

2000-2006 INTERIM REPORT

ON THE APVA EXCAVATIONS AT JAMESTOWN, VIRGINIA

Contributing Authors:

Eric Deetz, David Givens, Carter C. Hudgins, Seth Mallios, Jamie May, Luke Pecoraro,
Tonia Rock, Danny Schmidt, & Beverly Straube

William M. Kelso Beverly Straube

editors



MAY 2008

APVA
PRESERVATION VIRGINIA



Jamestown
REDISCOVERY

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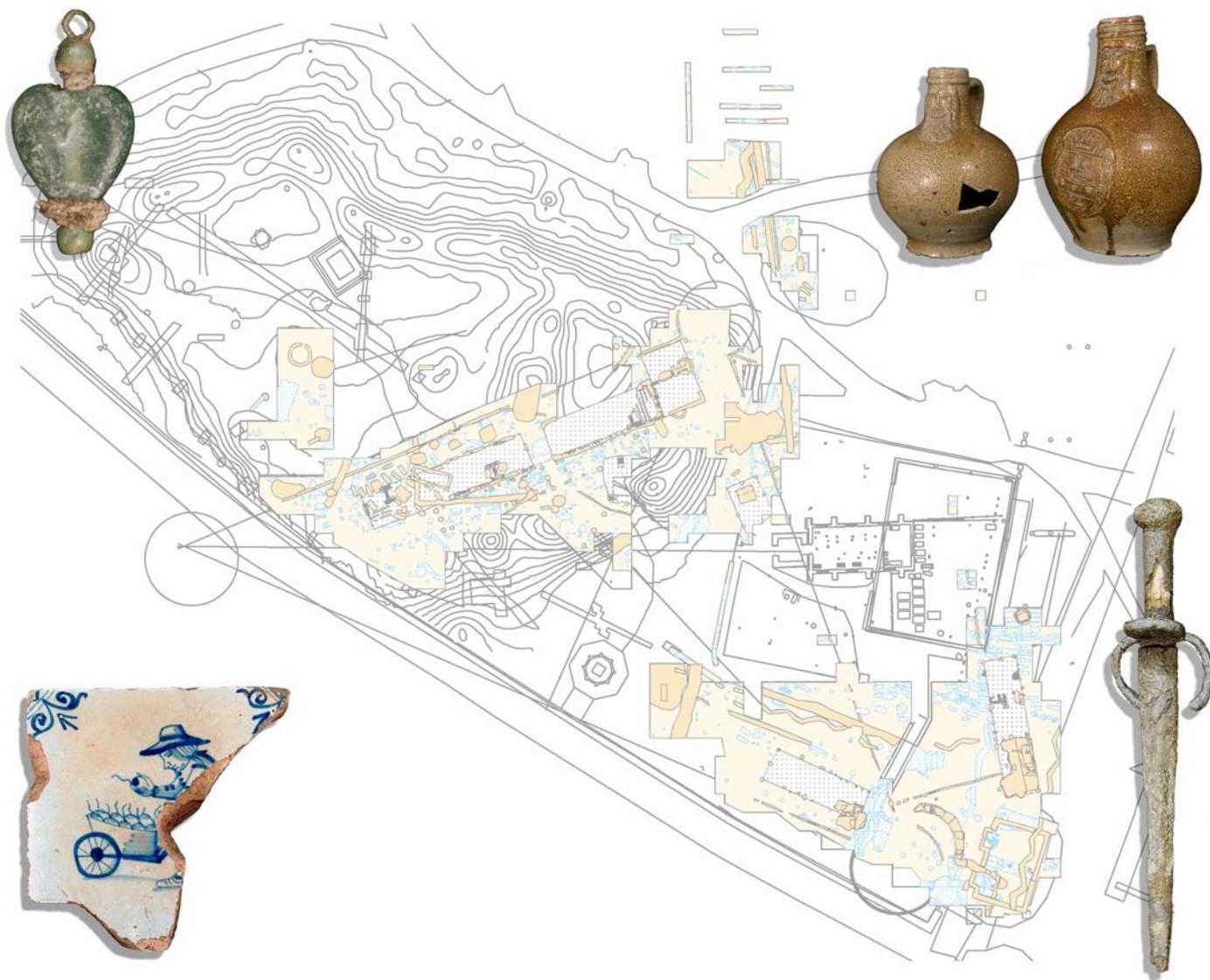
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Introduction

This is an interim report on the partial archaeological excavation of the 1607 James Fort site at Jamestown conducted 2000-2006 by the Jamestown Rediscovery staff on the property of the Association for the Preservation of Virginia Antiquities.¹ The text and images discussed and presented herein attempt to describe and, to a limited extent, interpret the raw technical field data. Only the artifacts that primarily establish chronology and/or spatial interpretation are discussed. It is important for the reader to know that this report is in reality a collection of individual reports authored by nine different past and present members of the Rediscovery team (during the period 2000-2006 excavation period) who were often the primary investigators of the various features discussed. Therefore discussion of each of the archaeological deposits stands alone and is usually not intended to be read as a synthesis of what precedes or follows it. In that sense, this document is an encyclopedic reference. Along with the technical reports that preceded it (1994-1999), this report is also part of the initial step leading toward the production of a final comprehensive interpretive account of the archaeological and historical research of the James Fort site. Production of that document must wait until the fort can be comprehensively investigated.² This narrative then, continues the 1994-1999 Interim Report series.³ Also it is assumed that the reader of this report has already read *Jamestown, The Buried Truth*, the *Jamestown Rediscovery Series, I-VII*, and *Jamestown Rediscovery 1994-2004*.⁴

This report offers descriptions of the significant discoveries of the seven excavation seasons 2000-2006 arranged chronologically by deposit date and by feature type: prehistoric, fort architecture, structures, pits, burials, ditches, and post-James Fort. First, by way of introduction, a general description of the Jamestown Rediscovery field methodology and a general summation of the archaeological findings of the entire project to date (1994-2006) are offered to put the newly reported technical data in context.

Field Methodology Summary

The Jamestown Rediscovery archaeological program is controlled by a grid-based area excavation process. More specifically, a ten-foot square grid is the initial method for horizontal control during the removal of post 17th-century overburden. Whenever a large enough area of 17th-century fill or features can be exposed, the determination of the spatial extent of individual features is defined based on soil color, texture, and/or inclusions. Then sequential excava-



Archaeologists cover excavated area with geotextile fabric after all features have been recorded.

tion register numbers (Jamestown Rediscovery, “JR” numbers) are assigned to each discreet feature and marked with aluminum tags bearing the JR designation. Excavation of the features then depends upon the boundaries, orientation, and likely relation to the James Fort/Jamestown period, usually leaving more recent features mapped but unexcavated. This decision is also dependent upon whether or not an individual feature can be dated or spatially associated with the fort period without excavation. Once it is decided that a feature is likely to contribute to an understanding of the fortified area, its excavation usually proceeds by partial excavation to determine cultural deposition sequence, as shown by color, texture, or inclusion changes in the soil, each of which are sequentially assigned a letter of the alphabet (excluding the letters I, O, and U). In this manner, the JR number and letter establish each individual feature and layer within it as a distinct context. Then to record most contexts in the field, drawings and photographs are made that thereafter carry the JR designations. Soil samples of individual layers are also collected and archived. Once features in an area are excavated and/or recorded, that area is covered with a geotextile fabric and backfilled usually with 1’ 8” of spoil that has been screened for artifacts. At the time of this publication, about 15 percent of the 17th-century features uncovered have been partially or fully excavated with the remainder preserved beneath geotextile fabric for future investigation.

1994-2006 Summary

The Jamestown Rediscovery Archaeological Project’s archaeological research team located and interpreted the 1607-1624 Jamestown Fort enclosure, some of its associated buildings, two wells, pits, and burials:

1607-1624 James Fort/ Jamestown

The excavations located and analyzed evidence of three upright timber walls (palisades) which once enclosed a one-acre fortified settlement. Evidence of cannon emplacements known as a bulwarks, was found at each of the three corners of the triangular enclosure. Also within the confines of the fort walls the excavations uncovered a single oversized, deep posthole, the probable location of the fort's flagpole, and a wood-lined water well.

Fort Buildings

Remains of the first fort buildings consisted of small lean-tos with crude cellars constructed along the western wall of the fort, and large communal shelters made of forked trees set in the ground along the east and south walls. Also found were backfilled artifact-rich earthen cellars within the post frame structures; time capsule-like deposits of thousands of artifacts lost during the town's first three years. These deposits held caches of arms, armor, ammunition, metallurgical testing equipment, medical instruments, craftsmen's tools, pottery for cooking, serving, and storage, as well as glassware, trade goods, and an extensive collection of Virginia Indian Contact Period pottery, tobacco pipes, stone tools and weapons, and shell beads. Building remains found to date indicated that carpenters, by ca. 1610/11, had changed building forms from the crude post-in-ground type construction to more sophisticated multi-storied timber buildings built upon stone and brick footings. These more permanent long "row houses" were almost certainly built for the resident Virginia Company governors and their councilors.

Fort Burials

Excavations found an unmarked burial ground within the fort near the west gate. It contained over twenty individual and double graves. Archaeological tests and positions of the burials indicate that these are the skeletal remains of the Englishmen who died during the summer of 1607. Also, near a barracks site, two early 17th-century graves were uncovered: a European man who had died of a gunshot wound, and an elderly woman. West of the fort, in a military drill field referred to as Smithfield, a brick-lined well filled with armor, tools, and early 17th-century domestic refuse was excavated. Nearby, outside a gate of the fort, a single grave of a captain was found. This is very possibly the grave of Captain Bartholomew Gosnold, who died on 22 August 1607.

Post-Fort Period Features

As features from later periods were encountered during the James Fort study, many new features were recorded but generally left unexcavated. These include: mid to late 17th-century features, Revolutionary and Civil War features, and features associated with more recent agricultural and APVA land use.

