the kitchen cellar. Excavation of a 5x5 foot unit was the third exploration in that space, following testing by Fred Andrus in 1990 and Martha Zierden in 1995.

The three feet of fill contained in the six zones suggest that the kitchen building is contemporary with the 1808 main house. Zone 6, slate-filled sand and clay, reflects construction of the house at the turn of the 19th century, while the coal-filled layers above suggest gradual refuse accumulation between c. 1830 and 1850s. The sand and rubble of zone 2 likely reflects one of the renovation or destruction periods of the building complex, likely in the postbellum period.

The 1990 and 1995 units were adjoining, located in the southwest corner of the kitchen cellar. Reinterpretation of the kitchen building, following discovery of intact antebellum finishes, in 2018 called for further investigation of the kitchen cellar. The discovery of some finish-coat plaster in the cellar prompted suggestions that the cellar was a working space that was later filled. Some research team members suggested complete excavation and exposure of the cellar, while others proposed enough investigation to determine the dimensions and finishes of the space: was the cellar tall enough to serve as an active work space? Was there evidence of use as storage space? If so, when was the cellar space abandoned and filled to a point that it became inaccessible and unusable?

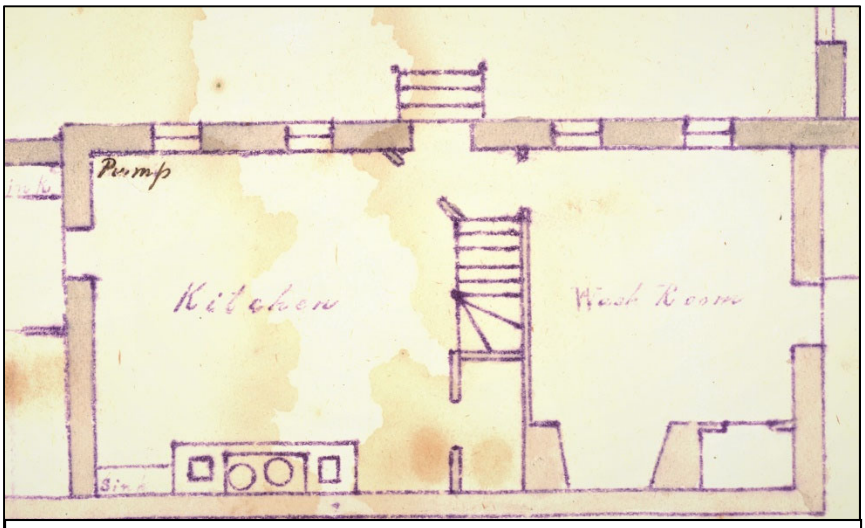


Figure 1-1: 1870 Barbot drawing of kitchen

The unit excavated in 2021 exhibited similar, but not identical, stratigraphy and fill to the previous two units. Artifacts were also similar, but not identical. But the third unit was remarkable for the quantity of cultural and environmental materials contained in the soil. This report summarizes the 2021 fieldwork and describes the artifact assemblage recovered from the

unit. Concurrently, funding from the National Science Foundation for the Colonial Cattle Economy project made it possible for some of the vast faunal remains to be analyzed. A report on the faunal analysis follows the artifact analysis. Together, the project suggests that the kitchen cellar contains an archaeological assemblage remarkable in quantity and quality and a range of materials that can contribute to interpretation of life in the work spaces of Nathaniel Russell's house.

The Setting

The history of the lot at 51 Meeting Street, including timelines of the occupants, the buildings, and the evolving physical and social landscape of the property, is thoroughly and eloquently described in the Cultural Landscape Report prepared in 2019 by Suzanne Turner and associates. The reader is referred to that document for additional details. Recounted here is a brief outline of the building events, property owners, and occupants of the property as it relates to the present project.

The Nathaniel Russell house occupies lot 247 of the Grand Modell, just outside of the southwestern bastion of the walled city. Lot 247 was first granted in 1694, and sold to John Fraser around 1732. Fraser's family owned it until 1779, when the lot was acquired by Nathaniel Russell. The property contained "houses, etc." when sold to Russell, but their date of construction is unknown; it appears that buildings were present by 1739, likely constructed by John Fraser. During the 18th century, the southern border of the lot was a portion of Vanderhorst Creek, later filled to create Price's Alley.

Nathaniel Russell arrived in Charleston from Bristol, Rhode Island in 1765 at the age of 27 as an agent for Providence merchants. Between 1769 and 1773 he participated in the slave trade, importing two cargoes of people from Africa. He purchased the Meeting Street lot with William Greenwood in 1779, but continued to live on the Bay, where he conducted business. He purchased Greenwood's share of the property in 1784. At age 50 in 1788 he married Sarah Hopton; he brought 18 enslaved people to the union, while Sarah brought 25. The Russells remained on the Bay for twenty years, moving to Meeting Street in 1808. A hurricane in 1804 delayed completion of the house; a tornado caused significant damage in 1811, shortly after occupation.

The Russells moved into their newly constructed house with their two daughters, Alicia (age 19) and Sarah (age 16). Alicia married Arthur Middleton of Stono Plantation in 1809 and the couple had four children. They lived part of the year at 51 Meeting Street. Sarah Russell married Reverend Theodore Dehon in 1813. The Bishop died of yellow fever in 1817, and Sarah Russell Dehon and her three children moved to 51 Meeting Street, where they remained in residence. Nathaniel Russell died in 1820, leaving Sarah Hopton Russell as head of the household. She and her widowed daughter ran the house until her death in 1832.

Sarah Russell Dehon becomes the head of the household in 1832, and a year later her daughter married the Reverend Paul Trapier; that family and their (eventually) 11 children remained in the house. Needing more space for the family and for the enslaved, the Russell descendants installed the hyphen that connects the main house with the kitchen building.

Known in Charleston for their benevolence, Sarah Hopton Russell, her two daughters, and her sister Mary Hopton Gregorie founded the Ladies Benevolent Society in 1813. In 1847 Reverend Trapier resigned his position at St. Michael's Church and established Cavalry Church as a place of worship for enslaved congregants. He later wrote the first Episcopal catechism specifically for enslaved Africans.

Following the death of Sarah Russell Dehon in 1857, the house was sold to Governor R.F.W. Allston and his wife Adele. They maintained the Russell garden but made numerous improvements and changes to the house, including gas lighting in 1859 and water service in 1860 (though municipal water service was not available until 1879). They also made changes to the garden, bringing "loads of earth."

Bombardment during the Civil War caused the Allstons to evacuate the city and leave the property in the care of Daddy Moses. Mr. Moses died in the garden in 1864, and two months later Governor Allston died, leaving the house to his wife. After the Civil War, to repair damages and support her household, Mrs. Allston opened a girls' school. The success of the school meant a larger household and school staff, leading to additional modifications to the hyphen area in 1866. In 1870 Mrs. Allston closed her school and sold the property.

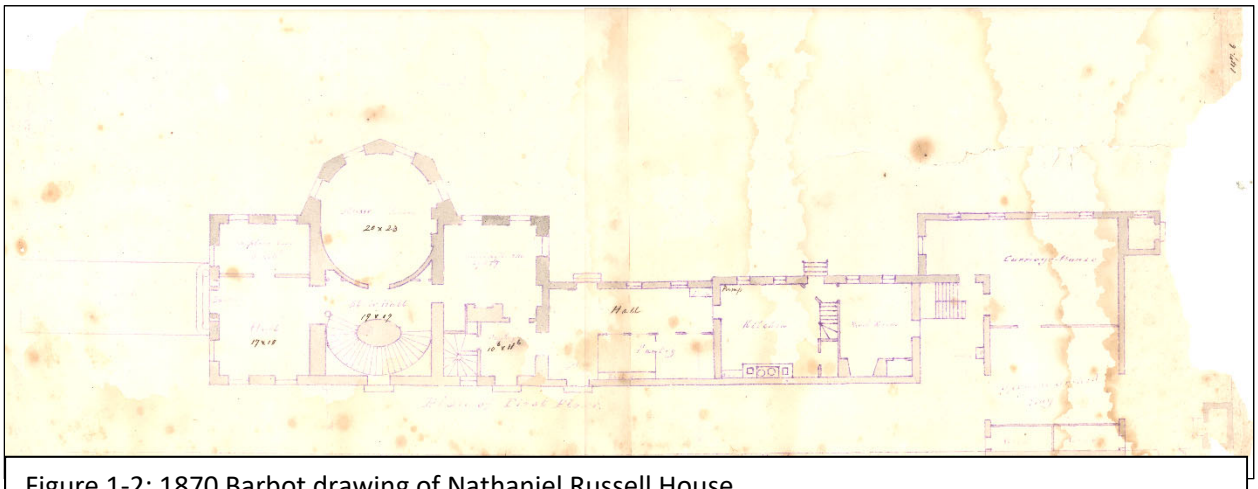


Figure 1-2: 1870 Barbot drawing of Nathaniel Russell House

The property was purchased by the Sisters of Charity of Our Lady of Mercy, and at this time the Barbot plan of the property was prepared, likely in preparation for some changes. The plan shows the hyphen before it was raised to two stories, and the stables before they were demolished. With this purchase the Order expanded their school. Students ranged from 85 to 120, and there were eight teachers living in the house. Like many Charleston buildings, the house was damaged by the 1886 earthquake, and repaired with iron rods. A portion of the stable was likely demolished by this time.

The school (Academy) was moved to Calhoun Street, with 51 Meeting remaining the residence (Mother House) for the order of nuns. The house was sold to Caroline Mullally in 1908. The

Mullallys converted the property to a single-family residence. They remodeled the second story of the hyphen and re-worked the garden. Five years later, the house was sold to Francis Pelzer. The Pelzers made changes to the interior and to the garden. Auto storage is added to the rear of the property after the stable was removed. The Pelzers offered the property for sale in 1952, and the property was acquired by Historic Charleston Foundation.

Previous Archaeological and Structural Research

Beyond the kitchen cellar, the Nathaniel Russell House has been explored through archaeology on five previous occasions. The first was a weekend volunteer project in 1982, when a crew of four explored and screened soil from trenches associated with the Favretti-designed garden installation. The team of Thomas Savage, Jeffrey Parker, Bill Hunt, and Linda Sloan did the fieldwork and Parker prepared a brief report (Parker 1982).

In 1990, installation of a new HVAC system following Hurricane Hugo entailed extensive trenching for ductwork and conduit lines (Andrus 1991). Fred Andrus, a graduate student at the University of Georgia, monitored the excavation of those trenches by a large crew from James Meadors Construction. He located each trench on blueprint maps and recorded stratigraphy and features. He also screened as much soil as possible from each of the trench sections through ¼ inch mesh.

Historic Charleston Foundation engaged The Charleston Museum for archaeological research in 1994-1995, as part of a Historic Structures Analysis. Placement of test units was guided by questions and issues posed by the architectural historians. College of Charleston field school students conducted excavations in June of 1994 and Museum staff and interns analyzed the recovered materials. Faunal analysis was conducted by University of Georgia under the direction of Elizabeth Reitz. A preliminary report was prepared by the Museum (Zierden and Reitz 1995). Museum archaeologists and technicians explored the driveway in early winter 1995, to mitigate damage from drainage improvements and downspout installation. This excavation, plus documents from Andrus 1991 indicated that a large portion of the center of the drive was impacted by the HVAC installation, but intact portions remain on either side.

The Charleston Museum and College of Charleston field school returned in June 1995 for a second season of exploration under the umbrella of the Historic Structures Analysis. Again, faunal remains were analyzed by Reitz at the University of Georgia and a faunal report was included in the larger project report (Zierden et al. 1996). The 1995-96 analysis included study of Andrus' unit in comparison to the 95 unit, and faunal remains from both units were studied.

As part of consideration of the Russell's garden spaces, particularly the front area, The Charleston Museum conducted archaeological excavations in successive Januarys (2003, 2004, 2006). The block excavations revealed three successive garden layouts, all well-preserved. The earliest appears to match the gardenesque layout that survives in the 1898 photo of the property (Zierden 2006).

Renovations to the rear portion of the Russell House and installation of a replacement HVAC system in 2013 required archaeological monitoring and selected excavation. This project was conducted by archaeologists Nicole Isenbarger and Andrew Agha of Archaeological Research Collective Inc. (Isenbarger 2013).

In addition to these projects, the property has been the subject of two in-depth material culture explorations. The 1994 Historic Structures Analysis by Historic Charleston Foundation, funded by an Architectural Conservation Grant from the J.P. Getty Foundation, included a slate of scholars from a variety of fields. Architectural historians Willie Graham and Orlando Ridout returned in 1995 for additional analysis.

In 2018 Historic Charleston Foundation engaged Suzanne Turner Associates conduct a detailed Cultural Landscape Analysis, and they produced a final report in 2019 (Suzanne Turner Associates 2019). Turner and her colleagues presented suggestions for new research and interpretation, to simultaneously interpret "the landscapes of labor and pleasure" (Turner et al.: vi), intertwining exploration and discussion of the Russell family garden and the work yard, both poorly understood and both opportunities for additional archaeological exploration.

In association with this study, HCF staff and consulting architects discovered that, contrary to expectation, the 19th century finishes of the kitchen building were preserved beneath the 20th century drywall. Plaster, woodwork, paint finishes, window sashes, doors were all preserved. HCF staff embarked on an ambitious demolition project, removing 20th century finishes throughout the building and exposing 19th century surfaces. They also encountered and excavated debris packed into the walls, the work of resident rats.

The result of these efforts was a new research and consultant team that included architects, finish analysts, scholars of the African American experience, archaeologists, palynologists, and zooarchaeologists. The 2021 archaeological exploration is part of the suggestions from that group and from the Cultural Landscape Report. Particularly pertinent to the present dig, Historic Charleston Foundation engaged the Penn Museum team of archaeobotanist Chantel White and zooarchaeologist Kate Moore to analyze the extensive collections recovered from the walls and from the rats' nests. Chantel and Kate coordinated with the archaeologists to recommend recovery of soil samples from the cellar dig, to complement the botanical data from above ground (White et al. 2022; https://www.historiccharleston.org/blog/looking-lives-enslaved-nathaniel-russell-house/).

Chapter II
Fieldwork

Exploratory excavations were conducted in 2021 by a team from Clemson Master's Program in Historic Preservation (MSHP), Drayton Hall Preservation Trust, and The Charleston Museum. An anticipated College of Charleston field school was canceled due to Covid concerns, but the project proceeded with a host of volunteers, including MSHP graduate students, current College of Charleston students, and graduates of that program.

The 2021 Test Unit 1

The kitchen cellar measures 16' north/south by 32.5'east/west. Currently, the top of the ground in the kitchen cellar is 3' below the floor joists. This 3' crawl space is further compromised by ductwork for the HVAC and other conduit lines. Soils have been rearranged during installation of HVAC in 1990 and 2013, resulting in an uneven ground surface and some piles of soil adjacent to walls.

Ground penetrating radar in portions available for such exploration revealed an anomaly in the center area of the cellar. Based on this discovery, a 5x5 unit was located here. A second unit was located in the northwest corner of the cellar space, between the west wall of the kitchen and the western chimney foundation, a space measuring 3.5'x3.0'.

Based on accessibility, the central unit was excavated first, and designated Test Unit 1. Approximate grid location, based on the 1994 site grid, is N218E186. Throughout the project, though, the unit was labeled TU 1. The southwest corner of the unit was 17' east of the west wall and 2.5' north of the south wall. The unit was accessed by crawling from the opening.

Excavations were conducted by hand, using trowels. Soil was placed in buckets and passed through the opening to a screening station established on the paved courtyard adjacent to the opening. Vertical control was maintained by a line level string established on the southeast corner of the unit.

Figure 2-1: The screening station outside the kitchen cellar and site visitors.

As with the two previous units, excavations were by level, or zone. Zone 1 was a dark grey-brown powdery sand, with coal. There were quantities of small bone, including fish bones and fish scales. Some oyster shell was present, with nails, small ceramic fragments, glass. The excavated zone was .5' deep. The last portions of the zone produced larger bones and larger coal fragments, but not much difference in content. At this point, a second level of zone 1 was defined. Zone 1 level 2 produced larger bone fragments, mendable ceramic fragments, and large fragments of coal. This terminated at .8' below surface, on the layer of tan sand previously defined as Zone 2.

Zone 2 was a layer of tan sand fill, full of brick and mortar rubble. A remaining pocket of the above zone in the northern portion of the unit was mapped and excavated as zone 1 level 3. Zone 2 also contained large bone fragments, ceramics, and a few buttons. The base of zone 2 was encountered at 1.1 to 1.3' below surface.

Figure 2-2: Excavation of zone 2

The underlying Zone 3 was a very dark coal-filled sand (10yr3/1) with extremely dense deposits of bone. The author has never encountered such a bone deposit in Charleston before, and the density is much greater than encountered in the previous two excavation units. The zone 3 soil was excavated as a single level, .25' thick. Following previous excavations, where the interface between zone 3 and zone 4 was not well-defined, a new zone was based on an increase in cultural content. This was indeed the case in Test Unit 1.

While the bone was dense in zone 3, the quantity of bone increased dramatically in Zone 4. Bone was now bagged separately, in large 3-gallon bags. Zone 4 level 1 produced 6 such bags, as well as large ceramic fragments, some nails, some table and bottle glass, and occasional small finds. Zone 4 level 1 was .2' deep, while level 2 was an additional .5'. Level 2 produced 15 large bags of bone. The large bones were cow, principally from the lower legs. There were no head elements. The assemblage also included pig, wild and domestic birds, and some fish. Ceramics included Canton porcelain, hand-painted pearlware, plain creamware. Soils of zone 4 were dark grey-brown, 10yr3/2. The three levels of the following zone 5 were .7' deep in total, and bottomed onto a distinct soil change. The underlying soils were yellow and tan mottled sandy clay containing large fragments of slate. Soils were wet, suggesting we are close to the water table.

Figure 2-3: Screening the large samples of bone.

As Zone 4 was defined by a change in content rather than change in soil, so too was Zone 5. Zone 5 was the same dark grey sand (10yr3/2), but marked by a decrease in bone and cultural materials. There was some change in the material assemblage, with more table glass, an increase in smaller ceramic sherds. Zone 5 was excavated in three levels. The first level was .2' deep, while level 2 was .3' deep. A third level initiated at 2.5' below surface and was .3' deep, as well. The lower two levels contained bone, creamware, and flower pot fragments. A brass medallion or chatelaine appendage with a pink coral setting was the highlight of the afternoon. Other, more ominous artifacts, included two wire lath nails, dating to the late 19th or early 20th centuries, and fragments of brown glass. Both were recovered along the northern profile, and may be the result of an undesignated intrusive feature.

Soil samples were taken throughout the excavation project, but unscreened flotation samples were retrieved from the three levels of Zone 5. These were prepared in a manner following the instructions of Dr. Chantal White of University of Pennsylvania. At the urging of Dr. White, additional unscreened samples were retrieved from the north profile, from zone 3 and zone 4. (As a follow-up, Dr. White reported in the fall of 2022 that no botanical materials were preserved in these samples.)

Because of the complicated and fragile nature of the deposits in TU 1, and the increasing dampness of the soil, profiles were cleaned and mapped at the base of zone 5 level 3, prior to

Figure 2-4: Cleaning base and profile of T.U. 1 at top of Zone 6.

excavation of zone 6. At the top of Zone 6 (10yr6/4), the unit was bisected, and the southern half of Zone 6 was excavated first. At a depth of .25', zone 6 transitioned into sterile subsoil.

Upon completion of zone 6, the unit was lined with landscape fabric and backfilled by bucket brigade. Rubble was placed in the unit first, followed by the sifted soil. String and corner nails were left in place. Based on the time expended, the logistics involved in accessing the space, and the unprecedented quantity of artifacts collected, the second unit was not excavated at this time.

Figure 2-5: South profile, base of excavations.