William M. Kelso
Jamestown, 4/15/08

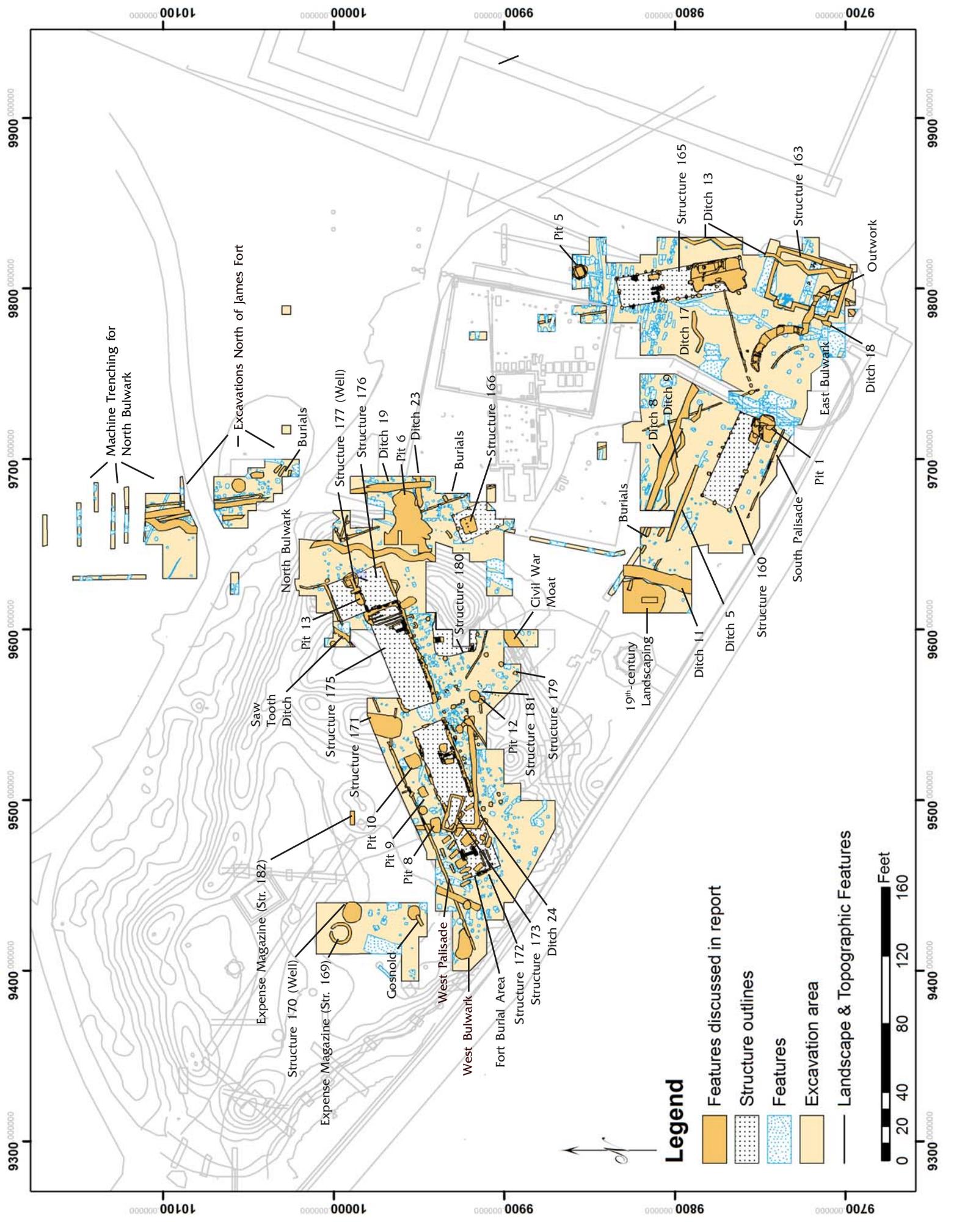
¹The work proceeded according to Association for the Preservation of Virginia Antiquities Board of Trustees approved master plans: William M. Kelso. *Jamestown Rediscovery Archaeological Project: The Search for the site of James Fort at Jamestown, Virginia*, November 1993; and *Jamestown Rediscovery 2002-2006: The Search for the Roots of Modern American Society*, November 2001, mss. Rediscovery Center, Jamestown.

²This will be done according to the revised master plan pending APVA Board of Trustees approval 2008: William M Kelso et al. *Jamestown Rediscovery Archaeological Master Plan, 2008-2011*, March 14, 2008, mss. Rediscovery Center, Jamestown.

³William M. Kelso, Beverly Straube, Nicholas Lucchetti, *Interim Reports on the APVA Excavations at Jamestown, Virginia, 1994, 1995, 1996, 1997, 1998*, (Seth Mallios) 1999, mss, Rediscovery Center, Jamestown.

⁴William M. Kelso. *Jamestown, The Buried Truth*, University of Virginia Press, Charlottesville and London, 2006; William M. Kelso and Beverly Straube, et. al. *Jamestown Rediscovery I-VII and Jamestown Rediscovery 1994-2004*, Association for the Preservation of Virginia Antiquities, Jamestown, Virginia, 2005.





Legend

- Features discussed in report
- Structure outlines
- Features
- Excavation area
- Landscape & Topographic Features



PREHISTORIC PERIOD

Prehistoric Features within the Confederate Earthwork

Throughout the 2002-2005 field seasons, archaeologists identified features indicating a Native American presence on Jamestown Island long before the arrival of English colonists in 1607. Excavations concentrated in and around the Confederate earthwork encountered plowzone composed of 17th-century soils mixed with Virginia Indian artifacts. National Park Service archaeologist Joel Shiner noted of the plowzone in his excavations 50 years prior:

A test opened in the south side of the Confederate Fort in Lot 98:95 provided data on 3 sharply contrasting occupational zones: Confederate Fort fill, a 17th-century humus zone and, beneath this, a well-defined earlier humus zone containing Indian artifacts. . . . On the basis of several small test pits east, west, and north of Test Pit 18, the Indian habitation site was estimated to be at least 110 feet long and at least 70 feet wide. Probably it was considerably larger.¹



Figure 1. NPS archaeologist Joel Shiner kneeling in the center of Project 100, Test Pit 18. Plowzone and intact Virginia Indian layer are visible in the background.

Beneath the plowzone was a layer of leached soil containing a wealth of prehistoric artifacts. While excavating grid unit JR996 located in the southeastern corner of the Confederate earthwork, the occupation horizon identified by Shiner was found below pre-1861 plowzone. Additional excavations of 10' by 10' units west of JR996 indicated that the occupation strata remained intact below plowzone across much of the western interior of the 1607 fort.

Repeated trowel cleaning at the surface of the prehistoric zone resulted in the recovery of lithic debitage, as well as many sherds of Native American pottery

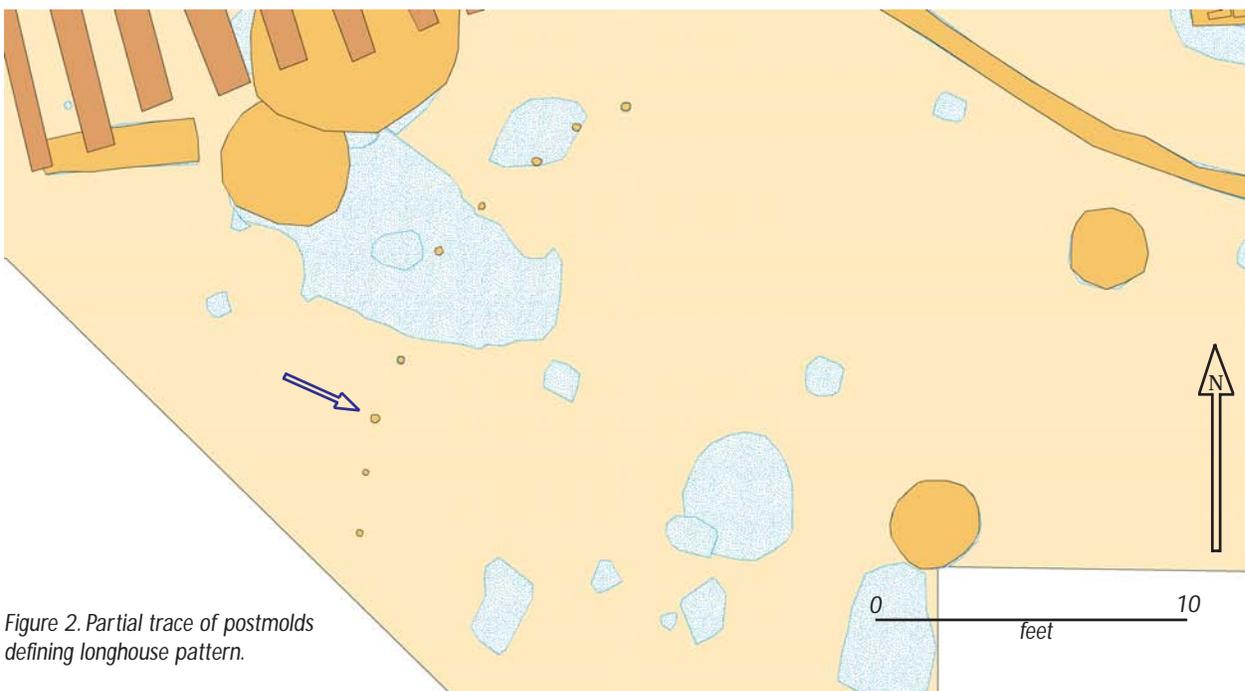


Figure 2. Partial trace of postmolds defining longhouse pattern.



Figure 3. Example of quartz and quartzite reduction debris recovered from a 5 cm layer of JR1799.

consisting mainly of Middle Woodland Prince George and Mockley wares. A small scatter (JR1939A) was recorded that contained 19 sherds of Prince George (500 B.C. to A.D. 200), 1 sherd of unidentified shell-tempered pottery, a fire-cracked rock, and a small quartz flake.

In addition to the intact Native American strata, 11 postmolds of a possible longhouse were uncovered beneath the southeastern corner of the Confederate earthwork. A partial oval shape could be seen in the postmold pattern oriented at a slight southwesterly angle. Spacing between the postmolds ranged from 9 1/2" to 3'9", with the median distance being 1'1 1/2". These measurements correspond closely to Late Woodland Structure D, Lot 11 at the Great Neck Site (44VB7) where longhouse postmolds were roughly 1'6" apart.² Closer to Jamestown Island, 15 longhouses at the Late Woodland/Contact Paspehegh Site (44JC308) displayed postmold patterns with median spacing ranging from 1'2 1/2" to 2'2 1/2".³

On Jamestown Island, several Late Woodland sites were identified by island-wide survey during the Jamestown Archaeological Assessment. Low artifact densities suggest these sites were used as temporary camps. Natural features of the island were well suited for seasonal food procurement such as hunting deer and netting seasonal fish.⁴ While probably not part of a larger village, the Jamestown longhouse could represent a seasonal camp.

A lithic reduction area (JR1799) was found in the Native American strata within the confines of the 1607 Fort. The reduction area was confined to a one-meter square and was excavated in arbitrary 5cm layers for 15cm. Morphological attributes of an excavated biface suggest the strata date to the Late Archaic Period (2000-1200 B.C.), further support-

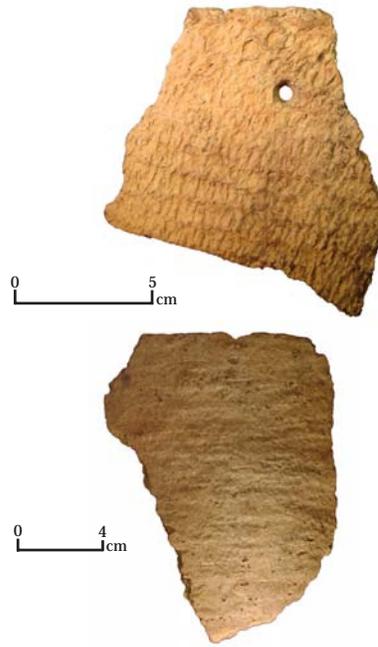


Figure 4. Examples of Prince George (500 B.C. to A.D. 200) fabric-impressed pottery (top) and Townsend (A.D. 945 to A.D. 1590) fabric-impressed pottery (bottom) recovered from James Fort site.

ing the position of continuous, seasonal land use beginning during this period.⁵

Considering the natural resources available in this area, coupled with the presence of intact Native American strata, longhouse, and reduction area beneath the 1607 Fort and Confederate earthwork, it appears Jamestown Island was the site of at least seasonal land use for centuries preceding the arrival of the English colonists in 1607.

(Endnotes)

1 John L. Cotter, *Archaeological Excavations at Jamestown, Virginia*, Special Publication No. 32, Second Edition (Courtland, VA, Archaeological Society of Virginia, 1994), 12-14.

2 Mary Ellen Norrisey Hodges, "Native American Settlement at Great Neck: Report on VDHR Archaeological Investigations of Woodland Components at Site 44VB7, Virginia Beach, Virginia, 1981-1987, Research Report Series No. 9" (Richmond, VA, Commonwealth of Virginia, Department of Historic Resources, 1998), 137-43.

3 Nicholas M. Lucchetti, et al., "Paspehegh Archaeology: Data Recovery Investigations of Site 44JC308 at the Governor's Land at Two Rivers, James City County, Virginia," (Williamsburg, VA, James River Institute for Archaeology, Inc., 1994), 60-87.

4 Dennis B. Blanton, Patricia Kandle, and Charles M. Downing, "Archaeological Survey of Jamestown Island, 1992-1996, Jamestown Archaeological Assessment Technical Report Series," (Williamsburg, VA, Colonial Williamsburg Foundation, 1999), 204-205.

5 *Ibid.*, 201.

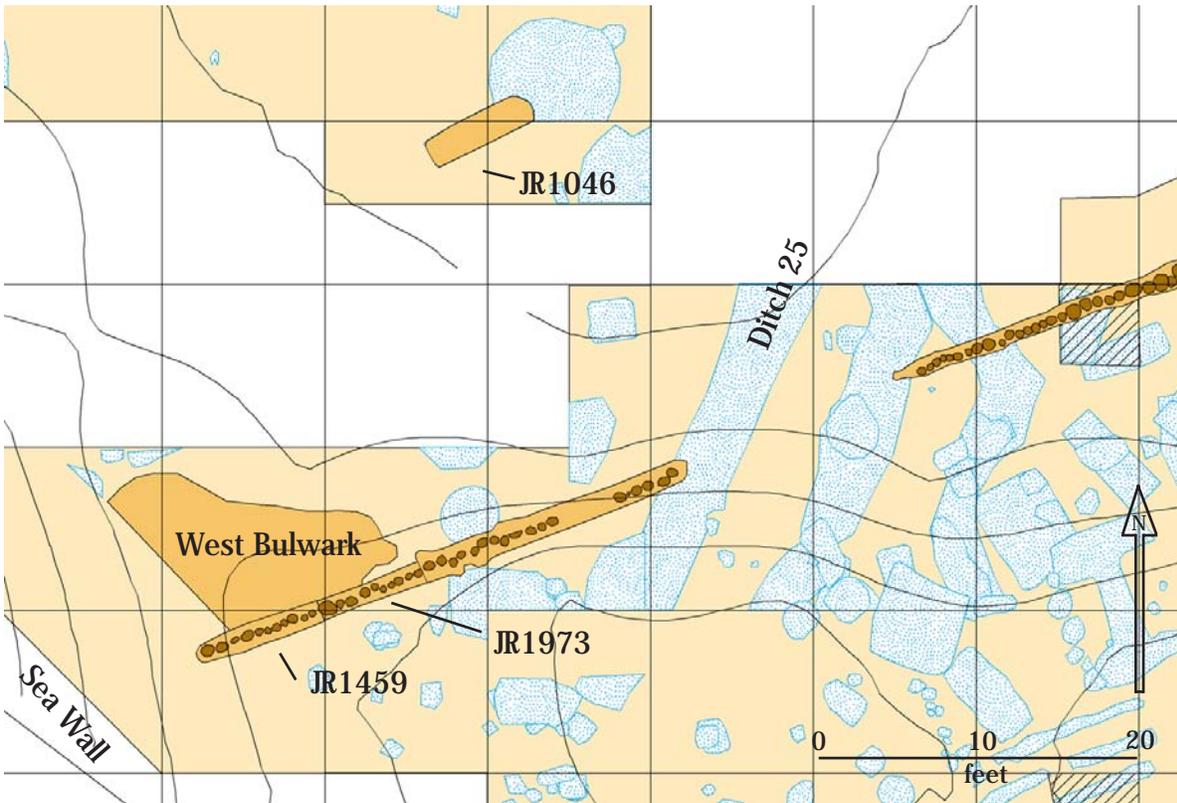


Figure 5. Plan of the west bulwark ditch and excavated palisade sections JR1973 & JR1459.

James Fort Period

West Bulwark (JR1283, JR1339 JR1445, & JR1425)

In the summer of 2003, archaeologists discovered the truncated remains of the western bulwark ditch of James Fort. Following the discovery of the west wall of the fort, excavations were expanded to the northeast and southwest to follow the trace of the wall.

On the far southwestern end of the fort site, the topography sloped steeply to the concrete seawall and into the James River below. Prior to completion of the seawall in 1902 by the Army Corps of Engineers, this portion of James Fort experienced severe erosion resulting in a steep cliff face composed of a sizable portion of both the 1861 Confederate earthwork and James Fort. With this information in mind, archaeologists excavated portions of the steep bank with the intention of obtaining a profile of the western palisade wall with minimal impact to existing features. In the course of excavations, the palisade profile was obtained, and a portion of the western bulwark ditch was discovered.



Figure 6. Eroded cliff face prior to construction of the sea wall, (ca. 1898).

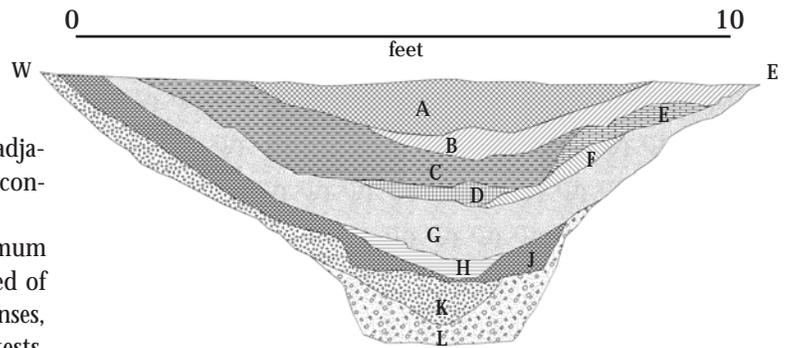
Once exposed, it was noted upon first inspection of the bulwark feature that construction of the Confederate earthworks had scoured away an unknown portion of the top layers of the feature. No plowzone was encountered over the feature. Unlike its counterpart in the east, the west bulwark paralleled the adjacent western palisade (JR1459, JR1973) so closely that portions of the ditch had eroded up and into the fill of the palisade trench, but not into the trace of the post molds. This as-

pect, coupled with the placement of the ditch adjacent to the palisade, suggested the two were contemporaneous.

The ditch was 14'2" long and had a maximum width of 11'2". Fill in the ditch was composed of alternating layers of organic material, wash lenses, and intentional backfilling. Three primary tests, JR1283, JR1339, and JR1425, were removed from the feature and produced 36,369 artifacts.

A cursory inspection of the feature after the initial discovery revealed the feature had been substantially graded back at a sharp angle, possibly in preparation for sea wall construction. Excavation was conducted on a portion of the feature along the cliff face in order to produce a clean profile from which the feature could be assessed. This test (JR1339) was excavated in the fall of 2003 and soil layers identified, each defining a unique cultural or erosive phenomenon.