Table 2-1a: Provenience Guide

FS#	Provenience (TU 1)	TPQ	Date of Deposition
568	zone 1 level 1	gilded white porcelain	20th century
569	zone 1 level 2	gilded white porcelain	late 19th century
570	zone 1 level 3	white porcelain	late 19th century
572	zone 2	black transfer/pink tint	late 19th century
573	zone 3 level 1	annular ww/blue glass	mid-19th century
575	zone 4 level 1	whiteware/stoneware bottle	mid-19th century
576	zone 4 level 2	Albany slipped stoneware	2nd quarter 19th cent.
577	zone 5 level 1	luster ware	2nd quarter 19th cent.
578	zone 5 level 2	annular whiteware	2nd quarter 19th cent.
579	zone 5 level 3		

581	zone 6 level 1, north half		1810s
585	zone 6 level 1, south half	Canton porcelain	1810s

Table 2-1b: Bone Weight by Provenience

TU 1, 2021, Nathaniel Russell House Kitchen bone samples

FS 573	Zone 3 level 1	2 bags	16 lbs
FS 575	Zone 4 level 1	7 bags	99 lbs.
FS 576	Zone 4 level 2	15 bags	180 lbs.
FS 577	Zone 5 level 1	5 bags	32 lbs.
FS 578	Zone 5 level 2	6 bags	108.5 lbs.
FS 579	Zone 5 level 3	3 bags	39.5 lbs
FS 580	wall cleaning	2 bags	20 lbs.

Earlier Kitchen Explorations

Excavation of a 5x5 foot unit in the cellar of the Nathaniel Russell House kitchen in May 2021 was the third exploration in that space. In 1990, Fred Andrus excavated a 5x5' unit along the west foundation during his monitoring of installation of the HVAC system. Andrus noted the

Figure 2-6: West wall of kitchen cellar in 1990.

presence of artifacts on the soil surface beneath the cellar, and excavated to explore further. He recovered a range of artifacts dating to the first half of the 19th century, as well as a robust faunal assemblage.

The 1990 unit was located flush with the west wall of the cellar, 5 feet north of the southwest corner. The square was excavated by zones and levels. Zone 1 was excavated in four levels, while Zone 2 had only one level. Zone 3 was excavated in four levels and Zone 4 was excavated in two levels. Zone 3 was characterized by large amounts of coal, many in large blocks, suggesting coal was stored in this location. Andrus notes that the water table was encountered at the base of zone 3, and so zone 4 was excavated under standing water. Artifacts and dark soil continued below the base of excavations, but coring suggests they continued only for about 1.5" before encountering yellow and orange mottled clay-sand.

The mottled clay-sand matches the soils defined as zone 6 in the 1995 and the 2021 units. In both units, the zone 6 soil was moist, but not below standing groundwater. Andrus' excavation may have occurred during a particularly rainy season, or the artifact-bearing soils may be deeper in this area of the cellar.

Based on Andrus' discovery, Zierden of The Charleston Museum, with the College of Charleston field school, excavated a 4'x5' unit at the cellar entrance, adjoining Andrus' unit, in 1995. Unit N221 E174 was excavated in 6 zones, most a granular black soil with quantities of coal, as well as animal bone and kitchen artifacts, to a depth of 3'. Zone 2 was a layer of tan sand with building rubble, but others were lenses, rather than zones. Zones 3-5 were characterized by varying proportions of coal to brown sand, and density of artifacts and bone. This unit did not, however, contain the blocks of coal encountered by Andrus. Zone 5 contained large quantities of bone and moderate numbers of cultural materials. Zone 6 was different, a grey to tan sand mottled with red/orange clay, containing roofing slate.

Other than describing "dark soil," Andrus gives no further soil descriptions. The yellow-orange sand he encountered corresponds to the defined zone 6 in the 1995 and 2021 units, evidently associated with construction of the kitchen. Andrus' narrow zone 2 is likely the same zone 2 in 2021 and zone 3 in 1995, the cap of mostly plaster and other architectural debris. The soil Andrus excavated as a deep zone 3 corresponds to Zones 4 and 5 in 1995 and zones 3, 4, and 5 in 2021. These layers, their dates of deposition, and their contents, are compared in Table 2.

Table 2-2: Provenience Guide for 1995 and 1990 Projects

FS#	Provenience	TPQ	Date of Deposition
279	N221E174, zone 1	decaled porcelain	1890s
291	zone 2, north half	creamware, late	1850s
293	zone 3	architectural	

298	zone 4 level 1	sprigged ware	1840s
306	zone 4 level 2	canton porcelain	1840s
307	zone 5 level 1	portobello ware	1830s
310	zone 5 level 2	canton porcelain	1830s
313	zone 5 level 2	canton porcelain	1830s
319	zone 5 level 3	canton porcelain	1820s
322	zone 6	annular pearlware	1810s

FS#	Provenience	TPQ	Date of deposition
26	N05-10/E00-05, z1lev1	manganese glass	1890s
27	zone 1 level 2	white porcelain	1850s
28	zone 1 level 3	blue bottle glass	1850s
29	zone 1 level 4	white porcelain	1850s
30	zone 2 level 1	transfer print ww	1840s
31	zone 3 level 1	cabled whiteware	1830s
32	zone 3 level 2	blue transfer ww	1830s
33	zone 3 level 3	canton porcelain	1830s
34	zone 3 level 4	portobello ware	1830s

35	zone 4 level 1	white porcelain	1830s
36	zone 4 level 2	canton porcelain	1820s?

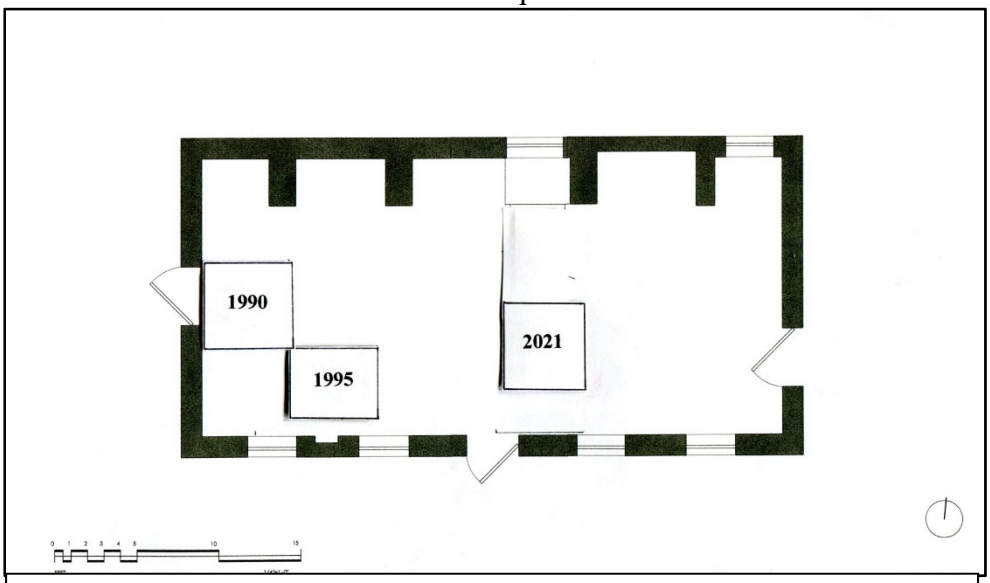


Figure 2-7: Map of kitchen cellar showing location of three units.

Chapter III

Analysis of Cultural Materials

The excavations produced a cultural and faunal assemblage similar in age and content to those of the previous two units. The quantity and density of materials, particularly faunal remains, surpassed any zone deposit encountered in Charleston to date. (Though one of Fred Andrus' catalog cards lists "an enormous bone collection" it was nowhere near the amount retrieved in 2021). As such, the laboratory processing and analysis of the collection required a considerable amount of time. Based on conversations between Grahame Long of HCF and Martha Zierden of The Charleston Museum, the cultural materials were transferred to the Museum under Loan IL2021.3 for the purposes of completing this analysis. A sample of the faunal material was deeded to The Charleston Museum for faunal analysis under the umbrella of the Colonial Cattle Economy Project funded by the National Science Foundation. The remainder of the faunal materials was stored at Historic Charleston Foundation. Additional proveniences were loaned to University of Maryland by HCF in June 2022 when it became apparent that additional funds were available for continued analysis.

Figure 3-1: Bone recovered from T.U. 1.

The unit was excavated by natural zones, subdivided into arbitrary levels. A total of 20 proveniences were defined. The unit contained many large ceramic fragments, some clearly from mendable vessels. In order to recreate the ceramic assemblage by vessel, most of the ceramic fragments were removed from their provenience bags, individually labeled, and then matched or mended to form distinct vessels. These are described separately. In the field, it appeared that many vessels mended across the defined zones; however, this largely proved not to be the case, supporting the temporal and physical divisions described herein.

A total of 54 bags of materials were washed, sorted, and analyzed. All of the delicate brass and copper finds were conserved. Two students, Massy Jordan and Hannah Kolzer, worked on the collection during the summer of 2021, and an intern and volunteer are worked during the spring of 2022. Intern Izzy Floyd concentrated on cross-mending the ceramics during her Spring 2022

internship. Volunteer Juliana Falk continued this effort, and eventually reconstructed 40 vessels, working from April through December of 2022. The materials were returned to Historic Charleston Foundation for permanent curation.

Dating the Proveniences

The zones encountered in TU 1 were dated on the principals of stratigraphy and Terminus Post Quem (TPQ). 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 level of the top (or point of initiation) of each deposit (Table 1: provenience guide).

TPQ is the principal which states that no provenience, or context, can be deposited earlier than the invention date of the newest item in the provenience. A provenience can be deposited any time after that date; therefore, the interpreted date of deposition is rarely the same as the TPQ date. A third principal considered (but not absolutely measured) is time lag, the amount of time between invention, production, purchase, household use life, and discard of items. Thus the date of deposition assigned to each archaeological provenience is based on all three techniques and is determined by considering each provenience relative to those around it.

The exposed, dry soils at the top of the unit were defined as Zone 1. The latest historical artifact recovered was gilded white porcelain popular in the late 19th century, but the occasional bits of construction debris from the last thirty years suggest some 20th century disturbance to the first level. Levels 2 and 3, containing the white porcelain, are likely late 19th century deposits. Zone 2, the lens of architectural debris and yellow sand, contained black transfer printed and pink-tinted whiteware, also suggesting a late 19th century date of deposition. This may be associated with building repair or renovation, or may have served to cap the organic debris below.

The soils defined as zone 3 level 1 and zone 4 level 1 contain whitewares and stoneware bottles, and were likely deposited in the mid-19th century. A few materials from zone 4 level 1 cross-mend with those in the underlying deposits, and only one vessel cross-mends from zone 3 level 1 to zone 4 level 2.

The dense deposits of bone and cultural materials began with zone 4 level 1, but the densest deposit was zone 4 level 2 (FS 576). Many of the reconstructed vessels were contained within this single provenience. The underlying zone 5, levels 1 through 3, contained ceramic fragments that cross-mended with those from zone 4 level 2. They also contained Luster Ware, developed in 1840, and annular whitewares, dated after 1820. These four proveniences have been assigned a date of deposition of the second quarter of the 19th century (roughly 1820-1850, the Russell era). The deepest deposit, zone 6, had the appearance of construction sand and contained very few artifacts. Those recovered include Canton porcelain (available in 1800 and imported by Nathaniel Russell), supporting a date of deposition associated with house construction in 1808-1810.

To recap, the superimposed zone deposits in TU 1 appear to have been deposited through the 19th century and mostly undisturbed after deposition. The great quantity of material is associated with the Russell era, roughly 1820-1850. These dates match those calculated in 1995 for the two prior units, and are shown in comparison in Table 2.

Summary of Recovered Artifacts

The recovered artifacts were washed and sorted by provenience. The next step was identification of the artifacts. The Museum's extensive type collection, plus a number of standard sources were used for identification. For basic organizational and descriptive purposes, the Russell house temporal assemblages were sorted into functional categories, following the long-established pattern by Stanley South (1977). South's methodology for determining site function patterns is no longer a standard but it has been widely adopted by historical archaeologists for decades. In Charleston, South's functional categories are used to organize and compare categories of artifacts. All of the previous archaeological assemblages from the Nathaniel Russell House have been organized in this manner. The 2021 dig produced 5400 cultural items. A total of 4558 came from closed contexts, sorted into four temporal subgroups. The remaining items were recovered from undatable proveniences (profile cleanings, surface collections, zone 1).

The artifact assemblage from the Russell kitchen differed from others in Charleston, and from the Charleston average, in several respects. Kitchen artifacts dominated the assemblage, comprising nearly three-fourths of the artifacts. Within the kitchen group, ceramics were again nearly three-fourths of the total, and tablewares reflected the majority of the recovered artifacts.

The Nathaniel Russell house, built in 1808, was not the first house on the property, though it dominates the landscape trajectory in the sheer scale of the buildings. A small number of 18th century ceramics, reflecting the earlier occupation, were recovered. Each of sixteen 18th century wares was reflected in only a few fragments. Utilitarian wares included Brown and Westerwald saltglazed stonewares, Staffordshire combed and trailed slipware, and lead-glazed earthenwares. Tea and tablewares typical of the mid- to late-18th century include Nottingham stoneware, Elers Ware, Black Basalt ware, and Jackfield Ware. A few fragments of white saltglazed stoneware and the earlier delft wares were common tablewares of the early to mid-18th century. The 18th century ceramics are only 3.2% of the total ceramics.

Refined earthenwares and Chinese Export porcelains of the late 18th and early 19th centuries dominate the ceramic assemblage. Chinese porcelains included enameled vessels with a molded scalloped edge and decorated with a red and gold dart motif around the border and the edge of the marley. The style dates to c. 1770, and I have previously suggested this set was owned by the Russells, perhaps Mrs. Russell's family, prior to their move to 51 Meeting Street. This is simply a suggestion, however, and is not verifiable. Previous excavations produced a number of fragments (30) from this set in the first two kitchen units, as well as throughout the garden area. During the present project, thirty-two fragments were recovered from early to mid-19th century levels, and additional fragments were found in the upper zones. No restorable vessels were present, but the large fragments represented tablewares and a larger serving vessel.

Chinese export porcelains decorated in blue under the glaze were more common. Over 100 fragments were recovered from the kitchen unit. No restorable vessels were recovered, but large fragments with formal attributes include a dinner plate, a sauce boat, a tureen, and a fluted bowl. The largest group of porcelains were the early 19th century type known as Canton. Canton porcelain is characterized by an overall heavier style and a heavy, sometimes blurry, blue rim decoration. Nearly two hundred fragments of Canton porcelain came from the kitchen unit. Restorable vessels included a tea saucer, a soup plate, a plate, and three platters of various sizes.

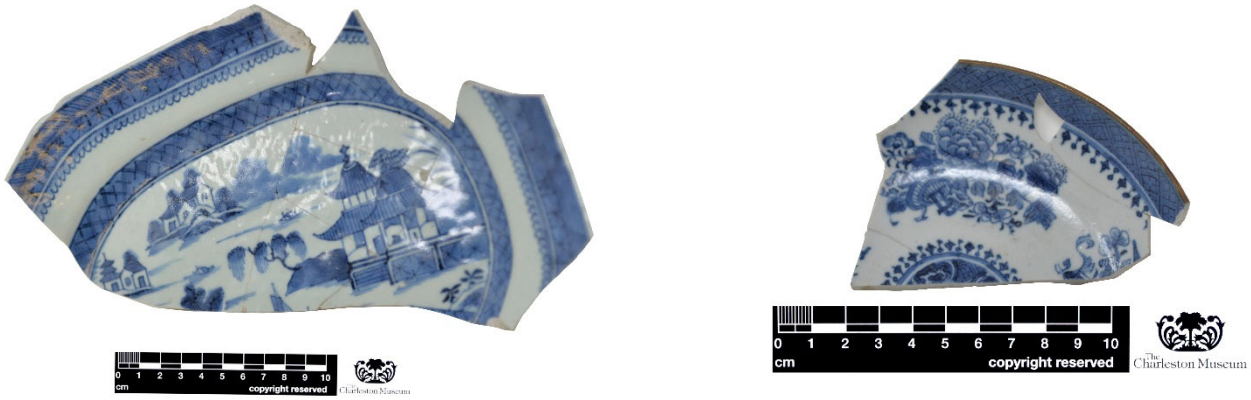


Figure 3-2: Examples of Canton porcelain.

A few fragments of undecorated white American porcelain, developed after 1851, were recovered from the mid-19th century layer. The late 19th century layers included a few fragments of American white porcelain with gilt decoration, popular after the 1880s.

Refined earthenwares dominated the ceramic assemblage. Over 560 fragments of creamware were recovered in the early to mid-19th century layers. A revolution occurred in earthenware manufacture in the 1740s-1750s, when Josiah Wedgwood and others developed a molded refined earthenware with a cream-colored glaze that he called cream colored ware, or creamware. Perfected in the 1760s, creamware rapidly became immensely popular due to its durability, affordability, and availability in a wide variety of vessel forms and matched sets. Wedgwood matched his potting abilities with marketing savvy; by the 1770s creamware was "the rage" and could be found in every corner of the world, including the American colonies (Martin 1994). According to Ann Smart Martin, Wedgwood managed to compress the cycle of luxury-to-common consumption into a very short time period. By continually introducing new styles, Wedgwood satisfied both the rising middle-class consumer and the fashionably wealthy. In the 18th century the upper class often chose creamware for an everyday china (the Heyward-Washington house features just such a set, recovered from the privy). After 1820, it was gradually relegated to larger, utilitarian forms and was the least expensive ceramic.

The Russell House assemblage bridges those two eras. Reconstructed vessels include two royal-pattern plates, a pitcher, three mugs or canns, and an undecorated bowl. There were also fragments of enamel-decorated edged ware, and a few fragments with enamel overglaze

decoration. Fragments of both types were recovered in the previous units, as well. Cream-colored ware, developed by the Staffordshire potters in the mid-18th century and marketed widely by the 1770s, is one of the most common ceramics in post-Revolutionary Charleston.

Figure 3-3: Examples of Creamware.

Most of the recognizable plates featured the royal pattern rim, slightly later (and probably less costly) than the feather-edged pattern. Three canns, or tall mugs, were reconstructed; each featured distinct turning and cordoning around the base.

Fragments of decorated and undecorated pearlware were the most common ceramics. Josiah Wedgwood and other Staffordshire potters continued to experiment with production of a whiter ceramic glaze; in 1779 he introduced "pearl white" china. By adding cobalt to the lead glaze to negate its natural yellow tint, the vessel took on a bluish-white cast. A variety of decorative motifs – hand painting in blue or polychrome, shell edging in blue or green – were introduced in 1780. Still others – transfer printing, banded annular designs – were produced by 1795. Thus the presence or absence of various creamware and pearlware types are important in dating archaeological deposits. Some of these decorative motifs are associated with specific vessel forms and relative costs (Miller 1980, 1991). Transfer printed wares came in a range of hollow and flat forms, and in complete sets for table or tea; these were more expensive. Annular wares, and the mocha and cabled varieties, were usually unmatched bowls, mugs, and pitchers, all hollow ware forms. They were the least expensive decorated ware. The hand painted ware were most often tea wares, and the handle-less cups, saucers, cream pots, and small pitchers came in a large, but finite, number of floral and geometric designs. The shell edged wares were predominantly flatware (soup plates and plates in various sizes), but occasionally a covered sauce or tureen form. These were modestly priced (Miller 1980, 1991; Miller et al 2000).

Pearlwares were the most numerous ceramic recovered from the Russell kitchen. Many of the undecorated fragments are likely the unpainted central portion of shell edged wares. Shell edged rims painted in blue and green were common; less common were blue and polychrome hand painted fragments. A restored bowl of blue hand painted pearlware was among the vessels from zone 4.

Figure 3-4: Examples of cabled Annular Ware.

Annular pearlwares were common in the Russell cellar and some vessels could be reconstructed. These include a tall mug, two pitchers, and a fourth vessel that could be a mug or pitcher. There were also portions of two low-shouldered bowls. Motifs include cabled and mocha designs as well as annular stripes.