JR1339 contained artifacts that typify James Fort's earliest contexts. Among these were Irish pennies dated 1602, English white ball clay tobacco pipes with small bowls and tear drop heels, and numerous examples of pipemaker Robert Cotton's

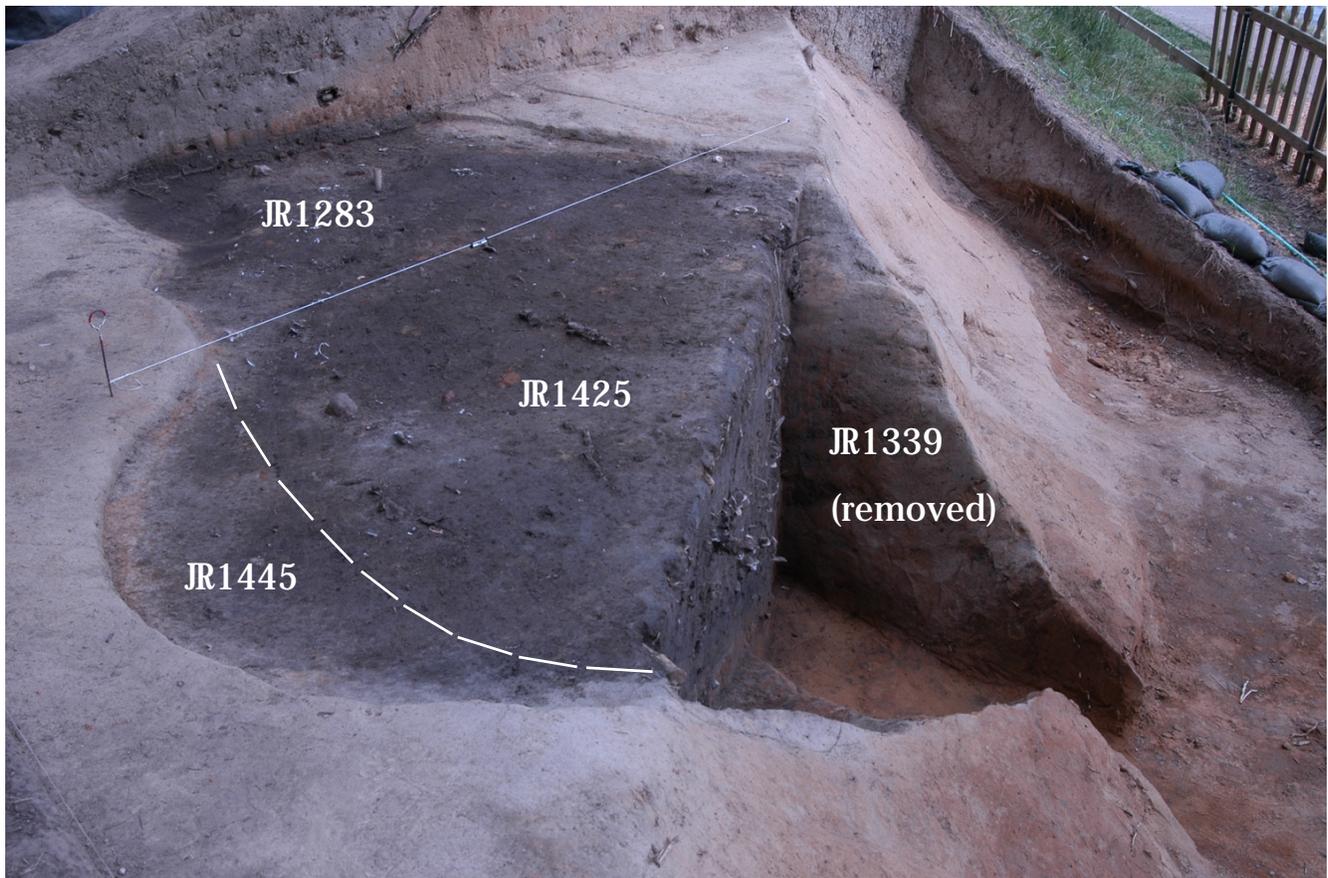


- A: Brown sandy loam with moderate charcoal and orange sandy clay mottling.
- B: Dark grey sandy loam with tan sand mottling.
- C: Dark grey sandy loam with orange sandy clay mottling.
- D: Equal parts red sand and grey ash with light charcoal flecking.
- E: Red sand.
- F: Equal parts tan sand, orange sandy clay, and grey sandy loam.
- G: Dark grey sandy loam with heavy charcoal flecking.
- H: Equal parts orange sandy clay, charcoal, grey sandy loam, and light tan sand flecking.
- J: Dark grey sandy loam with light charcoal flecking.
- K: Equal parts orange sandy clay, charcoal, grey sandy loam, and light tan sand flecking.
- L: Orange sand with tan sand wash lenses.

Figure 8. Profile of west bulwark section JR1339.

work including pipes, pipe shavings, and sagger parts. A bowl from K mended with a stem from G to make the first complete Robert Cotton pipe recovered from the site. Unusual from this context were the twenty-six purple mussel shell disc beads associated with Native manufacture. A Midlands Purpleware butter pot in the G layer crossmended with Pits 8, 9, and 10 and established a relationship between these features in the fort.

Figure 7. West bulwark ditch partially excavated (facing east).



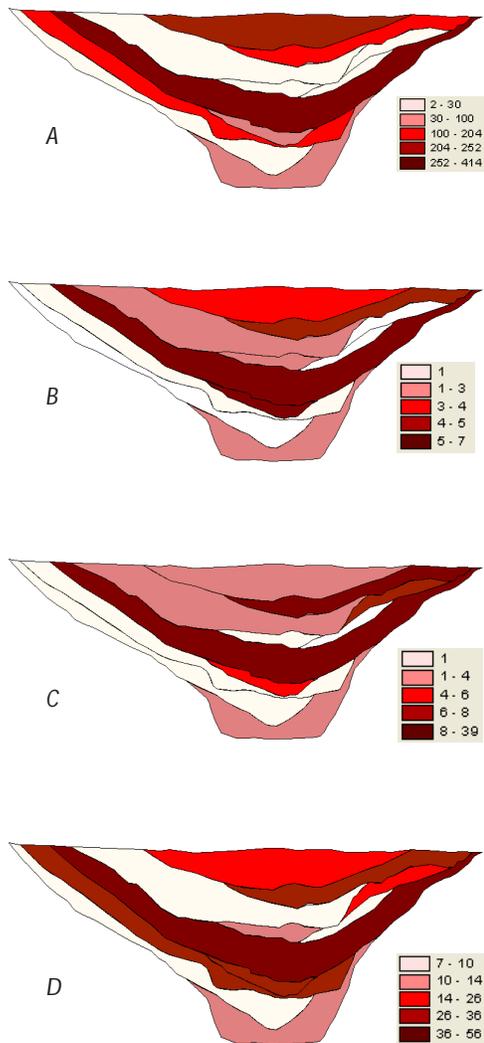


Figure 9. Profile density map of west bulwark ditch, Section JR1339. Possible evidence of duration is shown in seasonally available aquatic animals (A), shell (B), military items (C), and storage vessels (D). Numbers indicate raw counts by context.

The bottom layer of the ditch, JR1339L, was composed of alternating layers of tan sand and orange sandy clay wash lenses containing relatively few artifacts (n=559). In profile, the ditch had a flat bottom and straight sides and likely represented the intended shape of the earthwork.

Subsequent layers above JR1339L indicated a significant amount of erosion on both sides of the ditch that resulted in broadening of the sides and widening of the profile. One layer, JR1339J, exhibited a flat bottom and sloping south wall mir-

roring layer JR1339L below it. The remaining layers in the ditch sloped gently towards the center of the defensive feature and were “basin” shaped in profile.

Layers JR1339D and E were unique in that they were confined to the western side of the ditch. Fill of these two layers was composed of highly fired red sand, clay, and moderate amounts of ash that were sealed completely by JR1339B and C. Of note in the E layer was a lead privy cloth seal with the date 1600 (3876-JR), a crossbow point known as a forker that was used for hunting fowl, and an early 17th-century sword pommel (4219-JR). The placement of the deposit on the western side may have been the result of the dumping of fireplace debris from the interior of the fort into the bulwark ditch.

Alternating bands of wash, silting, and organics-rich deposits suggest the bulwark ditch was filled

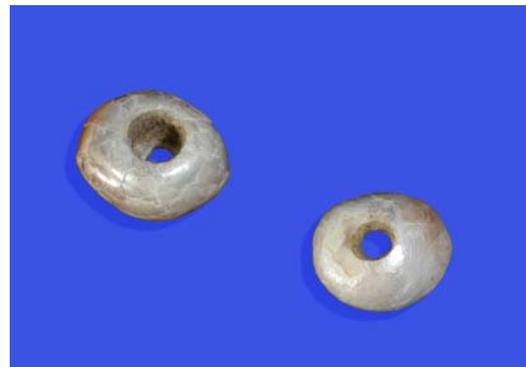


Figure 10. Freshwater pearls fashioned into beads found in the ditch (diam. 6mm).

over a period of time. Applying a density of seasonally available aquatic animals such as turtle, ray, sturgeon, and crab to the profile of JR1339 suggested that the feature was filled over a period of at least three seasons. Rough groupings of other artifact types such as shell, military items, and storage vessels produced similar patterns.

A second test was excavated into the ditch in the summer of 2004. Designated JR1425, this portion was selected to further investigate the nature of the feature, and to obtain a profile perpendicular to the long axis of the ditch. Fourteen layers were encountered, many of which were congruous with those encountered in test JR1339. Volumetrically, JR1425 represented a larger quantity of soil than the other tests and, as a result, a significantly higher number of artifacts.

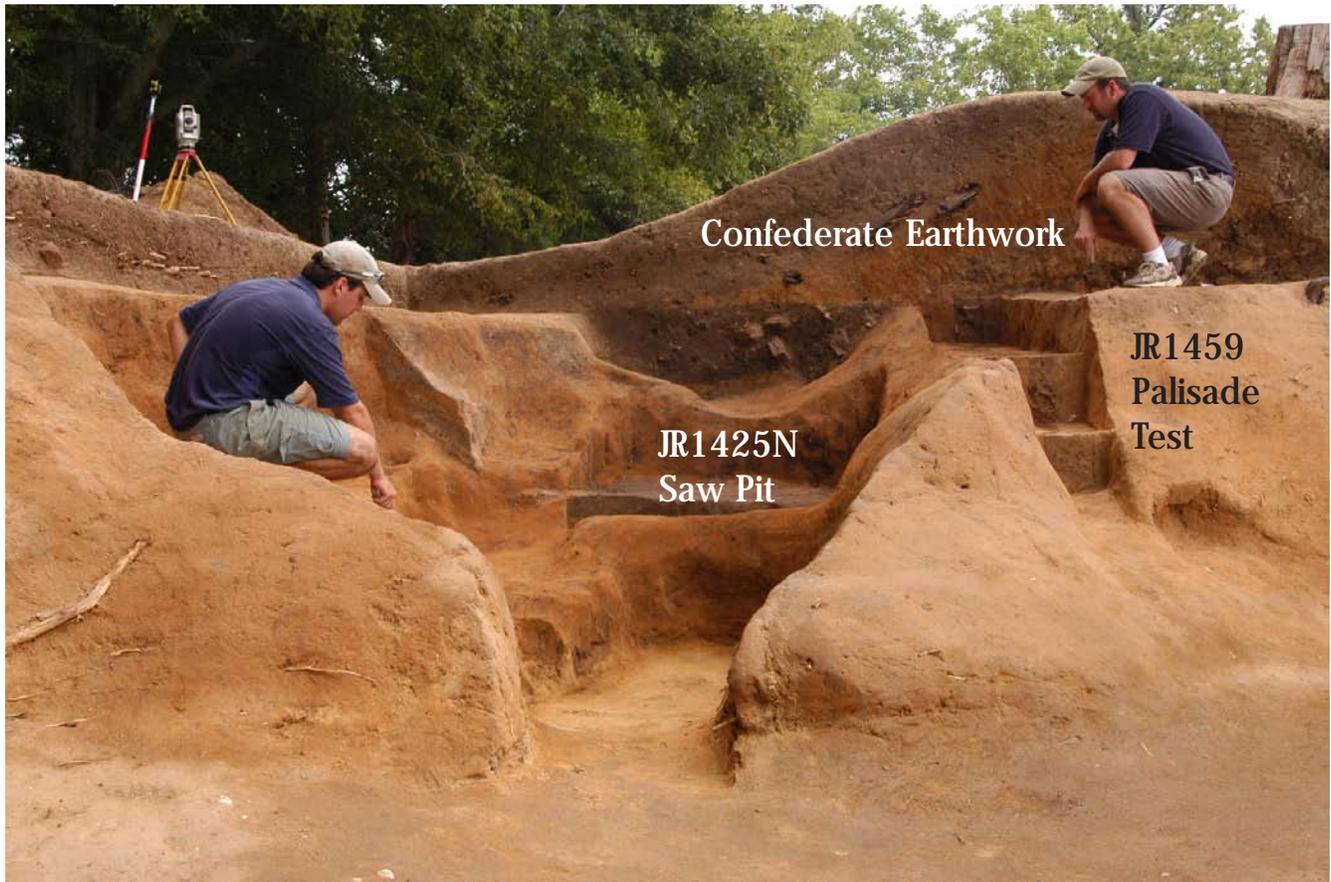


Figure 11. West bulwark ditch, partially excavated saw pit (JR1425N), and section of west palisade trench test (JR1459) (facing east).

JR1425 contained a Martincamp flask that crossmended with Structure 177 (JR2158P)—the ca. 1608 well—and a Frechen stoneware jug that crossmended with Pit 3 (JR124F). Of the 386 beads that were found in the west bulwark trench, most (n=328) were from JR1425. These included not only glass and lapidary trade beads, but also two bone rosary beads, eight Indian-made shell disc beads, and three freshwater pearl beads. The Virginia Company investors had hoped to profit from the pearls the colonists discovered in the freshwater mussels, and by 1610 two *Pearle Drillers* were being requested by the Council of Virginia.¹

Two artifacts related to medical practices were found in the bulwark trench, one a piece of sulphur. According to London surgeon John Woodall, who supplied medical equipment to Jamestown:

*Sulphur or Brimstone is hot, concocting and resolving, it profiteth the asthmaticall, cough, collicke, greese, and resolution of the members: taketh away itch, breaking out of all the body: cureth tetter or ring-worms, and scurffe and cureth rheumes and distillations.*²

The other medically related object was a section of human skull with marks on it made during an attempt at a surgical procedure known as trepanation. Trepanning was a surgical practice whereby surgeons removed a plug of bone from an injured person's skull to prevent a build up of liquids from



Figure 12. Human skull section with trepanning saw marks (diam.14mm) from a failed operation (length 117mm).

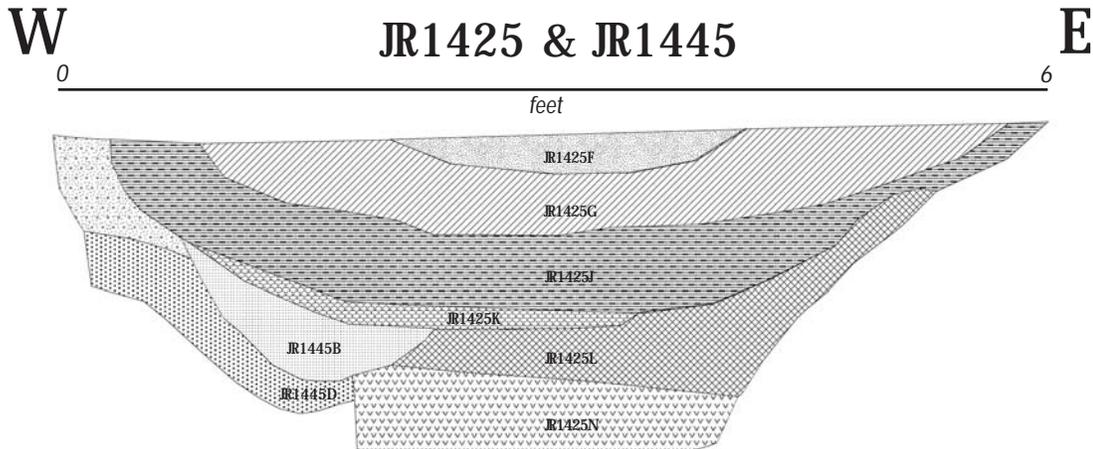


Figure 13. Profile of JR1425 & JR1445.

causing pressure on the brain. Surgeons also could use the cavity to remove broken pieces of skull. According to forensic analysis, the skull piece (JR1425C) was both robust and contained traces of lead, evidence that the individual had been a European male. There were three distinct marks from the trepanning tool on the skull, but none successfully completed the procedure. Saw marks along the top edge of the skull indicated that an autopsy had also been performed.

One layer (JR1425P) differed significantly from the others in that it was 4'1" in depth, much deeper than the rest of the bulwark ditch fill. This fill in the ditch terminated midway up the length of the feature then came to an abrupt end with steep sides and a flat sandy bottom. The bottom of the ditch was composed of sand, a natural stratum typically encountered at this depth. Excavation of the terminal layer of the ditch revealed shovel scars from its construction. Iron spade nosings recovered from other fort-period features are the same size as the scars.

Following the removal of the layers on the northern portion of the ditch, several strata were noted as existing only in that half of the feature. As the relationship of the bulwark ditch layers and these outlying layers could not be determined, these few strata were assigned a separate context (JR1445).

It was noted that the main body of the bulwark ditch (JR1339, JR1425) cut these layers suggesting the possibility that this could have been a feature prior to the existence of the west bulwark. Additionally, JR1445A-C cut the oldest feature encountered in the test excavations (JR1425N), a possible saw pit (see below).

Although the ditch had nearly cut completely through the limits of the feature, its maximum depth of 3'2" could be determined. Layers were noted as being very homogenous (JR1445A-C) with no indications of erosion, except in the very bottom (JR1445D).

Artifacts from JR1445 were consistent with an early fort period date (ca. 1610). There were many Virginia Indian pottery sherds in this context, but

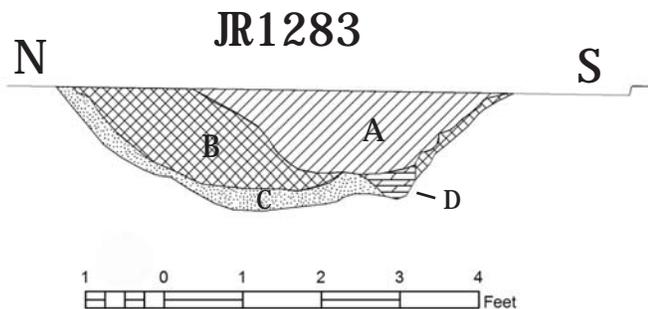


Figure 14. Profile of JR1283.

only one sherd of European ceramic—a piece of a North Devon baluster jar. Also in this context were “Robert Cotton” type pipes, two Nueva Cadiz type beads, a glass urinal, two iron spurs, and two iron tenterhooks made to be used to stretch and dry animal furs.³

The faunal remains were uniform through all four layers of JR1445; most were from wild game, oyster, fish, and turtle. These are commonly found in all the early James Fort contexts. Many of the bones showed signs of being burned.

Test JR1283, done in the summer of 2005, explored the remainder of the ditch on the eastern end; it was 5'6" long and 5' wide and did not exceed 1'6" in depth. Four layers were found: JR1283A-D. As in the two other tests before it, the layers appeared to be composed of alternating bands of wash and organic deposition.