The most common ceramic in the kitchen cellar was transfer-printed pearlware; nearly 400 fragments were recovered. Several fragmentary and restored vessels were present, as well, totaling 14 vessels. The most complete, and most distinctive is a dark blue transfer ware small plate, featuring the "Landing of General Lafayette at Castle Garden, New York…..16 August 1824". The central scene is surrounded by a floral pattern rim. There were also tea cups, with and without handles, plates, and serving vessels.

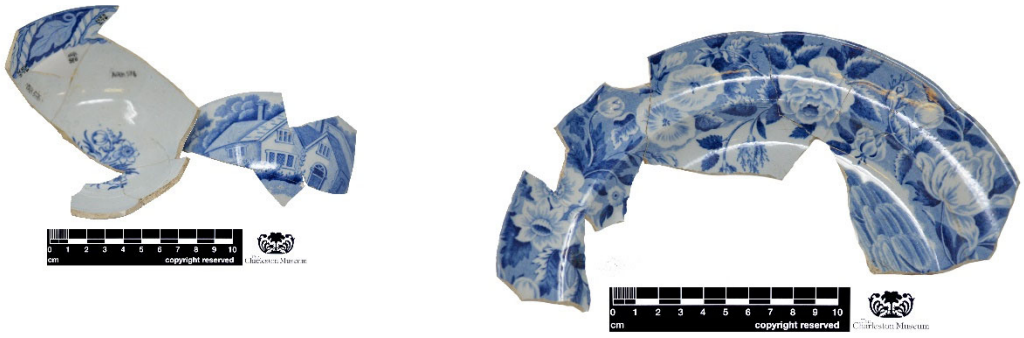


Figure 3-5: Examples of Transfer Printed Whiteware.

Some of the restored vessels may be whiteware, a later glaze development. Wedgwood and others continued to work on the glaze formula, striving for a white ceramic. By the 1820s this was largely achieved, and all whitewares from that date and after are classified as whitewares. The same decorative techniques were used on whiteware, though the color palette changed from the earth-tones of the late 18th century (rust, golden yellow, sage green, cobalt blue, brown) to bright colors such as black, purple, mulberry red, forest green, and light blue. Transfer printing in colors other than blue became possible after 1830, though the majority of vessels were still printed in blue. By the mid-19th century vessel styles changed from thin, delicate wares characteristic of the Federal period to thicker, angular or octagonal vessels, more and more often

undecorated. Whitewares are present in zone 4 and a bit more common in zone 3, though in fewer numbers than pearlwares.

The Russell era deposits contained a few fragments of wares typical of the second quarter of the 19th century. These include the Scottish Portobello ware, a fine red-bodied ceramic with a clear lead glaze, embellished with yellow transfer printing over the glaze. Portobello ware was developed in 1796 and manufactured until 1825. Slightly later, Luster Ware was developed in 1840. This refined earthenware, or fine redware, was decorated with copper or silver lustered glaze, in bands or an all-over design. Three fragments of each type were recovered from Zone 4.

A few fragments of colonoware came from the kitchen. The locally-produced unglazed earthenwares collectively known as colonoware dominate the 18th century and continue into the 19th. Most scholars believe that the bulk of these wares were produced on plantations by enslaved African Americans (the Yaughan variety), and some were created for sale in a local market (the Lesesne variety; see Ferguson 1992; Joseph 2004). Some wares are likely the product of Indigenous potters (the Stobo variety; see Anthony 2016).

At least four varieties are identified in Charleston collections (Zierden et al. 2023). The latest variety, River burnished, was produced by potters of the Catawba nation after the American Revolution. The pottery was made on Catawba lands in present-day York County, and by itinerant potters who traveled from the reservation to the coast, making and selling pottery along the way. River burnished colonoware is distinguished by a thin, hard-fired body, often micaceous. Some wares are decorated in red/orange and black paint. The Russell kitchen produced two fragments of Lesesne colonoware and seven River burnished fragments, including two rims decorated with red paint.

Figure 3-6: Examples of Colonoware.

Glass fragments comprised a quarter of the kitchen group, a far smaller proportion than most Charleston assemblages. As most are, the collection was dominated by fragments of olive green blown glass bottles, used for holding wines and ales. Clear glass from a variety of containers was also common, followed by fragments from aqua bottles. The latter are often smaller bottles for condiments and medicines. In addition, 44 fragments of aqua glass were clearly identified as coming from pharmaceutical bottles. Some of these were the small hand-blown vials typical of the late 18th to early 18th centuries, while others were the later mold-blown bottles. By the middle of the 19th century, many mold-blown bottles featured lettering identifying the maker, the bottler, or the contents.

The kitchen cellar unit also produced fragments of table glass. Most were rim fragments or smaller fragments from tumblers or goblets, with only a single identifiable goblet stem recovered. A more unusual find was several fragments of blue glass finger bowls; three vessels were partially reconstructed. Two of the glass bowls were undecorated, while a third featured ridged panels on the exterior.

Architectural materials comprised nearly a quarter of the recovered artifacts, a smaller amount than most Charleston assemblages of this period. Fragments of clear and aqua window glass were the most common artifact, followed by nails or nail fragments. All of the nails, with only a few exceptions, were highly corroded. There were unidentified hardware or flat metal fragments, and two fragments of delft tiles.

Figure 3-7: Chatelaine key.

Clothing items, 1.0% of the total artifacts, included a vest buckle and a variety of buttons. Brass buttons included a small spherical button and standard flat disc buttons, often used on men's coats or vests. There were eight 1-hole bone button blanks, used for the foundations for cloth or woven thread. A single white prosser button, developed in 1840, was recovered. Pins were the most common clothing artifact; 21 were recovered from the Russell era deposits.

Personal items included tooth brushes, a clothing brush, and a pocket knife. The most distinctive was an embellishment from a chatelaine, a brass pendant fitted with an oval stone, likely polished coral. The late 19th century deposits included a small brass crucifix, probably from a rosary associated with the Sisters of Charity occupation of the property (1870-1908). Fragments of small white beads connected by a chain were recovered in 1990 and 1995, and these too appear to be part of a rosary.

Figure 3-8: Crucifix from Rosary.

Furniture items, .2% of the assemblage, included brass upholstery tacks, two fragments of decorative hardware or surrounds, a curtain ring, and a drawer pull. Two brass shutter pulls were recovered, but they did not match and so were likely used in different rooms.

Figure 3-9: Brush, Bottle seal, Coin.

Kaolin tobacco pipe fragments (stems and bowls) comprised almost 1% of the total artifacts. None were large enough for further identification. Activities items included fragments of flower pots, barrel straps, and tool fragments. Two children's marbles were recovered.

The above discussion covers all of the materials retrieved from the early to mid-19th century proveniences. Those from the late 19th century (Zone 3) are tabulated separately and shown in Table 3-1. Likewise, the small assemblage from Zone 6, dating to construction of the house and kitchen, was tabulated separately. In contrast to the 3100 artifacts from zones 4 and 5, the zone 6 assemblage included only 20 artifacts. These are also shown in Table 3-1.

As mentioned at the beginning of this section, numerous artifacts were recovered from profile cleanings and other mixed proveniences, and were not included in the temporal tabulations. Some of the reconstructed ceramics included fragments from these proveniences. One significant item was recovered from the profile, and bears discussion.

At the urging of Dr. White, additional unscreened samples were retrieved from the north profile, from zone 3 and zone 4. Removal of soil in this profile exposed a most unusual artifact, first manifest as a flapping piece of thin brass. When it was carefully removed from zone 4 in the profile, the roughly 1'x1' embossed brass was a plaque for the "Imperial Fire Company." Research suggests this was a London company, probably c. 1811. The brass is a corroded green, but retains painted surfaces. Gold and red are present on the raised crown, and the letters "Imperial" along the bottom are backed with gold paint. The plaque was delivered to Museums Director Grahame Long, and not transported to The Charleston Museum. Though the brass has active corrosion, traditional electrolysis is not advised, because of the painted surfaces.

Figure 3-10: Fire Insurance plate.

Table 3-1: Quantification by Temporal Association

Test Unit 1, 2021	1810s	1820-1850	mid- 19th	late 19th
Brown saltglazed stoneware		11	2	
Westerwald stoneware		6		2
Nottingham stoneware			1	1
Elers ware, glazed		2		
Black basalt ware		4		
White saltglazed stoneware		2	1	
Jackfield ware		3		
Slipware, combed and trailed		6		
Slipware, American			6	2
Buckley ware		3		
Manganese mottled ware		1		
Lead glazed earthenware		11	4	4
Spanish tin-enameled ware				
Delft, undecorated		7	2	1
Delft, polychrome painted				
Delft, blue on white				
Spanish olive jar				
North Devon gravel-tempered		1		
Unglazed earthenware	1		1	
Faience, brun				1
Porcelain, Chinese Export	1	53	52	17
Porcelain, overglaze enameled		21	11	6
Porcelain, Canton	7	169	16	15
Porcelain, white		9	4	3
Porcelain, gilt white				7
Soft paste				1
Stoneware, 19th cent		26	4	2
Stoneware, ink			4	
Stoneware, Albany slip		1		
Edgefield stoneware				
Whieldon ware			1	
Creamware, undecorated	7	494	68	34
Creamware, enameled		1		
Creamware, transfer printed				
Creamware, royal pattern		1		
Creamware, feather edged	1	1		
Pearlware, undecorated		205	34	24

Pearlware, blue hand painted		31	5	2
Pearlware, polychrome painted		12	9	6
Pearlware, shell edged		77	3	6
Pearlware, transfer printed		333	54	48
Pearlware, annular	1	66	10	4
Pearlware, cabled				16
Pearlware, mocha		33	18	
Whiteware, undecorated		37	9	12
Whiteware, hand painted			11	2
Whiteware, shell edged		3	6	
Whiteware, annular	1	21	15	14
Whiteware, cabled			2	5
Whiteware, mocha			7	
Whiteware, transfer print blue		3	56	22
Whiteware, transfer print other				5
Yellow ware				13
Sprigged ware				
Parian ware				
Jasper ware				
Portobello ware		3		
Luster ware		3	1	1
Coarse yellow earthenware	1	3	1	
Colonoware, Yaughan				
Colonoware, Lesesne		2		
Colonoware, River burnished		5		
Colonoware, river burnish painted		2		
Olive green glass, base		4	2	
Olive green glass, neck		4	2	2
Olive green glass, body		279	94	67
Clear container glass		151	3	18
Aqua container glass		59	17	14
Blue container glass			1	
Light green container glass				
Pharmaceutical glass		44	6	4
Brown glass				2
Wire closure				2
Tin can		12	17	4
Goblet, stem		1	1	
Goblet, base				
Tumbler, base				2
Table glass, fragment		42	22	
Blue glass bowl		12	6	4

Window glass, aqua	109	72	98
Window glass, clear	242	71	59
Nail, ud	103	15	2
Nail, cut or wrought		1	3
Nail, wire	1		1
Nail fragment	242	16	25
Hardware		2	
Flat metal	34	2	4
Delft tile	2		
Arms, shot			1
Hook, eye			1
Buckle	1	1	
Brass button, round	1	1	
Brass button, military	1		
Brass button, flat	4		3
Button, bone 1-hole	8	2	9
Button, bone 4-hole			2
Button, prosser		1	5
Straight pin	17	4	8
Shell button			2
Wig curler			
Parasol			2
Toothbrush	2	2	1
Other brush	2		1
Pocket knife	1		
Chatelaine			
Coin		1	
Slate pencil		1	2
Print type	1		
Comb			1
Rosary crucifix			1
Tack	1		1
Decorative hardware	2	1	
Curtain ring	1		
Drawer pull	1		
Shutter pull	1	1	
Misc hardware		3	2
Kaolin pipe bowl	12	3	2
Kaolin pipe stem	18	2	3

Flower pot	6	3	1
Stoneware flower pot	7		
Barrel strap	11	2	
Tool (file)		1	
Lead weight	1		
Harness buckle	2	1	
Marble			2

Description of Reconstructed Vessels

As described in the previous section, several reconstructed vessels, in various degrees of completion, were identified in the assemblage, principally from Zone 4 level 2. After identification by provenience, matching and mending ceramic fragments were selected from each provenience, labeled with their FS number, and cross-sorted by vessel. Each reconstructed vessel was then given a number, affixed to the vessel, and a separate catalog form was completed. While the general types have been described above, each vessel is discussed in detail below.

Vessel 1: Creamware pitcher
This is an undecorated creamware pitcher in an unusual form. The vessel has a flat bottom, straight sides, and narrows to a straight neck. A pitcher form is presumed, but any handle attachment is missing. The vessel is decorated in recessed engine-turned bands. The vessel is 5" across the base and 6.25" high. Recovered principally from zone 4 level 2.

Vessel 2: Creamware plate
A Royal pattern creamware plate, 9.5" in diameter, about 2/3 of the vessel, all fragments from zone 4 level 1.

Vessel 3: Creamware mug
This vessel is represented by the top section of a creamware mug, with handle attachment. The vessel is undecorated, but features narrow engine-turned cordoning around the rim and body. The vessel was reconstructed from fragments in zone 4 level 1, with a matching fragment from zone 5 level 3. The vessel is 3" in diameter and an unknown height.

Vessel 4: Creamware mug
This vessel is represented by the basal section. It is decorated with machine-turned cordoning around the base. The fragments are distinguished from vessel 3, as both have the lower handle attachment present. The vessel is 3" in diameter and an unknown height. All of the fragments are from zone 4 level 2.

Vessel 5: Creamware mug
This vessel is also represented by a basal section, but it exhibits a different cordon pattern, separating it from Vessel 4. The vessel base is reconstructed from two large fragments, from zone 4 level 2 and from the profile cleaning of zone 4. The vessel is 3” in diameter and an unknown height.

Vessel 6: Annular ware mug
This is the base and side of a tall annular ware mug. Yellow and rust stripes are separated by narrow brown bands, with a ridged yellow stripe at the rim. All of the fragments were recovered from zone 4 level 2. The vessel is 3.5” in diameter and 4.5” high.

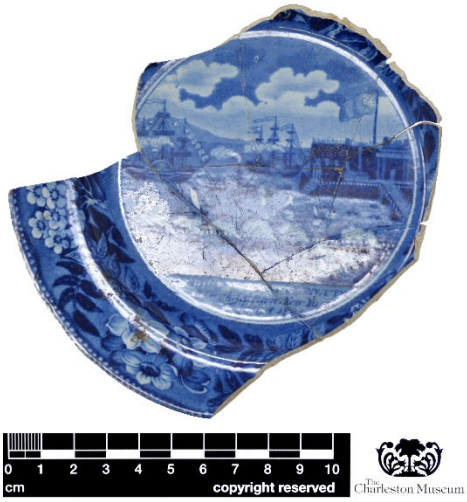
Vessel 7: Annular ware pitcher
This is a barrel-shaped pitcher with black chevron stripes and an impressed green band around the base and rim. The majority of fragments come from zone 4 level 1, with cross-mends from zone 4 level 2 and zone 3 level 1. The vessel is 3” in diameter and unknown height; the base and spout present, but middle section missing.

Vessel 8: Annular/mocha ware pitcher
This whiteware pitcher features a barrel-shaped body with flared base and rim. The vessel features a dark brown mocha design on yellow background, with dark brown bands around the base and rim. The vessel is 3” in diameter and is an estimated 5” high. The majority of the vessel was retrieved from zone 4 level 2, with one fragment from zone 5 level 2.

Vessel 9: Annular/cabled whiteware bowl
This whiteware vessel is a large low-shouldered bowl, 6” in diameter and unknown height, with black/white/blue cabled design on a rust background, with blue stripes. Fragments of the rim were recovered in zone 1 level 2.

Vessel 10: Annular mug or pitcher
This banded vessel is represented by rim fragments, plus a handle attachment. All were recovered from zone 1 level 2. The vessel features a yellow panel with green and blue stripes, and undulating curved sides.

Vessel 11: Transfer printed saucer or small plate
This nearly complete vessel in dark blue transfer print features a distinct pattern, the "Landing of General Lafayette at Castle Garden, New York – 16 August 1824." The central scene, completed with cannons blazing, is surrounded by a floral pattern rim. The base has an impressed maker's mark for "Clews warranted, Staffordshire" surrounding a crown motif. The vessel is 7: in diameter, with a complete center and about a quarter of the rim.



Vessel 12: Transfer printed plate
This vessel is a dinner plate, 10" in diameter, with a large floral-patterned rim, with slight scalloping. A willow tree is visible in the center. Fragments are from zone 4 level 2.

Vessel 13: Transfer printed pearlware tea cup
This vessel features an architectural scene in blue transfer decoration. The cup is 4" in diameter. A section of the base and a section of the rim were reconstructed, but the two do not mend together. The vessel features a rounded shape. Fragments were recovered from zone 5, levels 1 and 2.

Vessel 14: Transfer printed tea cup
This vessel is represented by rim fragments only and features a floral border on the interior and a pastoral scene covering the exterior. The fragments were recovered from zone 4 level 2. The vessel is 3.5” in diameter.

Vessel 15: Transfer printed pearlware, small bowl
This transfer-printed pearlware vessel features a floral and rope rim and a central floral medallion on the interior and a pastoral scene on the exterior. The vessel is 4” in diameter. Fragments were recovered from zone 4 level 2 and zone 5 level 1.

Vessel 16: Hand-painted pearlware bowl
This vessel features a blue hand-painted decoration. Two sections of the rim and sides have been reconstructed from zone 4 level 1 and zone 4 level 2. The vessel is 6” in diameter.

Vessel 17: Annular pearlware bowl
This shallow bowl with foot ring is decorated in green and clear engine-turned bands, and narrow brown stripes. The vessel was constructed from fragments found in zone 5 level 3 and the adjoining profile. The vessel is approximately 6” in diameter.

Vessel 18: Lead-glazed redware pot
This small pot features a foot ring, short, rounded sides, a constricted rim with bead-molded decoration around the rim. The redware paste appears to be American, and the vessel features a clear lead glaze with dark manganese streaks across the vessel. About one-third of the vessel was reconstructed. The rim is 4” in diameter, and the vessel is 3.5” high.

Vessel 19: Transfer printed pearlware or whiteware saucer
This small plate or saucer features a blue transfer pastoral scene surrounded by a grape and floral border. The vessel is constructed from four fragments, recovered from zone 4 level 1 through zone 5 level 2. The saucer is 5.5” in diameter.

Vessel 20: Transfer printed pearlware tea cup
This vessel is the basal portion of a tea cup with a low angular shoulder. The exterior features a pastoral scene, and there is a small scene in the base of the cup. The bottom is marked “Stone China”. The base/foot ring is 1.5” in diameter, no measurements possible for a rim diameter. The vessel was reconstructed from zone 4 level 1 and zone 4 level 2.

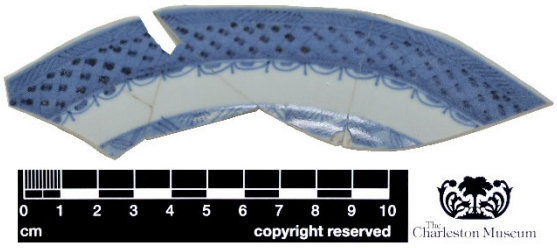
Vessel 21: Canton porcelain plate
This vessel is mended from six fragments recovered from zone 4 level 2. The plate is 9.0” in diameter. Approximately ¼ of the vessel is present.

Vessel 22: Canton porcelain saucer
This vessel is mended from fragments in zone 4 level 1. The saucer is 6” in diameter. Rim decoration is typical of Canton, while the body decoration is an earlier style.

Vessel 23: Canton porcelain platter
This vessel is octagonal with trimmed corners. It is reconstructed from zone 4 level 2, with a single fragment from zone 4 level 1. Approximately half of the vessel is present. The platter is at least 12” long.