One closely dateable artifact was found in JR1283A, a silver halfgroat of James I with a rose mintmark indicating a ca. 1605-06 date (2822-JR). Ceramics in this context established relationships with other parts of the bulwark ditch (JR1339, JR1425) through crossmending. A London yellow slipware jar (LPMSRY) in the “A” layer not only mended with JR1425G, but also with Pit 3 (JR124F) and Pit 1 (JR2H, JR2R) located in the southeastern corner of the fort site suggesting that these three contexts were contemporaneous. Parallels for an incised bone-handled whittle-tang knife in JR1283A (2703-JR) were also found in Structure 165 and in Pit 3. Of particular interest in this context were five lead cloth seals from Augsburg that once marked fustian, a mixed linen cotton fabric. A West Indian Top Shell (3801-JR) found in the “B” layer represented both the popular gentlemanly pursuit of natural history and the route of sail followed by all of the Jamestown-bound ships prior to 1609. An unusual large iron key was located in JR1283A (3553-JR). Door keys were uncommon in early fort-period contexts as few colonists were probably able to secure their personal belongings behind locked doors. Instead, numerous padlocks and chest hardware met the colonists' need for security.

The sheer density of military-oriented artifacts, coupled with the relationship between the adjacent palisade implies this feature dates early in the evolution of the fort. The distribution and density of artifacts by layer suggests that the feature was open and in use for at least three seasons.

Saw Pit (JR1425N)

After the removal of all the layers of the west bulwark, a square feature was found that extended an additional 1'6" below the floor of the ditch, which revealed a total depth for the ditch of approximately 5' below modern grade. Although the construction of the bulwark ditch had removed the front portion of the pit, a total length of 5'7" and width of 5'6" could be recorded.

The fill removed from the feature was a single layer of silty loam rich in organic material with comparatively few artifacts—a copper-alloy aglet and a 15 mm diameter lead shot. The remainder of the artifact assemblage was comprised of bone, shell, and Virginia Indian ceramic sherds, including Prince George Cord-Marked (n=4), Mockley (n=26), Townsend Cord-Marked (4), unidentified shell-tempered (n=73), and unidentified sand/gravel-tempered (n=15).

Two individuals were required to operate saw pits—one man stood atop a partially hewn log while another worked from below. Pits of these kinds were often used to convert timber into larger beams and planks. Smaller items, however, were produced by this method as well.⁴

Given the dearth of artifacts, and its depth and proximity to the palisade, it was possible that this pit was the remnants of a saw pit used in the construction of the fort or the production of timber products for export.

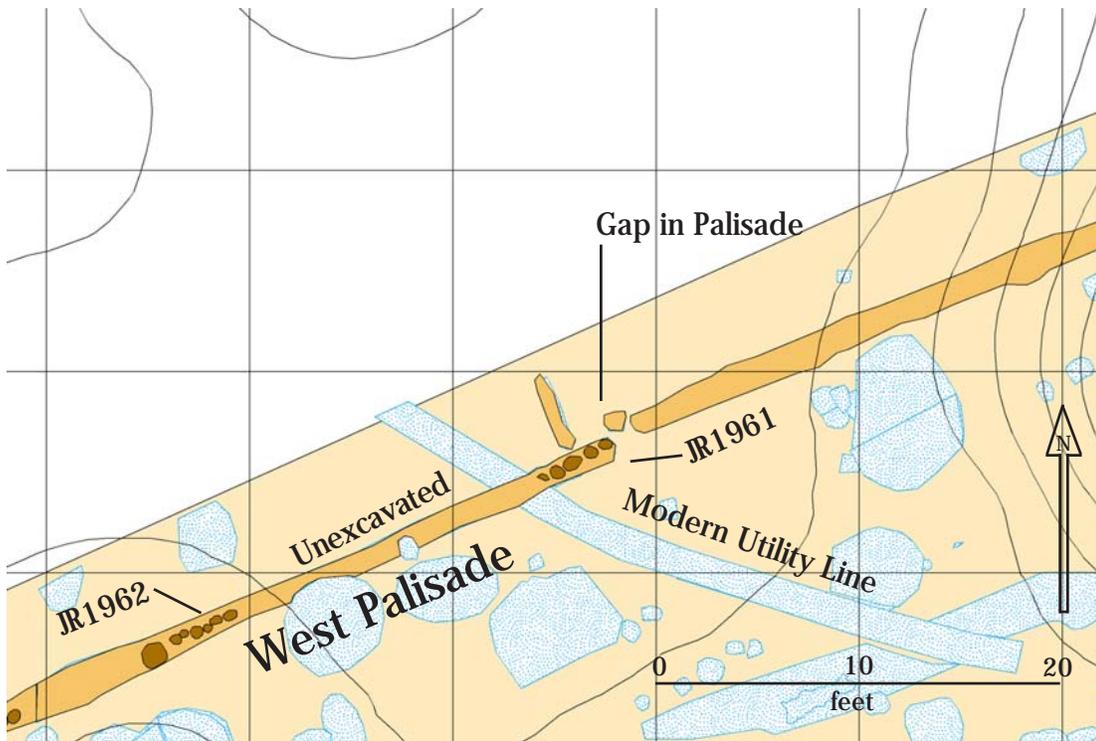


Figure 15. Plan of small gap in west palisade and test sections JR1961 & JR1962.

West Palisade near Western Bulwark: (JR 1966, JR1968, JR1969, JR1973, & JR1459)

During the summer of 2005, further investigations of the west curtain wall of the 1607 fort prompted the excavation of thirty-eight palisade postmolds. Located 6" south of the west bulwark ditch and 11' northeast of the seawall, 32'6" of palisade were divided up into five test sections from west to east and labeled JR1459, JR1973, JR1969, JR1968, and JR1966. Although this section of the 1607 fort had been heavily disturbed—first by the construction of the Confederate earthwork in 1861, and later by the removal of the Hunt Shrine in 1960—the postmolds of the palisade posts were readily visible and remained within the construction trench fill.

Several characteristics were constant along the section tested. The slot trench was consistently 1' wide and contained dark brown sandy loam fill with slight orange clay mottling. The postmolds were mostly circular or oval shaped, and only two had the shape of split logs. The average diameter of the



Figure 16. West palisade posts on western end of James Fort (facing west).

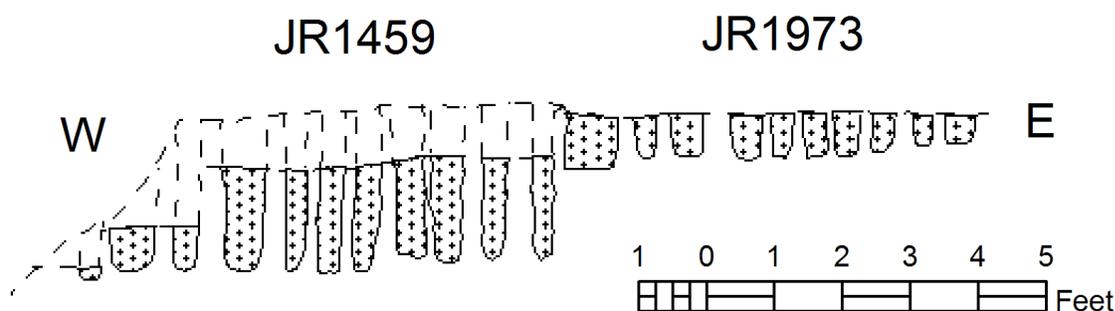


Figure 17. Profile of JR1459 & JR1973, adjacent tests into west palisade.

thirty-eight postmolds measured 7". Artifacts from the dark brown organic loam fill of the posts were few in number, and were made up largely of oyster shell, native potsherds, and lithic debitage, with the occasional local tobacco pipe, brick bits, clinker, and coal.

Along the length of the western palisade, postmolds were typically consistent in depth ranging from 7" to as much as 1'. However, excavations adjacent to the west bulwark ditch deviated from this pattern markedly. Specifically in two excavated units, JR1973 and JR1459, the difference in depth was as much as 1' below plowzone. Postmolds in section JR1459 on the western end closest to the bulwark displayed depths exceeding 2'. As palisade posts were seated deeper along the fort's ditch than on the curtain wall, the depth variance may have suggested the palisade in this portion of the fort was used for a structural element, such as a dirt ramp or elevated platform. Reinforced posts found in this area may have reflected a historical reference to the west bulwark and associated palisade: "newly and strongly impaled . . . faire platform for ordinance in the west bulwark raised."⁵

JR1459 also contained many more artifacts than the eastern section of palisade. The artifacts were found in the postmolds and included seven glass trade beads, case bottle glass, "Robert Cotton" pipes, straight pins, a clothing hook, and 522 faunal remains. Ceramics included native pottey, Frechen stoneware, delftware apothecary jar, and English earthenwares from North Devon, London, and the Surrey-Hampshire borders. The larger number of artifacts was likely due to the postmolds becoming open cavities after the posts had rotted away, or had

been pulled from the trench and then filled with rubbish.

The presence of a gate in the west wall was suggested by a 14' gap in the palisade, which roughly aligned with the grave of the individual thought to be Captain Bartholomew Gosnold (JR1046).

West Palisade Test Section (JR1962) at 1861 Civil War Gun Platform Ramp

A 4' section of the west palisade (JR1962) abutting a ramp leading to the Confederate fort gun platform was excavated in the summer of 2005. Evidence of the palisade survived at a high elevation on the western end of the test section because this area was left intact during the Civil War earthwork construction to serve as a ramp for the 1861 fort artillery. At 14', the western elevation of the test section was exactly 1' higher than the eastern end of the test. At the western end of the test the palisade slot trench was 2' deep; at the eastern end of the palisade in the test section, away from the gun platform ramp, the trench was only 7" deep. The fill of slot trench JR1962G consisted of a sandy loam and clay mixture. Six postmolds were also identified (JR1962B-H) with some over ½' in diameter. These mold shapes suggested the presence of both round and quartered palisade posts. The average width of this section of palisade trench was 1', and the bottom contour of the slot trench was relatively flat. Artifacts included lithic debitage, English white ball clay tobacco pipes, lead shot, faunal remains, native pottery, and Ligurian faience.

West Palisade Test Section (JR1961) & Small 1' Gap in West Wall: (Possible Associated Features JR1760 & JR1761)

A modern utility line (JR1542) disturbed JR1961, a 4' long test section of western palisade. On the eastern end there was a 1' gap in the wall. The fill of this palisade section (JR1961G) consisted of compact brown loam and orange clay and contained both shell-tempered and crushed-quartz-tempered native pottery. Five postmolds were found in the 1' deep slot trench. The average width of this section of palisade was 1'3".

Located at the center of the west palisade wall was a 1' break or gap in line. The sections of palisade were slightly out of line by nearly 6" at the gap. It was clear that this gap was intentional, but its purpose remained unknown. Two features, a posthole (JR1760) and a small slot trench (JR1761), possibly were associated with the gap. The 10" diameter posthole was located north of the gap. If the gap was contemporaneous with the palisade, then the post may have served to block the movement of people through the wall. The posthole was 1' deep, the same depth as the nearby palisade test section (JR1961). The small slot trench was located outside and perpendicular to the fort wall, 4" from the wall itself, and 1'6" to the west of the gap. The slot trench (JR1761) was not excavated. The gap, posthole, and small slot trench may have served as a protective firing position for a musketeer. The section of palisade directly east of the gap remains unexcavated, but the section of the palisade just west of the gap (JR1961) was found to contain native pottery, English clay tobacco pipe, an iron sword belt buckle, and a link of iron mail.

Utility Cut through West Palisade: (JR1542 & JR1759)

Further investigations into the interior of the 1607 James Fort along the west curtain wall uncovered a 1938 electrical and telephone line cutting through several fort-period features, including the western palisade slot trench itself. In the spring of 2005, a section of the 1938 utility line that cut through the palisade (JR1542) was excavated to



Figure 18. Overview of test into utility line (note: palisade ditch below the depth of the utility trench).

determine the profile of the palisade slot trench.

A 2'11" by 2' test (JR1759) was excavated into the utility line, removing the orange clay and brown mottled soil which composed the fill. There were no artifacts in this fill. The utility line was 1'4" deep, with the electrical and telephone wires lining the sides. In the center, a faint stain of the very bottom of the palisade was visible, but less than 1" of slot-trench fill remained. The east and west profiles of the slot trench distinctively showed that the soil making the fill was medium brown sandy loam, in contrast to the utility trench and surrounding subsoil.

West Palisade Tests (JR1246, JR1272, JR1278, & JR1306)

Following the discovery of the west curtain wall during the 2003 field school, two successive tests were made along the predicted palisade line into the Confederate earthwork. Located approximately 76' ENE of west palisade test units JR1228 and JR1230, and 45' due west of JR1186, two 10' by 10' units (JR1246, JR1272) and one 5' by 5' unit (JR1278) were dug in the interior of the Confederate earthwork.

Excavations began by removing the eastern half of 10' by 10' JR1246. These excavations indicated that there was no intact pre-1861 plowzone. It had been destroyed during the construction of either the earthwork's parapet, or the bombproof to the west. The 3'6" of fill were composed of three layers of brown loam mixed with orange clay. A "saw-tooth" trench (JR1258) was the lone feature un-

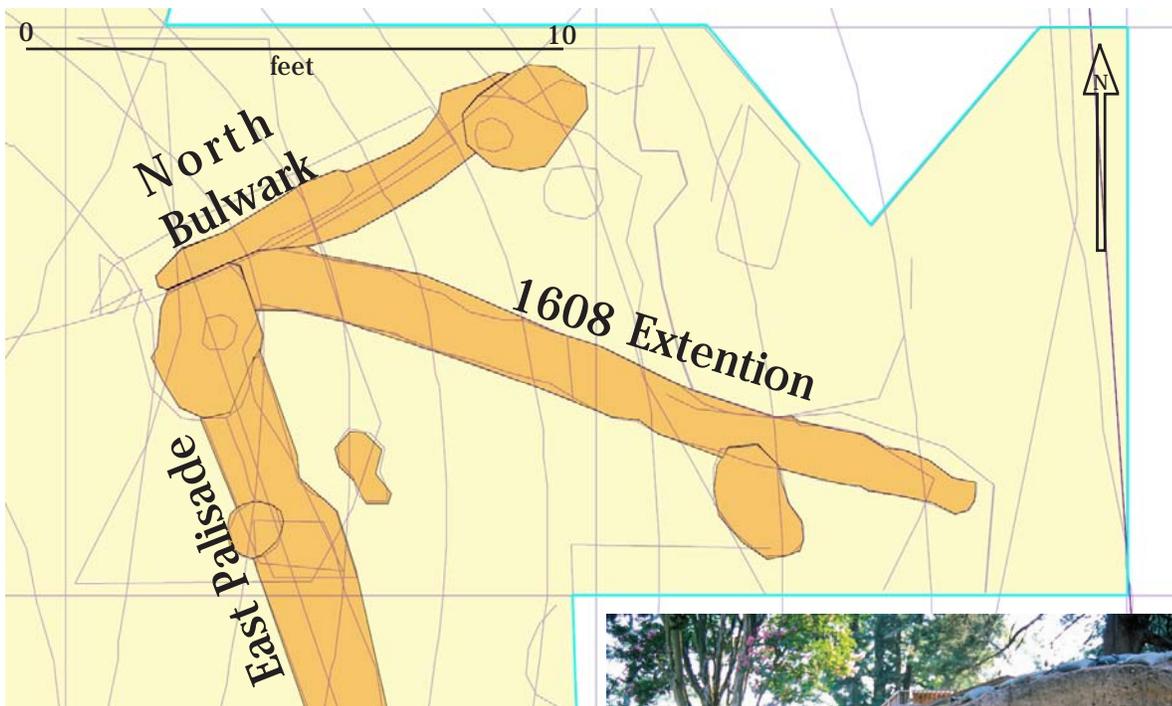


Figure 19. Site plan of north bulwark, east palisade, & 1608 extension.



Figure 20. Archaeologist pointing to where the north bulwark, east palisade, & 1608 extension come together (note: the 1861 Confederate earthwork mounds are in the background), (facing southwest).

covered, and was determined to have obliterated any remnants of the west palisade. Removal of the western half of the unit uncovered more of the trench, which consequently cut a 1' section of palisade (JR1312). A later 3' by 3' unit extension (JR1306) added an additional 2' to the section. Half of a circular feature (JR1279) was located in the unit's northwestern corner. To further define the feature's limits, a 5' by 5' unit (JR1278) was opened; it revealed the rest of the circular stain.

Bolstered by the survival of the slot-trench, the eastern half of a 10' by 10' unit (JR1272) was dug; it exhibited the same stratigraphic characteristics as the unit to the west (JR1246). A 2'2" remnant of the palisade line (JR1311), which respected the one found in the adjacent square, was heavily disturbed by tree roots. A 5" section of JR1311 was removed, uncovering only ½" of fill left in the palisade. Here, again, the paucity of palisade remnants was likely the result of activity relating to the Confederate earthwork's construction in 1861.

East Palisade (JR1285), North Bulwark (JR1292 & JR1293), and 1608 Palisade Extension (JR1289)

In the summer of 2003, excavations focused on the northeastern corner of the Confederate earthwork area in a continuing search for the north bulwark of the 1607 James Fort. Continuing the search for the north bulwark of the 1607 James Fort, excavations focused on the northeastern corner of the Confederate earthwork area in the summer of 2003. Previous archaeological testing for the east curtain wall had taken place during the 1996, 1997, 1998, and 2000 field seasons. The decision to ex-

cavate a 10' by 10' grid unit (JR1186) was based on these previous tests, as well as a reexamination of the original dimensions of James Fort, as described in primary sources.

Excavations into the 55° angle slope of the 1861 Confederate earthwork provided archaeologists with a great deal of information concerning its construction and fabric, as well as lending credence to the idea that the almost total lack of plowzone south of the church was a result of the earthwork's construction. In 1955, this same characteristic was noted by NPS archaeologist Joel Shiner who excavated in and around the Confederate fort as Project 100. Two of Shiner's test pits on the western side of the earthwork noted:

Colonial trash, where undisturbed, was usually about 1 foot thick. It was preserved under the Confederate earthworks and was usually destroyed at most points away from them. After a number of pits and trenches had been excavated in the vicinity of the Confederate Fort it became apparent that earth for the construction of the earthwork was obtained from both inside and outside the Fort. The interior of the Confederate Fort was scraped down to the native clay and the dirt thus obtained was piled on the earthworks. Colonial artifacts (pipestems, ceramics and brick fragments) are to be found throughout the soil of the Confederate earthwork. Even so, it was never a problem to distinguish between Colonial trash and the earthwork.⁶

The unit yielded an immense amount of 17th-19th century artifacts, further supporting the position that they came from 17th-century features that had been disturbed in 1861. Upon completion of the 10' by 10' unit's excavation, a 7' profile revealed the earthwork's stratigraphy, as well as about 1' of intact, pre-1861 plowzone.

Sealed by the plowzone was a 3'8" section of the east palisade line (JR1285) intersecting with a 2' diameter posthole (JR1288). Branching off of the posthole at roughly a NNE orientation were the stains of 6'5" of the north bulwark palisade line (JR1292, JR1293). At the same posthole junction, a 14'4" section of palisade heading in a slightly SE direction was uncovered as well. It appeared to be the remains of a 1608 palisade extension (JR1289). The east palisade, north bulwark, and 1608 palisade extension all had the characteristic 1' width, but differed in fill composition.