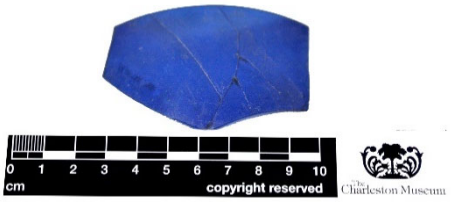
Vessel 24: Canton porcelain platter
This vessel is octagonal with trimmed corners. Four fragments were recovered from zone 4 level 2. Not enough is present to determine size, but probably larger than vessel 23.

Vessel 25: Canton porcelain platter
This vessel is octagonal with trimmed corners. Four fragments were recovered from zone 4 level 2. The fragment is too small to determine size. Coloring indicates that this is a unique vessel, not part of vessels 23 or 24.

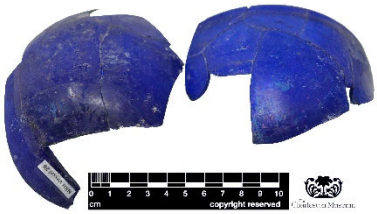


Vessel 26: Canton porcelain plate
This vessel is reconstructed from five fragments recovered from zone 4 level 2. The vessel has a slightly octagonal form with modified trimmed corners. The plate is 9” in diameter.

Vessel 27: Blue glass finger bowl
This wine rinse or finger bowl of cobalt blue glass was reconstructed from fragments in zone 4 level 2 and zone 6 level 1. The bowl is 5” in diameter.

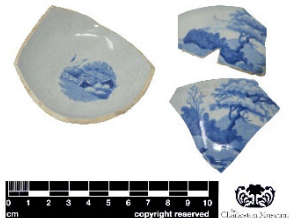


Vessel 28: Blue glass finger bowl
This wine rinse or finger bowl is reconstructed into two large sections. Fragments were recovered from zone 4 level 2, from the profile, and from zone 5 level 3. The vessel is 5” in diameter and 3.2” high.



Vessel 29: Blue glass finger bowl.
This wine rinse or finger bowl features paneled sides. Six fragments were recovered from zone 4 level 1. The vessel is 5” in diameter.

Vessel 30: Transfer printed pearlware tea bowl
This tea bowl, with no handle, is reconstructed from fragments recovered in zone 4 level 2. The base and side, and large rim fragment, feature a pastoral scene on the exterior and around the rim. The vessel is 3.5” in diameter and 2.25” high.



Vessel 31: Transfer printed pearlware shallow bowl
The bowl is constructed from two large fragments, comprising most of the base and one third of the rim. These were recovered from zone 4 level 2. The vessel is 6” in diameter. The vessel features an exotic scene in the center and an oriental rim pattern.

Vessel 32: Transfer printed pearlware serving dish
This serving dish is rectangular with rounded corners and an everted rim. The center features a pastoral village scene and the rim has a floral pattern. All of the fragments were recovered from zone 4 level 2. The fragments are too small to determine dimensions.

Vessel 33: Transfer printed pearlware saucer
This small saucer is decorated in an overall dark blue transfer pattern. Ten fragments were recovered from zone 4 level 2. The vessel features a pastoral scene and floral border. No rim fragments are complete, so dimensions could not be measured.

Vessel 34: Royal pattern creamware plate
This plate was recovered from zone 5 level 3, and eleven fragments mend to two pieces. The bottom is stamped “B 9”. The vessel is approximately 10” in diameter.

Vessel 35: Creamware bowl
Seven fragments mend to three pieces, all rims, from an undecorated creamware bowl. The thin walls suggest an early creamware vessel, 6.5” in diameter.

Vessel 36a-b: Transfer print pearlware cup and saucer
Several small fragments from zone 4 level 2, zone 5 level 1 and zone 5 level 2 form a distinctive cup and saucer set, with an overall blue sheet pattern printed decoration. The small vessel size and overall pattern suggest a late 18th-early 19th century vessel.

Vessel 37: Transfer print whiteware pitcher
Four fragments of dark blue transfer-printed whiteware mend to form the spout of a large pitcher, or possibly the rim of a serving bowl. The fragments were recovered from zone 4 level 1 and the associated profile.

Vessel 38: Transfer print pearlware plate
This vessel is a round plate with a classic willow pattern on pearlware body. The vessel was mended from zone 1 level 2 and zone 1 level 3. The plate is 10" in diameter.

Vessel 39: Canton porcelain soup bowl
A single fragment represents nearly half of a Canton soup plate. The vessel is 8" in diameter. It was recovered from the ground surface of the cellar.

Vessel 40: Canton porcelain tureen
A single rim fragment from zone 4 level 2 represents an octagonal tureen.

The Russell Kitchen House Assemblage and Charleston Averages

The density of materials recovered from the 2021 project can be seen in Table 3-2, that tabulates the three kitchen units separately for the Russell era. The 1990 unit produced 225 artifacts, while the 1995 unit produced 697. The 2021 unit, in contrast, held over 3100 items; our field guess of 10 times as much was not far off.

Table 3-2: Quantification of Russell Period by Project

1820-1850	2021	1995	1990
Brown saltglazed stoneware	11	2	
Westerwald stoneware	6	2	
Nottingham stoneware			
Elers ware, glazed	2		
Black basalt ware	4		
White saltglazed stoneware	2	4	
Jackfield ware	3		
Slipware, combed and trailed	6	1	2
Slipware, American		3	1
Buckley ware	3		4
Manganese mottled ware	1		
Lead glazed earthenware	11	4	3
Spanish tin-enameled ware		6	
Delft, undecorated	7	2	
Delft, polychrome painted		1	2
Delft, blue on white		1	
Spanish olive jar	1	20	
North Devon gravel-tempered	1		
Unglazed earthenware	1	1	
Porcelain, Chinese Export	53	76	4
Porcelain, overglaze enameled	21	12	
Porcelain, Canton	169	12	9
Porcelain, white	9		2
Porcelain, gilt white			
Stoneware, 19th cent	26	3	2
Stoneware, ink			
Stoneware, Albany slipped	1		
Edgefield stoneware			
Whieldon ware		1	
Creamware, undecorated	494	82	29

Creamware, enameled	1		
Creamware, transfer printed			
Creamware, royal pattern	1		
Creamware, feather edged	1	4	3
Pearlware, undecorated	205	122	12
Pearlware, blue hand painted	31	5	9
Pearlware, polychrome painted	12	61	15
Pearlware, shell edged	77	17	7
Pearlware, transfer printed	333	15	2
Pearlware, annular	1	66	15
Pearlware, cabled			
Pearlware, mocha	33		2
Whiteware, undecorated	37		2
Whiteware, hand painted			
Whiteware, shell edged	3		
Whiteware, annular	1	21	
Whiteware, cabled			
Whiteware, mocha			
Whiteware, transfer print blue	3		
Whiteware, transfer print other			
Sprigged ware			
Parian ware			
Jasper ware			
Portobello ware	3	2	2
Luster ware	3	1	
Coarse yellow earthenware	1	3	1
Colonoware, Yaughan		1	
Colonoware, Lesesne	2	10	
Colonoware, River burnished	5	3	
Colonoware, river burnish painted	2		
Olive green glass, base	4		2
Olive green glass, neck	4		1
Olive green glass, body	279	34	20
Clear container glass	151	11	3
Aqua container glass	59	5	
Blue container glass			1
Light green container glass		3	
Pharmaceutical glass	44	1	
Tin can	12	17	
Goblet, stem	1	1	

Goblet, base		1	2
Tumbler, base			
Table glass, fragment	42	1	2
Blue glass bowl	12	1	
Window glass, aqua	109	32	42
Window glass, clear	242	4	
Nail, ud	103	27	
Nail, cut or wrought			
Nail, wire	1		
Nail fragment	242	42	20
Hardware			
Flat metal	34		11
Delft tile	2	2	
Arms			
Buckle	1		
Brass button, round	1		
Brass button, military	1		
Brass button, flat	4	3	
Button, bone 1-hole	8	7	1
Button, bone 4-hole			
Button, prosser			
Straight pin	17		
Wig curler		1	
Parasol		1	
Toothbrush	2		
Other brush	2		
Pocket knife	1		
Chatelaine			
Coin			
Slate pencil			
Print type	1		
Tack	1	3	1
Decorative hardware	2		
Curtain ring	1	1	
Drawer pull	1		
Shutter pull	1		
Misc hardware			
Kaolin pipe bowl	12	1	
Kaolin pipe stem	18	2	6

Flower pot	6	1	
Stoneware flower pot	7		
Barrel strap	11	3	1
Tool (file)		1	
Lead weight	1		
Harness buckle	2	1	

Table 3-3 shows the construction level (1810s, zone 6 in the 2021 unit) assemblages for the three projects. This is a much different assemblage, and the three units are comparable in terms of the number of recovered artifacts (the 1990 project did not actually sample the construction-level soil due to groundwater intrusion).

Table 3-3: Quantification of the Construction level by Project

1810s	2021	1995	1990
Westerwald stoneware		1	
Unglazed earthenware	1		
Porcelain, Chinese Export	1	2	
Porcelain, Canton	7		
Stoneware, 19th cent			
Creamware, undecorated	7	4	
Creamware, feather edged	1		
Pearlware, undecorated		3	
Pearlware, polychrome painted		8	
Pearlware, annular	1	1	
Whiteware, annular	1		
Coarse yellow earthenware	1		
Olive green glass, body		4	
Window glass, aqua		25	
Window glass, clear		6	
Nail, ud		6	
Nail fragment		4	
Flower pot			2
Barrel strap			1
Tool (file)			1

Table 3-4 compares the Russell unit assemblage to overall Charleston averages for similar periods (Zierden and Reitz 2016). Compared to the Charleston averages for 1760-1830 and for 1830-1880, kitchen artifacts dominated the assemblage, and ceramics were more common than the city averages. There was less architectural material and a somewhat smaller assemblage of small finds. When combined with the tremendous bone assemblage, it suggests the Russell kitchen house debris IS kitchen debris.

Table 3-4: Comparison of Nathaniel Russell Assemblage to Charleston Averages

	Nathaniel Russell	C. 1760-1830	C.1830-1880
Kitchen, % total	73.2	58.47	43.63
Architecture, % total	23.4	33.64	48.32
Arms, % total	.0	.30	.24
Clothing, % total	1.0	1.13	3.52
Personal, % total	.19	.45	.61
Furniture, % total	.19	.20	.18
Pipes,% total	.96	4.45	1.39
Activities, % total	.86	1.31	2.05
Ceramics, % kitchen	73.0	58.59	35.68
Glass, % kitchen	26.8	41.46	50.44
Colonoware, % ceramics	.53	4.97	1.27
Oriental porcelain, % ceramics	14.53	20.38	15.34
Creamware, % ceramics	29.72	20.61	11.24
Pearlware, % ceramics	45.27	12.99	7.43
Total artifacts/provenience	**156**	**159**	**22**
Total # proveniences	20	205	84
Total # artifacts	3120	32,746	18,670

Chapter IV

Analysis of Faunal Materials

This chapter focuses on the faunal material recovered from the 2021 excavations of the Nathaniel Russell House Kitchen Cellar. This collection was analyzed as part of the Lowcountry Cattle Economy Project (BCS-1920835 and BCS-1920863) to expand upon interdisciplinary analysis of the evolution of Carolina's cattle economy. These excavations yielded a massive faunal assemblage. Combined with faunal material analyzed from the two previous Nathaniel Russell Kitchen Cellar units, faunal material from the Nathaniel Russell House provides an opportunity to better understand the positionality of one of the wealthiest households in urban Charleston during the first half of the nineteenth century.

Cattle bones are recovered in high numbers from archaeological sites throughout Charleston's occupation. An even higher number of cattle specimens than typical for urban Charleston sites was recovered from the 2021 Nathaniel Russell House excavations. The faunal material discussed in this report represents a robust collection in excellent condition, even compared to the large faunal datasets available from Charleston's archaeological collections. This extensive faunal collection allows us to expand on previous research on cattle's role in Charleston's meat economy.

This chapter addresses three main research questions: One, where were Nathaniel Russell House cattle sourced? Two, does the faunal assemblage reflect the high status of the Nathaniel Russell House? And three, how does the Nathaniel Russell House differ from other Charleston faunal collections? This report primarily focuses on the origins of the cattle specimens within this Nathaniel Russell House faunal collection. We attempt to discern primary or secondary butchery patterns that may indicate if the cattle from the Nathaniel Russell House were butchered on the property, acquired from urban markets, sourced from rural locations, or if the cattle remains were deposited as intentional fill—a terraforming practice that was common in Charleston. The second research question focuses on the portions of the cattle carcasses recovered at the Nathaniel Russell House and whether the element recovery depicts patterns of cultural preferences, economic choices, or some other, perhaps taphonomic, factors. Finally, we compare the Nathaniel Russell House collection to faunal collections from other Lowcountry sites to illuminate broad-scale shared patterns and local differences.

Materials and Methods

All faunal remains presented here were identified between July 2022 and September 2022 by Charles Cameron Walker using standard zooarchaeological methods (Reitz and Wing 2008) and the comparative collection housed at the University of Maryland's Zooarchaeological Laboratory. The faunal collection reported here is a subsample of the faunal material recovered from the 2021 5x5 unit in the kitchen cellar. All archaeological material from the kitchen cellar was excavated according to natural zones subdivided into arbitrary levels. A total of 20 proveniences were identified, three of which were analyzed for this report: FS 573 from Zone 3

Level 1, FS 575 from Zone 4 Level 1, and FS 577 from Zone 5 Level 1. See chapter 3 for a more detailed description of the excavations and the proveniences.

These three proveniences are from the first layer of the three most faunal-dense zones from the 2021 unit. While this collection is larger than the faunal collections from the two previous kitchen cellar units, the analyzed faunal material from the 2021 kitchen cellar unit is likely less than half of the excavated material. Because of the large size of the collection, all faunal material was analyzed by bag. For example, FS 573 from Zone 3 Level 1 was sorted into three bags of material in the field. During the primary faunal analysis, FS 573 Bag 1 was analyzed and recorded on the faunal sheets separately from FS 573 Bag 2 and FS 573 Bag 3. Following analysis, the material was sorted and bagged according to taxonomic identification and then returned to the larger bag where the faunal material was initially sorted. This bag separation does not factor into the reported analysis and can be changed later by collections staff, it was done to maintain the original deposition of the collection.

Primary Data

A number of primary observations were recorded for every specimen in the assemblage reported here. Specimens are attributed to the lowest taxonomic level possible through comparison with skeletal reference material of known taxonomic classification. Specimens are described in terms of elements represented, portions recovered, symmetry, fusion, sex, and modifications. Much of the Nathaniel Russell faunal assemblage is highly fragmented, limiting most taxonomic identification to taxonomic Class. Mammals and Bird (Aves) specimens were further sorted into size categories when possible. These size categories include large mammals (e.g., cattle, horse (*Equus caballus*)), medium-large mammals (e.g., pig (S*us scofra*), deer (*Odocoileus virginianus*)), medium mammals (e.g., dog (*Canis familiaris*), caprine), small-medium mammals (e.g., opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*)), and small mammals (e.g., rabbit (*Sylvilagus* spp.), squirrel (*Sciurus* spp.)). These size categories are subjective but can reveal broader patterns in taxonomic recovery. When appropriate, unattributable mammal specimens were recorded as likely cranial, vertebra, rib, foot, or long bone fragments.

"Cattle" only refers to *Bos taurus*, though goats (*Capra hircus*) and sheep (*Ovis aries*) also are in the family Bovidae, referred together with cattle in the vernacular as "bovids." As used here, cattle and "cow" are generic terms subsuming male, female, and castrated animals. If a specific gender is meant, the terms "male," "female," or "castrate" are used unless the context makes this clarification unnecessary. The term "caprine" refers to goats and sheep, members of the bovid subfamily Caprinae. Distinguishing between goat and sheep specimens is difficult. Therefore, most are identified only to subfamily.

NISP

The Number of Identified Specimens (NISP) is determined by counting each bone fragment (specimen). Cross-mending specimens are counted as single specimens, as are teeth still seated in mandibles or maxillae. Indeterminate vertebrate (Vertebrata) specimens are not counted because they tend to be highly fragmented, and NISP is unlikely to be accurate or replicable. All

specimens are also weighed to provide additional information about the relative abundance of the taxa identified.

Much of the Nathaniel Russell faunal assemblage is highly fragmented, limiting most taxonomic identification to class. Mammals and Bird (Aves) specimens were further sorted into size categories when possible. These size categories include large mammals (e.g., cattle, horse [*Equus caballus*]), medium-large mammals (e.g., pig [*Sus scofra*], deer [*Odocoileus virginianus*]), medium mammals (e.g., dog [*Canis familiaris*], caprine), small-medium mammals (e.g., opossum [*Didelphis virginiana*], raccoon [*Procyon lotor*]), and small mammals (e.g., rabbit [*Sylvilagus* spp.], squirrel [*Sciurus* spp.]). These size categories are subjective but can reveal potential taxonomic biases. When appropriate, unattributable mammal specimens were recorded as likely cranial, vertebra, rib, foot, or long bone fragments.

"Cattle" only refers to *Bos taurus*, though goats (*Capra hircus*) and sheep (*Ovis aries*) also are in the family Bovidae, referred to in the vernacular as "bovids." As used here, cattle and "cow" are generic terms subsuming male, female, and castrated animals. If a specific gender is meant, the terms "male," "female," or "castrate" are used unless the context makes this clarification unnecessary. The term "caprine" refers to goats and sheep, members of the bovid subfamily Caprinae. Distinguishing between goat and sheep specimens is difficult. Therefore, most are identified only to subfamily.

MNI

MNI refers to the minimum number of individuals necessary to account for all specimens of a given taxon based on the elements represented, symmetry, age at death, sex, and size (Grayson 1979:203-225; Reitz and Wing 2008:205-210; White 1953). Normally, MNI is estimated at the lowest possible taxonomic level. Occasionally, an MNI estimate for a lower taxonomic level (e.g., genus or species) is smaller than the MNI for a corresponding higher taxonomic level (e.g., family or subfamily). For example, the estimated MNI for freshwater catfish (*Ictalurus* spp.) may be higher than for channel catfish (*I. punctatus*). In such cases, MNI for the lower taxonomic category is recorded parenthetically in the species list. The parenthetical value is not used in subsequent calculations.

Although MNI is a standard zooarchaeological quantification method, the measure has several well-known biases. For example, MNI emphasizes small-bodied species over larger ones. This emphasis can be demonstrated in a hypothetical collection of ten squirrels and one cow. Although ten squirrels indicate considerable interest in squirrels, one cow has the potential to supply more meat. MNI is also subject to identifiability biases; animals with more readily identifiable elements may appear more significant than animals with less distinctive elements. Pig teeth, readily identified from tiny fragments, exemplify this situation.

Conversely, some taxa represented by large numbers of specimens may present few paired elements, and their MNI may be underestimated. Gars (*Lepisosteus* spp.) and snakes (Serpentes) are subject to this bias. MNI for these animals may be low relative to the number of identified specimens. The assumption that entire carcasses were used at the site is implied by MNI, though ethnographic studies indicate this is not always true. This is particularly the case for larger-

bodied animals used for particular purposes, such as for traction, and for sites involved in commodity exchange.

Biomass

Biomass estimates the quantity of tissue a specific taxon may have supplied, compensating for some of the problems encountered with MNI. Biomass is based on the principle of allometry, which states that body mass, skeletal mass, and skeletal dimensions change proportionally with increasing body size. This scale effect compensates 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 equation (Simpson et al. 1960:397):

$$Y = aXb$$

In this equation, X is specimen weight, Y is 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 line (Reitz et al. 1987; Reitz and Wing 2008:233-237). Thus, a given quantity of skeletal material represents a predictable amount of tissue due to allometric growth. Values for a and b are derived using data from the Florida Museum of Natural History, the University of Florida, and the Georgia Museum of Natural History (Appendix III-Table 1). Biomass is not estimated for amphibians and lizards because formulae are not available.

Taxonomic Summaries

Taxa are summarized by taxonomic groups to distinguish between wild, domestic, and commensal forms. These categories are Fish, Turtles, Wild birds, Domestic Birds, Wild Mammals, Cattle, Other Domestic Mammals, and Commensal taxa. These summaries only include biomass estimates for those taxa for which MNI is available to ensure comparability of MNI and biomass values. For example, biomass is estimated for the sea catfish family (Ariidae) (Table 1), but this estimate is not included in the summary table (Table 2).

Canada geese (*Branta canadensis*) and turkeys (*Meleagris gallopavo*) are interpreted as wild birds, though individuals of both species may be domesticated. The American Poultry Association (1874) established standards of excellence for Canada geese and turkeys by the mid-eighteenth century. Measurements are the primary means of distinguishing between wild and domestic birds. However, measurements have thus far yet to clearly distinguish domestic individuals from tame or wild ones in our study area. Because wild Canada geese and turkeys are present in South Carolina and Georgia, the more conservative interpretation is to attribute archaeological specimens to the wild form.

Taxa from this assemblage classified as commensal are Old World rats (*Rattus* spp., and *Rattus norvegicus*). While the commensal animals from this assemblage are generally considered species that people either do not encourage or may actively discourage, other animals tentatively classified as commensal might be of economic value, urban wildlife, or serve as pets or work animals (Reitz and Wing 2008:137-138). Just as some animals in the commensal category might be eaten either by choice or necessity, some animals in the non-commensal category might be commensal in specific contexts.

Element Distribution

Artiodactyl element distribution patterns provide evidence for butchering practices, transportation decisions, and social distinctions (Reitz and Zierden 1991). The Head category includes skull fragments, antlers, and teeth. The Vertebra/rib category includes the atlas and axis, along with other vertebrae and ribs. The Head and Vertebra/rib categories are likely under-represented due to differential recovery and identification biases. Vertebrae and ribs of pig, deer, and caprine are similar in size and rarely can be identified to species unless distinctive morphological features support such identifications. Such features often are not present, and these specimens are referred to as one of the indeterminate mammal categories. Ribs of some non-artiodactyls (e.g., bear [*Ursus americanus*], equids) may fall within the same size range as cattle. The Forequarter category includes the scapula, humerus, radius, and ulna, and the Hindquarter category includes the innominate, sacrum, femur, patella, and tibia. Carpal and metacarpal specimens are placed in the Forefoot category, and the Hindfoot category includes tarsal and metatarsal specimens. Indeterminate metapodial and podial specimens, sesamoids, and phalanges are assigned to the Foot category.

These elements are presented visually to illustrate their number and location in a carcass. Loose teeth, tooth fragments, and some skull fragments are shown in approximate locations. Although the atlas and axis fragments are depicted accurately, other vertebrae and ribs are placed approximately on the illustration. The last lumbar location illustrates vertebrae that could only be identified as vertebrae. Specimens identified only as sesamoids, metapodiae, podials, or phalanges are illustrated on the right hindfoot.

Log-ratio diagrams are used to visualize the degree to which differential transportation of cattle carcass portions influenced recovered remains (Reitz et al. 2006; Reitz and Wing 2008:223-224; Simpson 1941). The archaeological data are compared to the distribution of carcass portions in a complete standard cow skeleton. The standard distribution is estimated from the number of elements found in a complete skeleton organized into the same anatomical categories described above. This step permits NISP for each element type represented in the archaeological assemblage to be compared to the number of that same element group in a complete, unmodified skeleton. Log difference values are calculated using the formula:

$$d = Loge\ X\text{-}Loge\ Y$$

where d is the logged ratio, X is the percentage of that element category in the archaeological sample, and Y is the percentage of that category in the standard skeleton (Simpson 1941; Simpson et al. 1960:357-358). The resulting value (d) is plotted against the standard represented by a horizontal line, representing what would be expected in a complete standard skeleton. The closer each archaeological observation is to the horizontal line, the more likely the element category is about what one would expect in an intact skeleton. Elements on the positive side of the horizontal line are over-represented compared to the standard skeleton, suggesting transportation decisions and differential access to valued parts of the carcass. Those on the negative side of the scale are under-represented.

Ratios of observed specimens to expected ones were derived to complement other methodologies used to determine skeletal distribution from this collection. These ratios are based on the principle of elemental symmetry, and all observed ratios are calculated from specimens identified to an element with a left and a right. The expected value comes from the total amount

of elements expected from the minimum number of individuals in the collection. For example, if cattle have an MNI of 37, then there would be an expected value of 74 for all symmetrical elements. Proximal ends and distal ends were counted separately. The observed ratios help measure the butchery preference for butchery units that are "joints" of meat. Shaft fragments were not calculated for the ratios of observed specimens to expected ones, which may provide a bias towards the "joint" cuts from the distal and proximal ends (Reitz and Wing 2008:220).

Epiphyseal Fusion and Tooth Eruption

Epiphyseal fusion and tooth eruption sequences provide estimates for age at death (e.g., Gilbert 1980:102; Reitz and Wing 2008:172-176; Severinghaus 1949). These physiological events follow well-documented developmental sequences shared by most mammals (Getty 1975:872; Grigson 1982; Hillson 2005:207-210, 213, 223-225, 232; O'Connor 2003:160; Schmid 1972; Silver 1969; Watson 1978). Many age categories used by zooarchaeologists for pigs and bovids are based on modern breeds. However, the age when epiphyses fused and teeth erupted was likely different in the past than today. Both epiphyseal fusion and tooth eruption occur over many years, and many archaeological specimens are not entirely fused or erupted. Tooth eruption generally is complete by 48-50 months of age, but the complete fusion of all skeletal elements takes longer to achieve. Even today, the vertebral centra of cattle may not fuse until 60 or 108 months of age (Grigson 1982:22; Schmid 1972:75; Silver 1969:252).

Environmental and genetic variables govern the age when fusion and tooth eruption begin and end. These include environmental stresses (e.g., temperature, humidity, labor), breed, nutrition, diet, trauma, and overall health. These physiological events also occur at different rates in females, bulls, and castrates. This difference is particularly relevant for livestock management because many decisions are based on the sex of the animal. Generally, negligent care likely delayed maturation for Carolina animals. Determining the sex of livestock is challenging, however (Ruscillo 2006), and estimates of the sex of cattle in this study using morphometric approaches need further work (Reitz and Ruff 1994).

In this study, archaeological specimens are assigned to ranges within general age categories instead of to calendrical groups in recognition of the many variables that affect maturation. Slightly different categories are used for age classifications derived from epiphyseal fusion, tooth eruption, and wear sequences (Appendix III-Table 2). Although the categories used are ambiguous, the exercise itself is helpful for broadly suggesting colonial mortality profiles that can be used for intersite comparisons (e.g., van Dijk 2016).

Epiphyseal fusion refers to the ossification of cartilaginous plates. When mammals are immature, a cartilaginous plate separates the diaphysis (shaft) from the epiphyses (the ends of the specimens). Growth is complete when these cartilaginous plates are fully ossified (Reitz and Wing 2008:70-73). Tuberosities, as well as distal and proximal aspects, may fuse at different times. Although many factors influence the age at which fusion is complete, centers of ossification fuse in a regular temporal sequence (Gilbert 1980; Grigson 1982:22; Purdue 1983; Schmid 1972:74-75; Silver 1969:252-253; Watson 1978). The calendrical ages provided in Appendix III-Table 2 are estimates based on modern cattle and may be less accurate for cattle in earlier centuries. Other artiodactyls follow a similar sequence (Reitz and Wing 2008:70-73).

During analysis, specimens are recorded as either fused or unfused and placed into one of three categories (early-fusing, middle-fusing, and late-fusing) based on the age in which fusion generally occurs. Early-fusing specimens are the distal humerus, distal scapula, proximal radius, acetabulum, proximal metapodials, and proximal 1st and 2nd phalanges. Middle-fusing specimens are the distal tibia, proximal calcaneus, and distal metapodials. Late-fusing specimens are the proximal humerus, distal radius, proximal and distal ulna, proximal and distal femur, and proximal tibia. Semi-fused epiphyses and diaphyses are counted in the younger age category for that particular ossification center.

Unfused elements in the early-fusing category are interpreted as evidence for juveniles, unfused elements in the middle-fusing and late-fusing categories are interpreted as evidence for subadults and young adults, and fused specimens in the late-fusing group is evidence for adults. Fused specimens in the early- and middle-fusing groups are indeterminate. Fusion is more informative for unfused early-fusing specimens and fused late-fusing specimens. An early-fusing element that is fused could be from an animal that died immediately after fusion was complete or many years later. In some cases, an individual is interpreted as young because the specimen is too small to be from an adult or may be placed in the adult category because the specimen is too large to be from a young individual. The ambiguity inherent in age estimates is reduced by recording fusion in the oldest possible category.

Tooth eruption status is also recorded during the identification stage (e.g., Severinghaus 1949). Teeth are classified as either unerupted or erupted, and ambiguous teeth are assigned to the older category. As with epiphyseal fusion, the exact age when a specific tooth erupts is variable, but tooth eruption follows a regular sequence. The calendrical ages provided in Appendix III-Table 2 are estimates based on modern cattle. Age ranges and terminology for tooth eruption follow Getty (1975:872), Grigson (1982:23), Hillson (2005:233), O'Connor (2003:160, 2010), Schmid (1972:77), and Silver (1969:261-263).

Sex

The sex of animals is an essential indication of hunting strategies and livestock management; however, there are few clear indicators of sex. Males are indicated by the presence of spurs on the tarsometatarsus of turkeys and chickens, antlers on deer, a baculum (in some species) , and characteristics of cattle horn cores. The size and shape of pig canines also provide evidence for biological sex. A depression indicates male turtles on the plastron to accommodate the female during mating. Females are recognized either by the absence of these features or by different shapes in these features. Female birds also may be identified by the presence of medullary bone (Rick 1975; Serjeantson 2009:47-53). Another approach is to compare measurements of identified specimens for evidence of elements that fall into a male or female range. However, there are rarely enough measurements to indicate sex reliably.

Modifications

Modifications may indicate butchering methods as well as site formation processes. Modifications include pathologies, hacked, sawed, clean cut, cut, burned, calcined, worked, rodent-gnawed, carnivore-gnawed, and weathered. Some specimens were metal-stained, but these are not included in the modification tables because such stains are to be expected on European-affiliated sites in the Carolinas. Although the NISP for indeterminate vertebrate

(Vertebrata) specimens is not included in the species lists, modified indeterminate vertebrate specimens are enumerated in the modification tables. Pathologies are rare in faunal collections, but a few were noted in these assemblages. Pathologies occur when the bone is exposed to biological (e.g., disease, nutritional deficiencies, infection) or physical trauma (e.g., fractures). When damaged bone heals, a swollen area of additional bone may form on the specimen (Baker and Brothwell 1980; Greig 1931). This list is likely incomplete because modified bones are often not sent for zooarchaeological study.

Some modifications occur as the carcass was skinned, dismembered, or as meat was removed from the bone before or after cooking. Hack marks are evidence that a larger implement, such as a cleaver, hatchet, or axe, was used to dismember the carcass. The presence of parallel striations on the outer layer of compact bone indicates that a specimen was sawed, probably before the meat was cooked. Cuts are small incisions across the surface of specimens. These marks were probably made by smaller implements as tissue was removed before or after it was cooked or when the carcass was disarticulated at the 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 was available during the original study (Shipman and Rose 1983).

Burned specimens result from the carbonization of collagen and are identified by their charred condition and black coloration (Lyman 1994:384-385). Burned specimens may result from exposure to fire when meat is roasted, though it is more likely that burning occurred as specimens were intentionally or unintentionally burned after discard. Heating bone at extreme temperatures (≥ 600° C) can cause the specimen to become completely incinerated or calcined; calcined specimens usually are recognized by a white or blue-gray discoloration (Lyman 1994: 385-386). Experimental studies indicate that the color of bone may be a poor indicator of the type of modification because it is challenging to describe color variations precisely, and other diagenetic factors may alter bone color (Lyman 1994:385).

Gnawing by rodents and carnivores indicates some specimens were not buried immediately after the disposal. Although burial would not ensure an absence of gnawing, exposure of specimens for any length of time might result in gnawing. Rodents might include mice, rats, squirrels, and carnivores such as dogs and raccoons. Gnawing by rodents and carnivores would result in losing an unknown quantity of discarded material. Some gnawed specimens may have been moved out of their original context. Empirical studies indicate that carnivore gnawing may not leave any visible sign of gnawing in faunal collections, but specimens may be removed from their original context through such activity (Kent 1981).

Specimens considered “worked” show evidence of human modification for reasons probably not associated with primary or secondary butchering. Worked specimens may be grooved and snapped, flaked, polished, or drilled for use as tools, jewelry, and in other objects.

Previous Faunal Analysis

The faunal material from the two previous units excavated from the Nathaniel Russell House Kitchen Cellar was analyzed and reported by Daniel Weinand and Elizabeth Reitz (Zierden 1995 and Zierden 1996). Prior analysis focused on adjoining units, yielding similar results. These units contained a robust faunal assemblage dominated by cattle and with butchery modifications that diverged from previous assumptions about upper-class contexts in Charleston.

The 1990 unit excavated by Andrus (1820-1870) contained 836 specimens weighing 12,656.54g with a minimum of 36 individuals (Zierden 1995:156). The 1995 unit was defined as the Russell Family (1808-1857) component and contained a total of 1,912 specimens weighing 12,784.85g with a minimum of 38 individuals (Zierden 1996:243). The representation of wild mammals differed from these two collections. Wild taxa contributed 17% of the individuals in the 1990 collection (Zierden 1995:156). In contrast, wild taxa contributed 42% of the individuals in the 1995 collection (Zierden 1996:243). This variation is likely due to differences in sample size. Compared to the wild taxa representation of the 2021 collection, it is apparent that while wild taxa were not the most prevalent at Nathaniel Russell, they were represented in greater numbers than at other nineteenth-century assemblages.

Domestic mammals dominate both faunal collections. Cattle dominate in terms of NISP, MNI, and biomass. In both previous units, cattle elements were primarily recovered from the Forequarter and Hindquarter. Both units display an interesting pattern that will be discussed further in this report: an underrepresentation of head, vertebra, and rib fragments, and an overrepresentation of lower forelimb and upper hindlimb elements (Zierden 1995:156; Zierden 1996:244). Modifications on the faunal specimens varied between the units. Clean cuts were most common in the 1990 unit, with 36% of the modified bones exhibiting cuts, and 25% were sawed (Zierden 1995:157). Hacking was observed on 27% of the modified specimens in the 1995 unit, compared to cuts at 19%, sawing at 17%, burning at 15%, and clean cuts at 13% (Zierden 1996:244).

The 2021 Nathaniel Russell Kitchen Deposit

A total of 7,090 specimens weighing 57,280.12 g were identified from the 2021 Nathaniel Russell Kitchen Deposit collection presented here, with a minimum of 81 individuals from 18 taxa (Table 1). Cattle dominate the collection when measured by NISP, MNI, and biomass, reflecting the pattern of beef dominance characteristic of Charleston faunal assemblages. Together, domestic pigs, cattle, and caprines contribute 63% of the individuals and 99% of the biomass. Wild animals contribute 22% of the individuals, but very little biomass. Wild mammals are rare in this collection, with one rabbit individual (Leporidae) and one white-tailed deer individual (*Odocoileus virginianus*). Fish are represented by sea catfishes (*Arius felis, Bagre marinus*), freshwater catfish (*Ictalurus punctatus*), and black drum (*Pogonias cromis)*. This collection has a single river cooter (*Pseudemys concinna*) specimen. There are nine wild bird individuals: three ducks (*Anas* spp.), a Canada goose (*Branta canadensis*), four turkeys (*Meleagris gallapavo*), and a songbird (Passeriformes). Domestic Bird only includes Domestic

chicken (*Gallus gallus*) and contributes 10% of the individuals. Overall, birds contribute 21% of the individuals and less than 1% of the biomass. Commensal taxa include three Old World rats (*Rattus* spp.), and a brown rat (*Rattus norvegicus*).

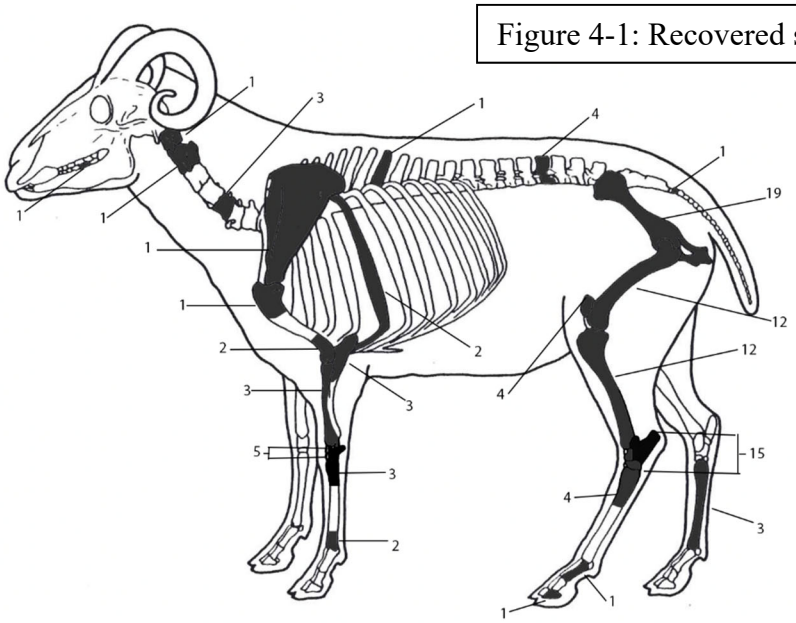
Artiodactyl specimens are not equally represented, and these taxa have varying element distribution patterns (Table 3). Pig and deer specimens are not common in this collection. The identification of fourteen pig specimens and three deer specimens precludes an analysis of skeletal recovery for either taxa. Caprine specimens are primarily from the Hindquarter (40%) and evenly distributed across the Vertebra/Rib (12%), Forequarter (13%), Forefoot (15%), and Hindfoot (15%) (Table 3, Figure 4-1). There is a noticeable underrepresentation of caprine specimens from the Head (NISP = 1) and Foot (NISP = 3). Cattle specimens are most prominently from the Forequarter (30%), Forefoot (25%), and Hindfoot (29%). Specimens from the Body are closely representative of what would be expected in a complete cattle specimen, but this representation is buoyed by the high representation of Forequarter (30%) elements (Table 3, Figure 4-2). Specimens from the Forequarter are far more represented than expected from complete cattle carcasses. In contrast, specimens from the Hindquarter (12%) are consistent with what one would expect from complete carcasses. Vertebra/Rib are greatly underrepresented.

Epiphyseal fusion data are available for pigs, deer, cattle, and caprine individuals (Tables 9-11). There is evidence for at least one juvenile and one sub-adult pig. While not included in a table format, there are three deer specimens with available epiphyseal fusion data: suggesting the presence of at least one sub-adult deer.

Epiphyseal fusion data are available for 295 cattle specimens in this collection (Table 10). The data suggest the presence of at least two juveniles, sixteen sub-adults, and four adults. The remaining fifteen cattle individuals are of indeterminate age. There were unfused early-fusing specimens from proximal phalanges and proximal radius, including two right and left unfused proximal radius specimens. In cattle, the proximal radius fuses between 12 and 18 months of age (Reitz and Wing 2008:72). A large percentage of the specimens were either unfused specimens in the middle-fusing category (NISP = 44) or unfused specimens in the late-fusing category (NISP = 98), with these 142 unfused specimens accounting for 48% of the cattle specimens with epiphyseal fusion data. The unfused specimens in the middle-fusing category include nine right unfused distal tibias and sixteen right unfused proximal calcanei. In cattle, the distal tibia fuses between 24-30 months of age, and the proximal calcaneus fuses between 36-42 months of age (Reitz and Wing 2008:72). There was a low frequency of fused specimens from the late-fusing category (NISP = 19), including three right and three left fused distal radiuses and three right and four left fused proximal ulnas. In cattle, both the distal radius and proximal ulna fuse between 42 and 48 months (Reitz and Wing 2008:72). While there is a limited number of fused specimens in the late-fusing category, this category has a high number of unfused specimens. The unfused specimens include twenty-two left unfused distal radii, fourteen right unfused proximal ulnas, and twenty-one right unfused proximal tibias. The distal radius, proximal ulna, and proximal tibia all fuse between 42 and 48 months in cattle (Reitz and Wing 2008:72). The limited number of fused specimens from the late-fusing category suggest that there was a limited number of older cattle specimens discarded underneath the kitchen. The sixteen sub-adults and the high number of unfused specimens in the late-fusing category suggest that these cattle were slaughtered at a prime age for meat production.

Epiphyseal fusion data are available for 52 sheep/goat specimens in this collection (Table 11). At least six juveniles, five sub-adults, and one adult are present. The unfused specimens in the early-fusing category include six right unfused acetabula, one unfused left distal humerus, and one unfused proximal phalanx. In sheep, the acetabulum fuses between six and ten months, and the distal humerus fuses between three and ten months. There was a presence of unfused caprine specimens in the middle-fusing category (NISP = 6) and the late-fusing category (NISP = 20). These specimens from the two categories include two right unfused distal tibias, two right unfused proximal calcanei, five left unfused proximal tibias, and five right unfused distal femurs. Between goats and sheep, there are varying epiphyseal ranges for different elements. Distal tibia fuse between 19 and 24 months in goats and 15 and 24 months in sheep. Proximal calcaneus fuse between 23 and 60 months in goats and 30 and 36 months in sheep. Proximal tibia and distal femur fuse between 23 and 60 months in goats and 36 and 42 months in sheep. The only fused specimen in the late-fusing category was a right fused proximal ulna.

Figure 4-1: Recovered sheep/goat elements



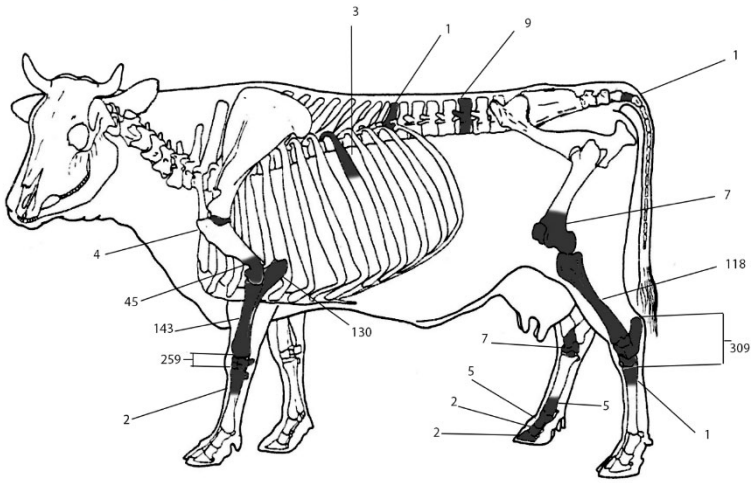


Figure 4-2: Recovered cattle elements

This collection's most common butchery modification is sawing (NISP = 450) (Table 12 and Figure 4-6). Cattle specimens (NISP = 239) are the highest-represented specimens with saw marks, followed by indeterminate mammal remains (NISP = 203). The second most common butchery modification is hacking (NISP = 194), with indeterminate mammal remains (NISP = 121) most frequently exhibiting hack marks. Cut marks (NISP = 83) are the third most common butchery modification. Cattle also display hack marks (NISP = 63) and cut marks (NISP = 43). Twenty-three percent of all cattle remains display saw marks, 6% display hack marks, and 4% display cut marks. While burning (NISP = 84) is not particularly common in this collection, a high calcination rate (NISP = 2429) accounts for 34% of the total assemblage and 74% of the modified specimens.

Skeletal Completeness

Skeletal completeness can reveal patterns in the rendering of animal products from a singular site to understand household-level subsistence strategies, butchery practices, or economic activity (Reitz and Wing 2008:213). Skeletal completeness can also show patterns across multiple sites to understand how the processing of animals might change over time, differ from urban to rural contexts, or reflect cultural patterns pertaining to class, race, or gender. Household-level production may leave behind many parts of the carcass. In contrast, a more limited representation of the carcass may suggest the distribution of parts of an animal in a more extensive network, such as through trade or markets. Varying patterns of different body portions likely reflect specialized products for either residential or commercial use (Reitz and Wing 2008:215, 219). In locations where the primary butchery occurred, we expect to see an overrepresentation of carcass portions with minimal retail value and high transportation costs (e.g., Head and Lower Leg). Bones from the meatier portions (e.g., Forequarter and Hindquarter) would be underrepresented at primary butchery locales (Reitz et al. 2022:210). Intermediate locations, such as markets, would likely be settings for secondary butchering that would reflect body portion disposal without a high degree of skeletal completeness.

Comparing the relative percentages of specimens recovered from a site with the percentage of a complete reference skeleton is one zooarchaeological method for estimating the butchery practices at the household level (Reitz et al. 2022:210). Here, the skeletal portion patterns from the 2021 Nathaniel Russell faunal collection are observed to determine whether butchery occurred at the Nathaniel Russell House or if the specimens were obtained from another location. Due to the number of analyzed specimens from this site and the available data for comparison to other Charleston faunal collections, we focus here on cattle.

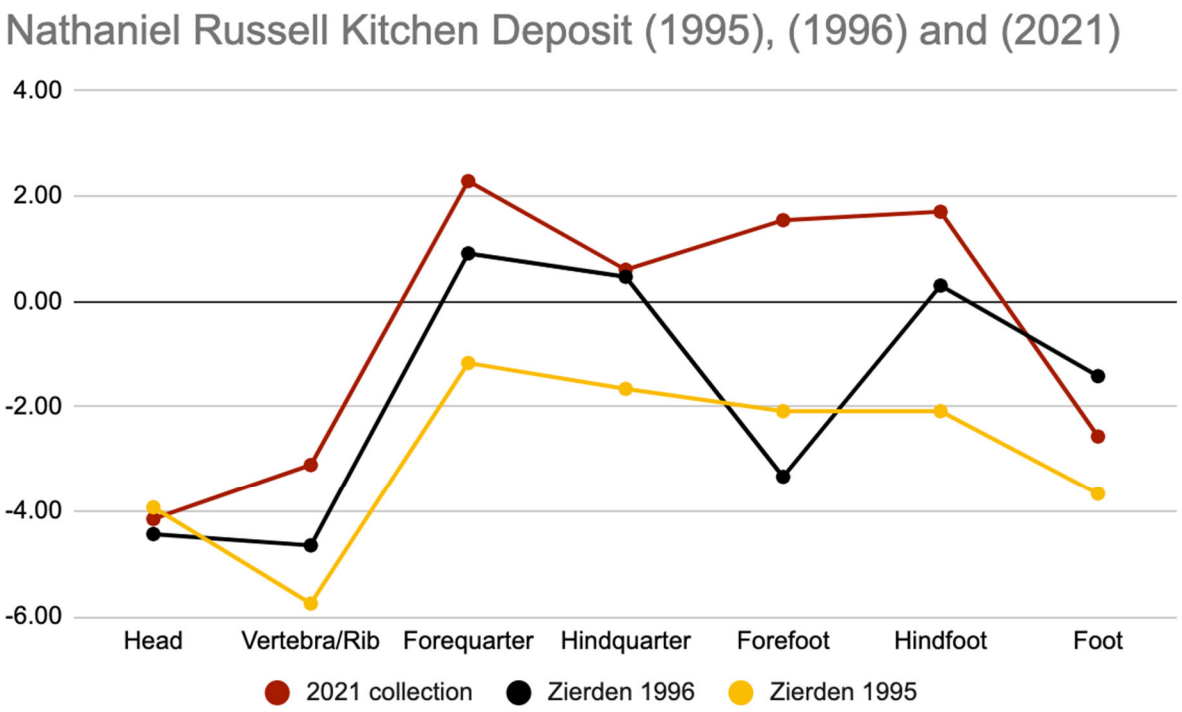


Figure 4-3: The log ratio percentages of skeletal portions data from Zierden (1995) and Zierden (1996) Nathaniel Russell faunal collections, and the 2021 Nathaniel Russell faunal collection.

Skeletal portion recovery patterns are relatively consistent between the 2021 collection and Zierden's (1996) data when comparing the log ratio percentages of skeletal portions (Figure 4-3). As highlighted during the discussion of cattle in the results section, the only skeletal portions underrepresented in the 2021 Nathaniel Russell collection are Head, Vertebra/Rib, and Foot specimens. Head, Vertebra/Rib, and Foot specimens are underrepresented across all the Nathaniel Russell Kitchen collections (Table 4). The 1995 collection (cattle NISP = 50) is a much smaller sample size when compared to the 1996 collection (Cattle NISP = 339) and the 2021 collection (NISP = 1055). Despite the small sample size, a similar trend emerges, with fewer Head and Vertebra/Rib specimens and greater representation of Forequarter, Hindquarter, Forefoot, and Hindfoot specimens.

The patterns remain relatively consistent when comparing the log ratio percentages of skeletal portions between the 2021 collection and Zierden's (1996) data (Figure 4-3). As highlighted during the discussion of cattle in the results section, the only skeletal portions underrepresented in the 2021 Nathaniel Russell collection are Head, Vertebra/Rib, and Foot specimens. Head, Vertebra/Rib, and Foot specimens are underrepresented across all the Nathaniel Russell Kitchen collections (Table 4). The 1995 collection (cattle NISP = 50) is a much smaller sample size when compared to the 1996 collection (Cattle NISP = 339) and the 2021 collection (NISP = 1055). Despite the small sample size, a similar trend emerges, with little Head and Vertebra/Rib specimens and more representation of Forequarter, Hindquarter, Forefoot, and Hindfoot specimens.

Generally, there is a higher representation of specimens from all categories in the 2021 collection (excluding Foot specimens). The most noticeable difference is the underrepresentation of Forefoot specimens in the 1996 collection. The lack of Forefoot specimens in previous Nathaniel Russell Kitchen deposits may result from the sample size of the previous faunal analysis compared to the large sample size of the 2021 collection. Generally, the representation of cattle specimens from Nathaniel Russell is from the Body and Lower Leg. While a large portion of the 2021 collection is from the meaty portions of the cattle (Body), with 43% of the specimens, the Lower Leg comprises 56% of the collection's cattle specimens.

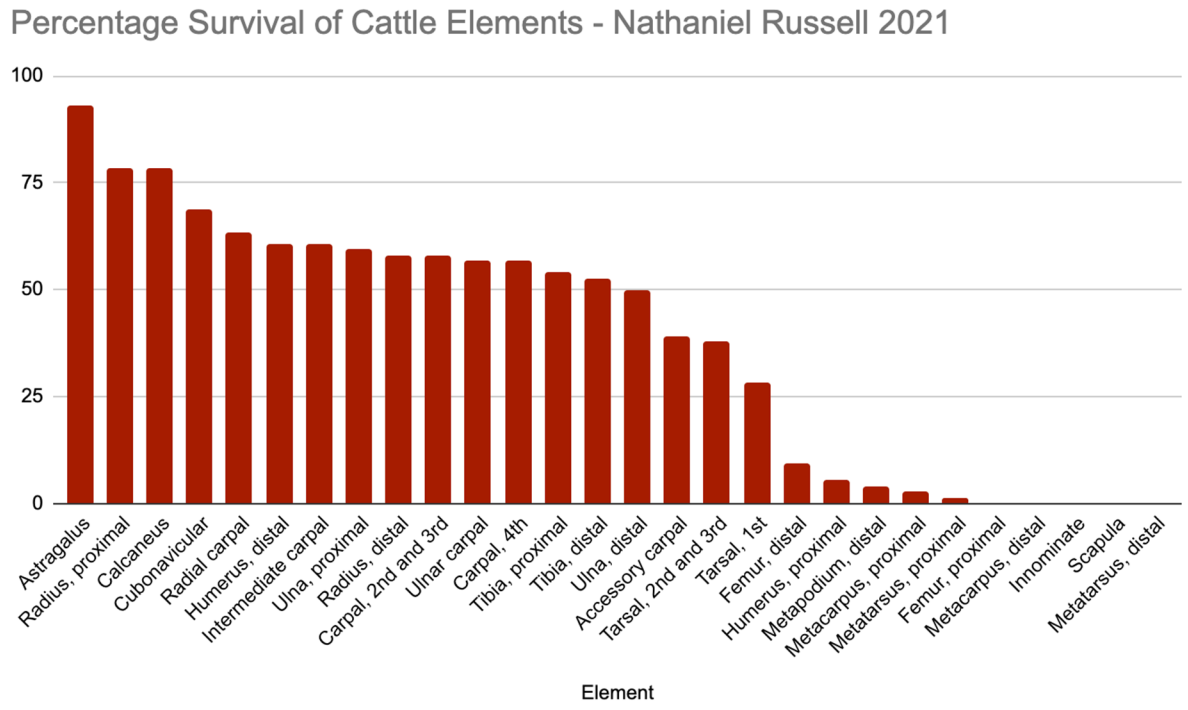


Figure 4-4: Percentage survival of cattle elements from the 2021 Nathaniel Russell Kitchen Cellar excavations.

The ratio of observed specimens to expected from the 2021 Nathaniel Russell Kitchen collection show a high frequency of cattle specimens from the Lower Leg (Figure 4-4, Table 8). Astragali (93%) have a near-complete survival percentage. Calcaneus (78%), cubonavicular (69%), radial carpal (61%), intermediate carpal (61%), 2nd and 3rd carpal (58%), ulnar carpal (57%), and 4th carpal (57%) also all have a survival percentage over half. There is, however, a noticeable lack of metapodials. Distal metapodium (4%), proximal metacarpus (3%), proximal metatarsus (1%), proximal metapodium (0%), distal metacarpus (0%), and distal metatarsus (0%) all have either a low rate of survival or are entirely absent. Further, while not depicted as a percentage of survival due to the number of phalanx specimens per cattle individual, there is also a noticeable underrepresentation of phalanges (NISP = 8).

The survival percentage measures the observed specimens of each element against the expected specimens if each cattle individual in the 2021 collection (MNI = 37) was deposited whole. These survival percentages show that faunal preservation is high in this kitchen cellar. Cattle specimens were also deposited in this cellar in large quantities, likely thrown into the cellar over

an extended period of time. The high survival percentages also further show that lower limb specimens were deposited in this cellar at a higher rate than most other portions of the cattle carcass.

The second-most represented portion of the cattle carcass in the 2021 collection comes from the Body (Figures 4-4 and 4-5). The broad "Body" category comprises Vertebra/Rib, Forequarter, and Hindquarter specimens. Given the lack of identifiable cattle vertebrae and ribs, the specimens from the Body are primarily from the Forequarter and the Hindquarter. The survival percentage of cattle elements shows an even greater bias toward certain portions of the cattle carcass. The anatomically "lower" specimens from the Body have a higher presence in the 2021 collection than specimens from anatomically "higher" portions of the Body. There is a low presence of observed scapula (0%), innominate (0%), proximal femur (0%), proximal humerus (5%), and distal femur (10%). Similar to Lower Leg specimens, several elements located above the Lower Leg region have high survival percentages. Proximal radiuses (78%), distal humeri (61%), proximal ulna (60%), distal radius (58%), proximal tibia (54%), distal tibia (52%), and distal ulna (50%) are far more represented in this collection than other upper limb elements, such as the proximal humerus.

Mammal fragments were sorted according to size and body portion to provide another possible insight into the underrepresentation of portions of the cattle carcass. Although identifying unidentifiable mammal fragments is subjective, the results show a similar trend to the current 2021 Nathaniel Russell Kitchen data on cattle. Of the four unidentifiable element categories (Head, Long Bone, Vertebra/Rib, and Foot), unidentifiable large mammal fragments were identifiable only as Long Bone (NISP = 312) or Vertebra/Rib (NISP = 53). While there are more vertebrae and ribs than are identifiable to cattle, it is not clear that this portion of the cattle carcass was biased in representation. The number of unidentifiable large mammal Vertebra/Rib only accounts for 15% of the specimens identified to the four unidentifiable element categories and 6% of the total unidentifiable large mammal fragments. In other words, these elements seem to be underrepresented not because they could not be identified to cattle but because they are not present in the assemblage at all. Unidentifiable artiodactyl and large artiodactyl fragments also provide little clarity to the element distribution patterns for cattle (Table 4).

While an analysis of MNE for different Charleston sites was not done for this report, the percentages of specimens identifiable to the Head, Body, and Lower Leg can be compared across Charleston sites using data from Reitz et al. (2022). The presentation of data for Table 5 follows Reitz et al.'s (2022) approach toward comparing Heyward-Washington's faunal collection analyzed for the Lowcountry Cattle Economy project to previous Charleston collections. The two Nathaniel Russell collections are compared to Market assemblages and a sample of the faunal collections from all other urban "Upper-Class" Charleston sites, excluding the 2021 Heyward-Washington data (Reitz et al. 2022:230-231). Compared to data from the Beef Market assemblages and other Upper-Class faunal assemblages from Charleston, both Nathaniel Russell Kitchen assemblages diverge considerably.

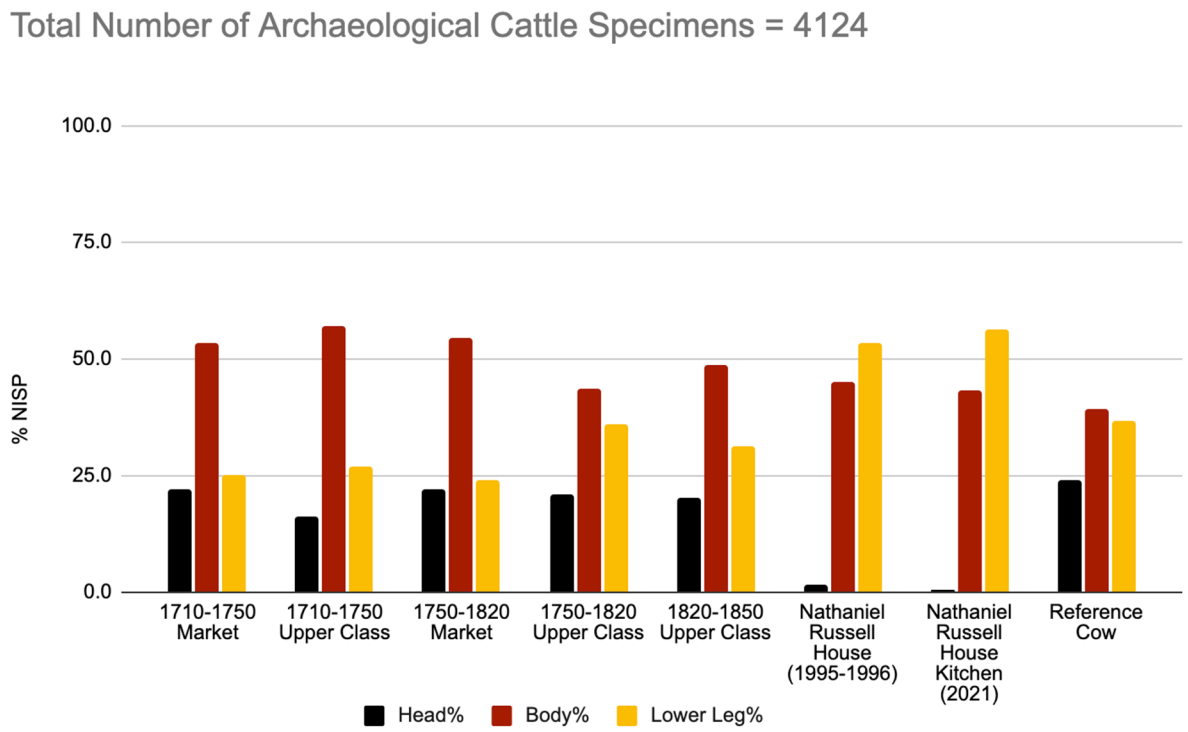


Figure 4-5: Body portions of cattle from various contexts in Charleston compared to Nathaniel Russell and an intact reference cow.

During the first half of the eighteenth century, the representation of cattle specimens from Market and Upper-Class residential contexts appears similar (Table 6, Figure 4-5). Both observed Market periods show a reasonably consistent representation of cattle portions. Differences emerge, however, between the 1750-1820 Market and 1750-1820 Upper-Class residential contexts. The 1750-1820 samples demonstrate a difference in the representation of the Body to the Lower Leg. The 1750-1820 Upper-Class sample shows a much higher representation of lower legs than the 1710-1750 Upper-Class sample and the 1710-1750 and 1750-1820 Market samples. While the 1750-1820 Upper-Class sample diverges from earlier and contemporaneous contexts, there is a minimal difference between the 1750-1820 Upper-class sample and the 1820-1850 Upper-class sample. The data from the 1750-1820 and 1820-1850 Upper-Class samples have more specimens from the Lower Legs. These two Upper-Class samples also show a near representation of the entire cow, especially in the 1750-1820 Upper-Class sample. The Nathaniel Russell House was occupied during both temporal categories, with the Kitchen Cellar faunal collections dating between 1820 to 1850. Both Nathaniel Russell collections diverge from the other samples with a higher percentage of lower legs and nearly no evidence of elements from the head.

Within the 2021 collection, cattle specimens with saw marks comprised 69% of the cattle specimens with butchery modifications, while cut marks accounted for 13% and hack marks 18% (Table 12). This presence of saw marks is not typical for Charleston assemblages from the first half of the nineteenth century. Only 17% of the previous Nathaniel Russell Kitchen collection was sawn. Cattle specimens with saw marks (NISP = 239) primarily came from the lower limbs, with radius (NISP = 73), ulna (NISP = 50), and tibia (NISP = 39) most frequently exhibiting saw

marks. All portions with saw marks are from “meaty portions” of the cow or are elements that would be processed during secondary butchery (astragalus, calcaneus, and cubonavicular). These elements are either from the Body or the Lower Leg.

Figure 4-6: Sawed bone in T.U. 1

Discussion

Beef was the most abundant source of meat throughout the occupation of Charleston (Zierden and Reitz 2016; Reitz et al. 2022:204). A decline in on-site cattle deposition following 1850 resulted in a decrease in cattle biomass estimates (Reitz et al. 2022:204). The decreasing presence of cattle in the faunal record is likely reflective of the shift toward purchasing de-boned or partial cuts from butcher shops, improved garbage collection, and the decreased presence of animals on the urban landscape (Reitz et al. 2022:204). This pattern, however, does not hold at the Nathaniel Russell House. The high quantity of cattle specimens (in NISP, MNI, and biomass) is consistent with Charleston faunal collections from the early 19th century. However, the skeletal portions and the butchery marks on the cattle specimens in this collection suggest a household-level divergence from contemporary trends.

Production centers are expected to yield an underrepresentation of portions with higher consumer values (primarily ‘meatier’ portions). Conversely, consumption sites should have an overrepresentation of higher-valued body portions. Charleston data differ from these assumptions and suggest that cattle specimens from the Head and Lower Leg are recovered in

similar percentages to an unmodified, intact cattle skeleton (Reitz et al. 2022:205). This trend is apparent across Charleston's faunal collections, regardless of period, status, ethnicity, or function (Zierden and Reitz 2016:176). Reitz et al. (2022:205) suggest that throughout Charleston's history, "people obtained animal products through direct (home-slaughter) acquisition as well as indirect (market) acquisition." The Nathaniel Russell House Kitchen collections diverge from the expectations of skeletal portions at an urban townhome in the early nineteenth century. However, the unique deposition of cattle within this collection supports Reitz et al.'s (2022:211) observation that instead of faunal collections following correlations between element representation, meat utility indices, and social groups, they are likely the by-product of specific household activities.

Within the 2021 Nathaniel Russell House kitchen collection, there is a lack of cattle specimens from the Head and an overrepresentation of specimens from the Lower Leg. The high percentage of specimens from the Body is interesting, given the absence of innominate and scapula and the low representation of identifiable cattle vertebrae and ribs. Most specimens from the body are from the lower limbs, such as the radius, ulna, and tibia. There is further confusion concerning portions of the cattle carcasses likely discarded following primary or secondary butchery. While there is a high representation of Lower Limb elements, they are primarily carpals and tarsals. There is a noticeable absence of metapodials and phalanges which, alongside portions from the Head, are often the portions of the cattle discarded as butchery waste at primary butchery locations (Zierden and Reitz 2016:171).

The high percentages of the distal humerus, proximal radius, and proximal ulna fragments might appear random, but they follow a trend associated with Charleston in the faunal record (Zierden and Reitz 2016:172). Referred to as the "Charleston cut," these three elements form the elbow of a cow. This joint appears frequently at several Charleston sites. While common in the faunal record in Charleston, this "cut" is not common in modern beef butchery practices, nor is it heavily discussed in the written record (Zierden and Reitz 2016:172).

Evidence of sawing has been interpreted as a signature for both commercially produced meats and secondary butchery (Zierden and Reitz 2016:177). Saw marks have primarily been associated with middle-income contexts, suggesting that middle-class individuals primarily bought beef from commercial outlets (Reitz et al. 2022:211). Sawing is not heavily present in earlier contexts, but by the end of the nineteenth century, saw marks were found on over fifty percent of modified specimens (Zierden and Reitz 2016:178). Sixty-nine percent of the cattle specimens with butchery modifications from the 2021 collection had saw marks, and 61% of all specimens with butchery modifications had saw marks (Table 11). The number of cattle specimens with saw marks suggests that the Russell family's enormous wealth enabled them to pursue beef purchases that were representative of a more industrial Charleston a half-century later.

The Nathaniel Russell House does not appear to have been a location for on-site butchery, nor does there appear to be conclusive evidence suggesting the residents acquired their beef from the urban markets. Although market purchases cannot be ruled out, the lack of highly valued "meaty portions" from the ribs, vertebra, innominate, scapula, femur, and upper humerus goes against the assumption of what an Upper-Class household would purchase. There is, however, a large

quantity of lower limb elements in this collection: with many of the cattle specimens also having saw marks. Landon (1996:17) suggests that status might be better reflected by the quantity of meat consumed rather than carcass portion (Reitz et al. 2022:184). It is possible that the Russell Family purchased large quantities of meat from urban markets or other butchers. The large number of elements associated with the "Charleston cut" might represent the cultural preference in terms of highly valued cuts (Zierden and Reitz 2016:172). Routinely acquiring joints of meat that follow the "Charleston cut" could cause the high representation of saw marks in the 2021 collection and the high frequency of cattle overall.

The interdisciplinary research produced from the Lowcountry Cattle Economy NSF project (Zierden et al. 2022) used various methodologies to understand the acquisition of cattle from rural and urban settings. The Nathaniel Russell assemblage may not represent a clear pattern of purchasing meat from urban markets, but this collection's unique skeletal portion recovery might represent rural acquisition. Zierden et al. (2022:90-92) define three main processing zones for the Lowcountry cattle economy: large plantations further away from Charleston, smaller plantations, or landholdings directly outside of Charleston, and the urban waterfront in Charleston. An outermost region defined by large-acreage plantations was the primary cattle producer in rural and urban localities for the expanding Lowcountry cattle economy in the eighteenth century. The dominance of the outermost region dwindled during the nineteenth century due to regulations on free-range cattle that led to these large cattle producers moving further into the interior away from Charleston (Zierden et al. 2022:92).

By the middle of the eighteenth century, the narrow peninsula directly around Charleston saw a transition from a rural cattle zone to a quasi-suburban setting. A second processing zone consisted of smaller plantations located closer to Charleston on the upper Charleston peninsula. Known as the "Charleston Neck," this peninsula transitioned from working agricultural producers to stockyards and holding pens for livestock acquired from the ever-increasingly interior cattle ranches (Zierden 2022:93). The Charleston urban elite began acquiring land for keeping their cattle or leasing holding pen space from plantation owners (Zierden et al. 2022:94). While this practice was present during the first half of the eighteenth century, by the second half of the eighteenth-century, Neck properties were an increasingly popular use for cattle grazing and holding cattle meant for urban consumption or sale (Zierden et al. 2022:95). Urban residents simultaneously used these Neck plantations for corralling their animals, something untenable on the urban landscape, or as stockyards for large cattle sales (Zierden et al. 2022:95).

This faunal collection does not represent the highly valued "meaty" portions one would expect of a household with such economic and social wealth. Further, the lack of percentages reflective of an unmodified, intact cattle skeleton does not suggest primary on-site butchery. What is likely occurring at the Nathaniel Russell House is economic strategies tied explicitly to the individuals from this household. Nathaniel Russell was an incredibly wealthy individual heavily involved in the slave trade (Zierden 1995, 1996; Zierden et al. 2022). Nathaniel Russell listed ownership of various enslaved individuals across his landholdings, between 18 and 25, with anywhere between six and twelve enslaved individuals listed as living at the Nathaniel Russell House residence (Zierden 1996:33-34, 245). Enslaved individuals lived and worked at the Nathaniel Russell House, and alongside Nathaniel, his wife Sarah, and their two children (Alicia and Sarah), there were numerous people to feed. Further, Nathaniel Russell's involvement in the slave trade likely

meant that he had to provide provisions for the slavers and the enslaved individuals who were forced onto the slaving vessels.

Nathaniel Russell listed ownership of varying numbers of enslaved individuals that lived in the residence, with many identified with professional skills such as blacksmithing, carpentry, and fishing (Zierden 1996:34). It is possible that other enslaved individuals lived and worked on the Russell family's rural properties, where livestock may have been kept for consumption by both the enslaved people and the Russell family (Zierden 1996:26-27; Turner et al. 2019:222). In particular, Russell owned an 8-acre tract on Charleston Neck, known as Romney Farm. Gardener Phillip Noisette, famous for his roses and an employee of Russell's, lived nearby. This convenient tract may have been a source of fruits and vegetables, as well as meats. There, enslaved individuals butchered, cooked, and deposited the faunal remains discussed here. Even beyond the immediate location of this property, the labor and environmental knowledge of enslaved black individuals drove cattle from rural sites to various processing zones, butchered the cattle for sale at markets, and black women managed and operated the urban markets (Joseph 2016; Zierden 2010).

The previous faunal analysis of the Kitchen Cellar faunal collections also highlighted the overrepresentation of elements "from the distal humerus through the carpals of the foreleg and from the distal femur through the tarsals of the hindleg" (Zierden 1996:246). The similar skeletal portion patterns from the previous kitchen cellar collections were interpreted as evidence of primary butchery from elsewhere on the Nathaniel Russell property or discard associated with the kitchen (Zierden 1996:247). They concluded that high-status households might be represented by Foot specimens rather than Body specimens (Zierden 1996:247). While this interpretation might be the case, the lack of phalanges in the 2021 collection and lack of head elements across all contexts leads further credence towards primary butchery having occurred elsewhere.

This analysis suggests that cattle were butchered some distance from the home, with butchered carcasses brought to the residence. The presence of saw marks suggests that smaller portions of meat may have been purchased from a market. However, the quantity of cattle specimens in this collection could be the product of skilled butchers enslaved by or working for Nathaniel Russell. Rather than buying smaller portions of sawed beef from the market, skilled laborers could have provided the larger portions of beef represented in this collection. Whether the cattle were butchered on a piece of property owned by Nathaniel Russell in the second processing zone or on the waterfront in the third processing zone, the beef consumed at the Nathaniel Russell House was likely not from cattle butchered at the residence. The cattle specimen recovered under the Kitchen Cellar might be discarded material from the kitchen serving beef to the Nathaniel Russell House residents. The cattle specimens could be kitchen waste due to the recovery of other taxa (fish, pig, and caprine) associated with consumption. However, as is reflected by many Charleston faunal collections, animal remains were discarded by more than one social and economic group at one site (Zierden and Reitz 2016:176). If this material is kitchen waste, it is difficult to determine who consumed this meat.

It is also possible that the faunal material from this cellar was intentional fill. Urban Charleston residents were responsible for disposing of their trash and discarded most of their material on

their property (Zierden et al. 2022:15). Butler (2020) has highlighted how trash was used to fill in low-lying areas to combat flooding. The use of trash as fill means that foods consumed by family members and free and enslaved staff were likely deposited in the same locations: either as fill for low-lying areas in their backyard or other areas of the city (Zierden et al. 2022:15). It is possible that the dense amount of faunal material in the Nathaniel Russell House Kitchen Cellar was intentional fill used to combat flooding rather than on-site disposal (Zierden et al. 2022:102). Whether this faunal material was the by-product of on-site disposal or fill, these cattle specimens are likely the result of economic decisions and activity by the Nathaniel Russell family and their enslaved laborers.

Table 1. Nathaniel Russell Kitchen, 2021: Species List.					
		MNI			
Taxon	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Actinopterygii	74			16.75	0.289
Indeterminate bony fishes					
Siluriformes	12	2	2.2	4.65	0.086
Catfishes					
Ictalurus punctatus	1	1		0.59	0.012
Channel catfish					
cf. *Bagre marinus*	2	1		1.00	0.020
Freshwater catfishes					
Ariidae	5			1.80	0.035
Sea catfishes					
Ariopsis felis	2	1	1.1	0.27	0.006
Hardhead catfish					
Pogonias cromis	4	1	1.1	7.75	0.177
Black drum					
Testudines	3			1.20	0.036
Indeterminate turtles					
Pseudemys concina	1	1		13.83	0.184
River cooter					
Aves	123			28.81	0.435
Indeterminate birds					
Aves, small	32			5.97	0.104
Indeterminate birds, small					
Aves, medium	159			89.96	1.225
Indeterminate birds, medium					
Aves, large	23			48.04	0.692
Indeterminate birds, large					
Anas spp.	20	3	3.4	16.71	0.265
Dabbling ducks					

Table 1. Nathaniel Russell Kitchen, 2021: Species List.					
		MNI			
Taxon	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Branta sp.	1			2.34	0.044
Goose					
Branta canadensis	1	1	1.1	2.17	0.041
Canada goose					
Galliformes	8			6.37	0.110
Gallinaceous birds					
Gallus gallus	86	8	9.0	99.34	1.341
Chicken					
Meleagris gallopavo	5	4	4.5	12.76	0.207
Turkey					
Passeriformes	3	1	1.1	0.22	0.005
Passerine birds					
Mammalia	3534			3105.39	36.552
Indeterminate mammals					
Mammalia, small	69			11.42	0.235
Indeterminate mammals, small					
Mammalia, small-medium	103			38.24	0.699
Indeterminate mammals, small-medium					
Mammalia, medium	480			798.84	10.770
Indeterminate mammals, medium					
Mammalia, medium-large	201			909.24	12.101
Indeterminate mammals, medium-large					
Mammalia, large	866			9552.31	100.484
Indeterminate mammals, large					
Leporidae	3	1	1.1	0.720	0.020
Rabbit					
Rodentia	13			3.740	0.187
Rodents					

Table 1. Nathaniel Russell Kitchen, 2021: Species List.					
		MNI			
Taxon	**NISP**	**#**	**%**	**Weight, g**	**Biomass, kg**
Rattus spp.	20	3	3.4	6.430	0.140
Old World rats					
Rattus norvegicus	1	1	1.1	0.550	0.015
Brown rat					
Artiodactyla	18			95.43	1.591
Even-toed ungulates					
Artiodactyla, small	25			78.69	1.338
Even-toed ungulates					
Artiodactyla, large	13			119.04	1.941
Even-toed ungulates					
Odocoileus virginianus	3	1	1.1	41.76	0.756
White-tailed deer					
Sus scrofa	14	1	1.1	142.67	2.285
Pig					
Bos taurus	1055	37	41.6	40849.20	371.592
Cow					
Caprinae	105	12	13.5	835.41	11.213
Goats and sheep					
cf. Caprinae	1			6.22	0.136
Probable goats and sheep					
cf. *Oris* spp.	1	1	1.1	20.77	0.403
Goats and sheep					
Vertebrata				303.520	
Total	7090	81		57280.12	557.77

Table 2. Nathaniel Russell Kitchen, 2021: Summary Table.									
		NISP			MNI		Biomass		
	#	%		#	%		kg	%	
Fish	26	1.93		6	7.41		0.330	0.08	
Turtle	1	0.07		1	1.23		0.180	0.05	
Wild Bird	29	2.16		9	11.11		0.520	0.13	
Domestic Bird	86	6.39		8	9.88		1.340	0.34	
Wild Mammal	6	0.45		2	2.47		0.780	0.20	
Cattle	1055	78.44		37	45.68		371.590	95.54	
Other domestic mammal	121	9.00		14	17.28		14.040	3.61	
Commensal	21	1.56		4	4.94		0.160	0.04	
Total	1345			81			388.940		

Table 3. Nathaniel Russell Kitchen, 2021: Element Distribution.					
	Pig	**Deer**	**Cattle**	**Sheep/Goat**	**Rat**
Head	2		4	1	1
Vertebra/Rib			14	13	
Forequarter	5	1	317	14	5
Hindquarter	1	2	125	42	12
Forefoot	4		264	16	
Hindfoot	1		310	16	
Foot	1		21	3	
Total	14	3	1055	105	18

Table 4. Nathaniel Russell Kitchen Element Distribution for Cattle			
	Zierden (1995)	**Zierden (1996)**	**2021 Collection**
Head	5	3	4
Vertebra/Rib	1	3	14
Forequarter	10	80	317
Hindquarter	13	109	125
Forefoot	7	2	264
Hindfoot	7	76	310
Foot	7	66	21
Total	50	339	1055

Table 5. Nathaniel Russell Kitchen, 2021: Unidentified Mammal Fragments					
	Head	**Long Bone**	**Vertebra/Rib**	**Feet**	**UID**
Mammal, uid	0	312	53	0	501
Mammal, small	2	68	48	0	83
Mammal, small-medium	4	94	213	0	169
Mammal, medium	0	22	38	1	37
Mammal, medium-large	1	28	6	0	24
Mammal, large	0	0	0	0	3534
Artiodactlya, uid	1	4	5	6	2
Artiodactlya, small	0	2	0	11	0
Artiodactlya, large	1	7	6	5	0
Total	9	537	369	23	4350

Table 6. Charleston Cattle NISP				
	Head	**Body**	**Lower Leg**	**Total NISP**
1710-1750 Market	84	207	97	388
1710-1750 Upper Class Sites	51	179	85	315
1750-1820 Market	50	126	55	231
1750-1820 Upper Class Sites	182	381	314	877
1820-1850 Upper Class Sites	114	279	179	572
Nathaniel Russell House (1995-1996)	11	311	367	689
Nathaniel Russell House Kitchen (2021)	4	456	595	1055
Total:	496	1939	1692	4127

Note: 1710-1750 Upper Class = Heyward-Washington House, Post Office (McKenzie House), Rutledge House
1750-1820 Upper Class = Brewton (Brewton House), Heyward-Washington House, Rutledge House, 14 Legare Street
1820-1850 Upper Class = Aiken-Rhett House, Gibbes House, Motte-Allston (Brewton House), Rutledge House, 14 Legare Street

Table 7. Nathaniel Russell Kitchen, 2021: LOG for Cattle Body Elements							
	X NISP	X % NISP	LOGeX	Y NISP	Y % NISP	LOGeY	d
Head	3	0.29	-1.25	63	24.05	3.18	-4.43
Vertebra/Rib	3	0.29	-1.25	78	29.77	3.39	-4.65
Forequarter	80	7.6	2.03	8	3.05	1.12	0.91
Hindquarter	109	10.36	2.34	17	6.49	1.87	0.47
Forefoot	2	0.19	-1.66	14	5.34	1.68	-3.34
Hindfoot	76	7.22	1.98	14	5.34	1.68	0.3
Foot	66	6.27	1.84	68	25.95	3.26	-1.42
Total	339	32.22		262	99.99		

Table 8. Nathaniel Russell Kitchen, 2021: Percentage Survival of Cattle Elements			
	Observed	**Expected**	**Percentage Survival**
Astragalus	69	74	93.2
Radius, proximal	58	74	78.4
Calcaneus	58	74	78.4
Cubonavicular	51	74	68.9
Radial carpal	47	74	63.5
Humerus, distal	45	74	60.8
Intermediate carpal	45	74	60.8
Ulna, proximal	44	74	59.5
Radius, distal	43	74	58.1
Carpal, 2nd and 3rd	43	74	58.1
Ulnar carpal	42	74	56.8
Carpal, 4th	42	74	56.8
Tibia, proximal	40	74	54.1
Tibia, distal	39	74	52.7
Ulna, distal	37	74	50
Accessory carpal	29	74	39.2
Tarsal, 2nd and 3rd	28	74	37.8
Tarsal, 1st	21	74	28.4
Femur, distal	7	74	9.5
Humerus, proximal	4	74	5.4
Metapodium, distal	3	74	4.1
Metacarpus, proximal	2	74	2.7
Metatarsus, proximal	1	74	1.4
Femur, proximal	0	74	0
Metacarpus, distal	0	74	0
Innominate	0	74	0
Scapula	0	74	0
Metatarsus, distal	0	74	0
Total:	798	2072	

Table 9. Nathaniel Russell Kitchen, 2021: Epiphyseal Fusion for Pig (*Sus scrofa*).					
	Unfused	**Partially Fused**	**Nearly Fused**	**Fused**	**Total**
Early Fusing:					
Humerus, distal				1	1
Scapula, distal					
Radius, proximal					
Acetabulum				1	1
Metapodials, proximal					
1st/2nd phalanx, proximal	1				1
Middle Fusing:					
Tibia, distal					
Calcaneus, proximal	1				1
Metapodials, distal					
Late Fusing:					
Humerus, proximal					
Radius, distal	2				2
Ulna, proximal	1				1
Ulna, distal	1				1
Femur, proximal					
Femur, distal					
Tibia, proximal					
Total	6			2	8

Table 10. Nathaniel Russell Kitchen, 2021: Epiphyseal Fusion for Cattle (*Bos taurus*).					
	Unfused	**Partially Fused**	**Nearly Fused**	**Fused**	**Total**
Early Fusing:					
Humerus, distal			1	33	34
Scapula, distal					
Radius, proximal	3	1		50	54
Acetabulum					
Metapodials, proximal				2	2
1st/2nd phalanx, proximal	3			3	6
Middle Fusing:					
Tibia, distal	14		1	22	37
Calcaneus, proximal	27		2	8	37
Metapodials, distal	3				3
Late Fusing:					
Humerus, proximal				1	1
Radius, distal	33	1	2	6	42
Ulna, proximal	21		1	7	29
Ulna, distal	6			3	9
Femur, proximal					
Femur, distal	5				5
Tibia, proximal	33	1		2	36
Total	148	3	7	137	295

Table 11. Nathaniel Russell Kitchen, 2021: Epiphyseal Fusion for Sheep/Goat (Caprinae).					
	Unfused	**Partially Fused**	**Nearly Fused**	**Fused**	**Total**
Early Fusing:					
Humerus, distal	1			1	2
Scapula, distal				1	1
Radius, proximal				1	1
Acetabulum	6			1	7
Metapodials, proximal				7	7
1st/2nd phalanx, proximal	1				1
Middle Fusing:					
Tibia, distal	3				3
Calcaneus, proximal	3			1	4
Metapodials, distal				2	2
Late Fusing:					
Humerus, proximal	1				1
Radius, distal	2				2
Ulna, proximal	1			1	2
Ulna, distal					
Femur, proximal	2		1		3
Femur, distal	8		1		9
Tibia, proximal	6		1		7
Total	34		3	15	52

Table 12. Nathaniel Russell Kitchen, 2021: Modifications										
Taxon	**Pathological**	**Cut**	**Hacked**	**Sawed**	**Burned**	**Calcined**	**Worked**	**Rodent gnawed**	**Carnivore gnawed**	**Weathered**
Pseudemys concinna				1						
Aves		5			2	1				
Anas sp.					1					
Branta sp.						1				
Gallus gallus				1	1	2				
Mammalia		29	121	203	44	2115	1			
Artiodactlya sp.				2	1	15				
Sus scofra		1		1	1	2				
Odocoileus virginianus			1			1				
Bos taurus	1	43	63	239	30	198		3		
Vertebrata						80				
Caprine sp.		4	9	3	4	14		1	50	
cf. *Oris*		1								
Total	1	83	194	450	84	2429	1	4	50	0

Chapter V
Summary and Recommendations

The skeletal recovery patterns from the faunal material collected from the Nathaniel Russell House Kitchen Cellar might change upon completing the faunal analysis of all material excavated in 2021. The 2021 faunal collection provided very similar results to the previous analyses of faunal material from the Nathaniel Russell Kitchen Cellar. Cattle are one piece of the story behind the economic activities and foodways at the Nathaniel Russell House. However, as highlighted in this report, cattle are essential to Charleston's cultural and economic landscape. Further, zooarchaeological research is just one scientific approach toward understanding the role of animals in past economic, social, and environmental systems. Future interdisciplinary research on the 2021 Nathaniel Russell House material will expand on our understanding of the origins of these cattle specimens, particularly concerning where the cattle were sourced.

The cattle in this kitchen cellar are the product of entangled relationships between rural cattle raising and laborers processing those cattle in rural or urban settings. A high quantity of cattle specimens and a large portion of these specimens from either the Body or Lower Leg suggest that the cattle specimens in the 2021 collection resulted from secondary butchery. A strong representation of saw marks on cattle specimens shows evidence of commercial production of meat. The Russell family was either purchasing a large amount of beef from urban markets or sustaining their reliance on beef by acquiring cattle and having them primarily butchered elsewhere.

These cattle specimens were used for either on-site consumption, off-site processing for salted beef, or other industrial and commercial purposes apart from consumption. Wherever the cattle specimens were processed, the manner of butchering the cattle specimens predominantly came from sawing off portions of the limbs from the rest of the carcass. The quantity of lower limb portions of the carcass suggests a continued acquisition of similar portions of cattle. A high representation of distal humerus and proximal radius and ulna specimens, all with high percentages of saw marks, suggest a preferred cut of meat within this collection. The element recovery patterns from this collection highlight how the "Charleston cut" should be further explored within Charleston faunal collections. While not portions of the cattle carcass that we contemporarily view as preferred or high-quality meat, this collection provides further evidence that beef preferences in the past may be different than our modern sensibilities might suggest (Zierden and Reitz 2016:172).

While additional research on the faunal material from the Nathaniel Russell House may rule out some of the many possibilities, the current data suggests that there was likely more than one source for the cattle specimens within this collection. Some beef was likely bought from an urban market, but most of the beef would have come from a plantation or livestock pen on the “Charleston Neck” or on the waterfront in Charleston. The Russell family solely acquiring portions of butchered beef from an urban market would probably not have been as economically viable as owning their cattle or having access to purchasable whole cattle. The quantity of cattle specimens recovered from the Nathaniel Russell House, and the presence of nearly whole

elements, suggest that portions of the cattle carcass were butchered and then packaged to be brought to this urban residence. Given how large these portions of the cattle carcass would have been, they likely would not have been hauled in from rural plantations. Cattle could have been kept on the Charleston Neck or within the city and then butchered and processed nearby the Nathaniel Russell House. The portions of the cattle carcass not consumed or later deposited at the Nathaniel Russell House would have been sold for other commercial activities. If this were the case, the cattle deposited in the Nathaniel Russell House faunal collection would have resided on multiple landscapes, interacted with various individuals, and contributed to the Charleston meat economy beyond what their deposal in this kitchen cellar would initially suggest.

A further question emerges regarding who preferred this "Charleston cut?" If the "Charleston cut" meat portions were not for the high-status Russell family, these cattle specimens could reflect what other household members were consuming. The enslaved individuals in this household were responsible for processing these cattle by butchering and cooking. While it is possible that enslaved or free laborers also consumed the material in this faunal collection, it is more likely that all household members were responsible for depositing the faunal material underneath the Nathaniel Russell Kitchen. Rather than one pattern for disposing of these cattle specimens, the specimens better reflect multiple aspects of economic decision-making in this household. The Nathaniel Russell House faunal collections show the importance of re-evaluating how we assume past food preferences and the entangled economic relationship between multiple landscapes, economic classes, and households.

The cultural materials recovered from the 2021 unit are similar, and often match, those recovered from the previous two excavations. Generally, it is a larger assemblage of materials, though the difference in number of ceramics is not as great as the difference in volume of bone. Moreover, similarity of the artifacts from the kitchen cellar and from the dispersed excavations elsewhere in the yard suggest these are Russell family discards, not debris trucked in from elsewhere in the city. This is particularly the case with the overglazed Chinese Export porcelain and the quantities of Canton porcelain, a product we know was imported by Nathaniel Russell. The age and association of the artifacts, then, reinforce the puzzle of placement of this debris beneath a working kitchen.

The similarity of materials recovered from the three units might suggest that additional excavation could be redundant. However, the remarkable preservation of numerous unique artifacts, such as the chatelaine pendant and the fire insurance panel, suggest that the cellar could contain additional artifacts used by the Russell family and the enslaved people who lived and worked in the kitchen space. Additional excavation of the cellar, as required for restoration, is likely to produce important materials for interpretation of the space and its occupant, and careful excavation is recommended. At the same time, preservation of at least a portion of this archaeological deposit is also mandated by current archaeological practice. If a portion of the fill can be left intact, it should be.

References Cited

American Poultry Association
1874 American Standard of Excellence.

Andrus, Charles F.T.
1991 A Report on the Excavations at the Nathaniel Russell House. Report on file, Historic Charleston Foundation and The Charleston Museum, Charleston, SC.

Anthony, Ronald
2016 Revisiting Colono Ware Variety in the South Carolina Lowcountry. *South Carolina Antiquities* 48 (2016): 27-39.

Butler, Christina Rae
2020 *Lowcountry at High Tide: Flooding, Drainage, and Reclamation in Charleston, South Carolina*. University of South Carolina Press, Columbia, SC.

Baker, J. R., and D. R. Brothwell
1980 *Animal Diseases in Archaeology*. Academic Press, New York.

Ferguson, Leland
1992 *Uncommon Ground: Archaeology and Early African America, 1650-1800*. Smithsonian Institution Press, Washington, D.C.

Getty, Robert
1975 *Sisson and Grossman's The Anatomy of the Domestic Animals.* Saunders, Philadelphia, PA.

Gilbert, B. M.
1980 *Mammalian Osteology*. Modern Printing Co., Laramie, WY.

Grayson, Donald K.
1979 On the Quantification of Vertebrate Archaeofauna. In *Advances in Archaeological Method and Theory, vol. 2*, edited by M. B. Schiffer, pp. 199-237. Academic Press, New York.

Grigson, Caroline
1982 Sex and Age Determination of Bones and Teeth of Domestic Cattle: A Review of the Literature. In *Ageing and Sexing Animal Bones from Archaeological Sites*, edited by B. Wilson, C. Grigson, and S. Payne, pp. 7-73. British Archaeological Reports, British Series 109, Oxford, UK.

Greig, David M.
1931 *Clinical Observations on the Surgical Pathology of Bone*. Oliver and Boyd, Edinburgh.

Hillson, Simon

2005 *Teeth*. 2nd edition. Cambridge University Press, Cambridge, UK.

Isenbarger, Nicole
2013 Archaeological Mitigation for New HVAC System and Renovation at Nathaniel Russell House. Draft report on file, Historic Charleston Foundation, Charleston, SC.

Joseph, J.W.
2004 Colonoware for the Village – Colonoware for the Market. *South Carolina Antiquities* 36: 72-86.

Joseph, J.W.
2016 Meeting at Market: The Intersection of African American Culture, Craft, and Economy and the Landscape of Charleston, South Carolina. *Historical Archaeology* 50(1): 94-113.

Kent, Susan
1981 The Dog: An Archaeologist's Best Friend or Worst Enemy-The Spatial Distribution of Faunal Remains. *Journal of Field Archaeology* 8:367-372.

Landon, David B.
1996 Feeding Colonial Boston: A Zooarchaeological Study. *Historical Archaeology* 30(1):1-53.

Lyman, R. Lee
1994 *Vertebrate Taphonomy*. Cambridge University Press, Cambridge.

Martin, Ann Smart
1994 Fashionable Sugar Dishes, Latest Fashion Ware: the Creamware Revolution in the Eighteenth-Century Chesapeake. In *Historical Archaeology of the Chesapeake*, edited by Paul Shackel and Barbara Little, pp. 169-188, Smithsonian Institution Press, Washington, D.C.

Miller, George L.
1980 Classification and Economic Scaling of Nineteenth-Century Ceramics. *Historical Archaeology* 14:1-41.

Miller, George L.
1991 A Revised List of CC Index Values for Classification and Economic Scaling of English Ceramics from 1787 to 1880. *Historical Archaeology* 25(1):1-25.

Miller, George L., Patricia Samford, Ellen Shlasko, and Andrew Madsen
2000 Telling Time for Archaeologists. *Northeast Historical Archaeology* 29:1-22.

Noel Hume, Ivor
1969 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf, New York.

O'Connor, Terry P.
2003 *The Analysis of Urban Animal Bone Assemblages: A Handbook for Archaeologists*. The Archaeology of York 19(2):69-224. Council for British Archaeology, York, UK.

Pavao-Zuckerman, Barnet
2011 Rendering Economies: Native American Labor and Secondary Animal Products in the Eighteenth-Century Pimería Alta. *American Antiquity* 76(1):3-23.

Purdue, James R.
1983 Epiphyseal Closure in White-Tailed Deer. *Journal of Wildlife Management* 47(4):1207-1213.

Reitz, Elizabeth J., Irvy R. Quitmyer, H. Stephen Hale, Sylvia J. Scudder, and Elizabeth S. Wing
1987 Application of Allometry to Zooarchaeology. *American Antiquity* 52(2):304-317.

Reitz, Elizabeth J., Barbara L. Ruff, and Martha A. Zierden
2006 Pigs in Charleston, South Carolina: Using Specimen Count to Consider Status. *Historical Archaeology* 40(4):104-124.

Reitz, Elizabeth J., and Barbara L. Ruff
1994 Morphometric Data for Cattle from North America and the Caribbean Prior to the 1850s. *Journal of Archaeological Science* 21:699-713.

Reitz, Elizabeth J., and Elizabeth S. Wing
2008 *Zooarchaeology. 2nd edition*. Cambridge University Press, New York.

Reitz, Elizabeth J., and Martha A. Zierden
1991 Cattle Bones and Status from Charleston, South Carolina. In *Beamers, Bobwhites, and Blue-Points: Tributes to the Career of Paul W. Parmalee,* edited by J. R. Purdue, W. E. Klippel, and B. W. Styles, pp. 396-407. Illinois State Museum Scientific Papers 23, Springfield.

Rick, Ann
1975 Bird Medullary Bone: A Seasonal Dating Technique for Faunal Analysis. *Canadian Archaeological Association Bulletin* 7:183-190.

Ridout, Orlando V, Willie Graham and Robert Leath
1995 Nathaniel Russell House: Architectural Conservation Grant, The Getty Grant Program, Final Report. Report on file, Historic Charleston Foundation, Charleston, SC.

Ruscillo, Deborah
2006 *Recent Advances in Ageing and Sexing Animal Bones*. Oxbow Books, Oxford, UK.

Schmid, Elisabeth
1972 *Atlas of Animal Bones for Prehistorians, Archaeologists, and Quaternary Geologists*. Elsevier, Amsterdam.

Serjeantson, Dale
2009 *Birds*. Cambridge University Press, London, UK.

Severinghaus, C. W.
1949 Tooth Development and Wear as Criteria of Age in White-Tailed Deer. *Journal of Wildlife Management* 13(2):195-216.

Shannon, Claude E., and Warren Weaver
1949 *The Mathematical Theory of Communication*. University of Illinois Press, Urbana.

Shipman, Pat, and Jennie Rose
1983 Evidence of Butchery and Hominid Activities at Torralba and Ambrona: An Evaluation Using Microscopic Techniques. *Journal of Archaeological Science* 10(5):465-474.

Silver, I.A.
1969 The Ageing of Domestic Animals. In *Science in Archaeology: A Survey of Progress and Research*, edited by D.R. Brothwell and E.S. Higgs, pp. 283-302. 2nd edition. Praeger Publishing, New York, NY.

Simpson, George Gaylord
1941 Large Pleistocene Felines of North America. *American Museum Novitates* 1136:1-27.

Simpson, George G., A Roe, and R. C. Lewontin
1960 *Quantitative Zoology*. Harcourt, Brace, and Co, New York.

South, Stanley A.
1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.

Turner, Suzanne L, John Welch, Herpreet Singh, Ashley Braquet, and Brian Goad
2019 Nathaniel Russell House Cultural Landscape Report: The Erased Landscapes of Labor and Leisure 2018-2019. Report on file, Historic Charleston Foundation, Charleston, SC.

van Dijk, Joyce
2016 Iron Age Animal Husbandry in the Wetlands of the Western Netherlands. *Environmental Archaeology* 21:45-58.

Watson, J. P. N.
1978 The Interpretation of Epiphyseal Fusion Data. In *Research Problems in Zooarchaeology*, edited by D. R. Brothwell, K. D. Thomas, and J. Clutton-Brock, pp. 97-101. Institute of Archaeology Occasional Publication 3, University of London, London.

White, Chantel E., Katherine M. Moore, Chelsea M. Cohen, Regina A. Fairbanks, Ashley Ray, Susan Zare
2022 Behind the Walls and Beneath the Floors: Botanical Remains from a 19th-Century Kitchen House in Charleston, South Carolina. Paper presented at the 55th annual Conference of the Society for Historical Archaeology, Philadelphia, PA

White, Theodore E.
1953 A Method of Calculating the Dietary Percentage of Various Food Animals Utilized by

Aboriginal Peoples. *American Antiquity* 18(4):396-398.

Zierden, Martha A.
1995 *The Nathaniel Russell House: Initial Archaeological Testing*. The Charleston Museum Archaeological Contributions 24, Charleston, SC.

Zierden, Martha
2006 *Excavations in the Front Lawn, Nathaniel Russell House 2003-2006*. Archaeological Contributions 36, The Charleston Museum, Charleston, SC.

Zierden, Martha A.
2010 Landscape and Social Relations at Charleston Townhouse Sites (1770-1850). *International Journal of Historical Archaeology* 14(4): 527-546.

Zierden, Martha A. and Elizabeth J. Reitz
1996 *Big House/Back Lot: An Archaeological Study of the Nathaniel Russell House*. The Charleston Museum Archaeological Contributions 25, Charleston, SC.

Zierden, Martha A. and Elizabeth J. Reitz
2016 *Charleston: An Archaeology of Life in a Coastal Community*. University Press of Florida, Gainesville, FL.

Zierden, Martha A., Elizabeth J. Reitz, Carla S. Hadden and Hayden Ros Smith
2022 *Emergence and Evolution of Carolina's Colonial Cattle Economy*. Archaeological Contributions 52, The Charleston Museum, Charleston, SC.

Zierden, Martha A., Ronald W. Anthony and Sarah E. Platt
2023 Colonoware in the City: Archaeological Assemblages from Charleston, SC. In *Materializing Colonial Identities in Clay: Colonoware in the African and Indigenous Diasporas of Southeastern North America*, edited by Jon Bernard Marcoux and Corey A.H. Sattes, University of Alabama Press, Tuscaloosa (in press).