The east palisade section had no discernable postmolds. This was similar to other tests where excavators encountered "some concern with the difficulty of detecting distinct postmolds within the trench. There were postmold-like patches of dark loam in the trench, but they changed shape each time the trench was troweled down a[n] inch or two."⁷

Postmolds in the slot trench for the north bulwark were not visible, and it was unclear in some cases where the slot trench limits were. It was therefore given two different feature numbers (JR1292, JR1293) because it may have been a repair to the bulwark, or modifications made in 1608. The fill in the east palisade line and north bulwark consisted of medium brown sandy loam, with brick and mortar pressed in from the plowzone layer above. The 1608 extension contained medium brown loam mixed with clay, including several visible postmolds seen in the 8' section coming off of the junction post. The remaining slot trench suffered from the construction of the Confederate earthwork, resulting in the loss of about 1' of soil above and into the palisade line.

North Bulwark (JR2238), West Palisade (JR2226), Test (JR2293) into West Palisade, and Large Solitary Post (JR2228)

During the fall of 2006, the northern terminus of the west palisade slot trench (JR2226) was uncovered along with a section of James Fort's northern bulwark (JR2238). The Confederate Civil War earthwork completely covered the palisade line. There was no plowzone in this immediate area as it was likely stripped away prior to or during the building of the earthwork mounds. The construction of a dry moat for the northeastern corner of the Confederate fort obliterated the circular northern bulwark slot trench 14'7" from where it began its curve at the west wall.

At the point where the north bulwark terminated, a test (JR2284) was put into the earthwork in the summer of 2006 in order to see the north bulwark slot trench in profile.

This test found that 1' more of palisade survived on the slope and exposed a profile of the bulwark palisade trench. It was found that the bottom elevation of the slot trench was 11'3" where the bulwark was cut by the Civil War fort moat. In a less

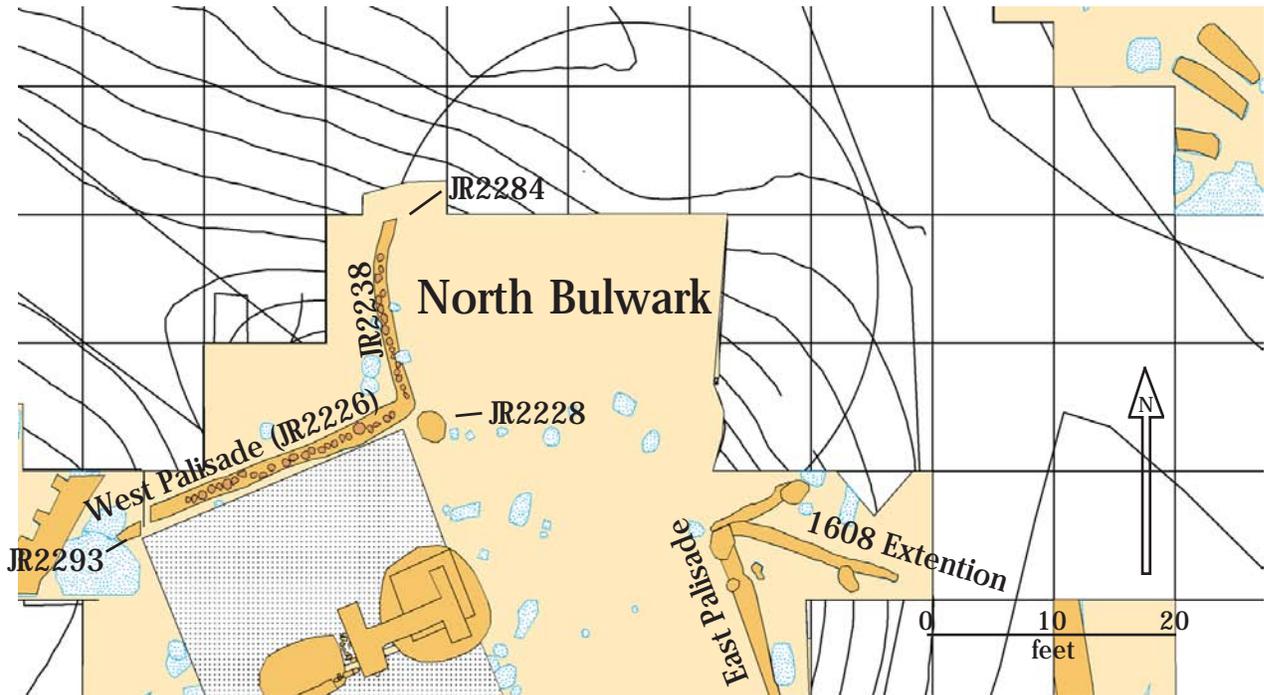


Figure 21. Site plan of north bulwark area.

disturbed area near the west palisade line, the top elevation of the north bulwark palisade line was 13'. Twenty feet south from the start of the north bulwark palisade, a test into the west palisade (JR2293) revealed the bottom elevation of the west wall to be 10'9". This test showed there to be only a ½' difference between the bottom elevations of the two slot trenches. This minimal change in elevation was a stark contrast to the west palisade at the west bulwark where the elevation drop was over 1'.

The surviving 14'7" section of north bulwark, JR2238, was excavated down 2" to clearly define postmolds; nineteen molds were visible in this stretch. The cannon in this bulwark were likely raised upon an earthen platform rather than upon

some type of wooden, raised platform because no deck-supporting postholes were found in the north bulwark interior. There was, however, one solitary posthole, JR2228, that was substantial and must have been an early fort-period feature. This post was located inside the James Fort palisade line and only 1' from the west wall. The hole itself was 2'6" in diameter, 2'3" deep, and had a postmold 1' in diameter. As with other early fort postholes, excavation revealed artifacts in the postmold, but not in the posthole fill. Artifacts included ceramics found in early fort contexts such as Native American pottery, Frechen stoneware jug, Martincamp earthenware flask, delftware apothecary jar, and calcareous North Devon jar. Brick bits and one fragment of oyster shell plaster may have been associated with the nearby rowhouse thought to have been



Figure 22. Bisected solitary posthole (JR2228), possibly the site of the fort's flagpole (facing west).



Figure 23. West wall palisade trench (left) meets the north bulwark palisade trench (right) with JR2228 in the bottom left corner of the image (facing west).

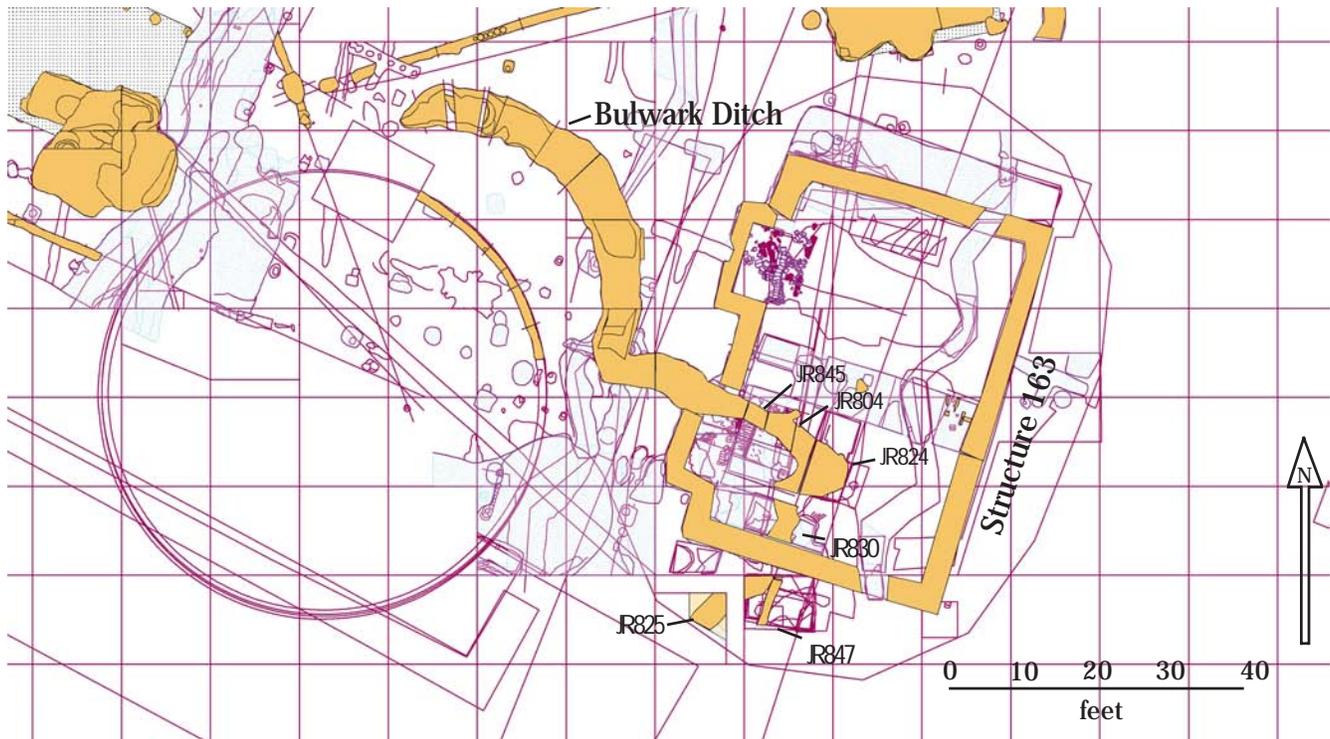


Figure 24. Site plan of southeastern corner of James Fort.

the governor's residence beginning in 1611. Due to the solitary nature and large size and depth of this posthole, it may have served to seat a flagpole.

Percy's Half Moon (JR804, JR824, JR825, JR830, JR845, JR847, & JR848)

There have been many conjectural representations of James Fort over the years, all based on the historical records. One persistent problem had been to reconcile the written description in light of a 1608 sketch map, (Zúñiga map) the only known illustration of the triangular fort.

In June of 1607, George Percy described the fort as being "triangle-wise, having three bulwarks at every corner like a half moon."⁸ Based on this text alone, one could conclude that there were three defensive features at each angle of a triangular fort. While trying to accommodate Percy's description with the Zúñiga Map, however, it was often assumed that the term "half moon" meant one crescent-shaped bulwark at each corner.⁹

In the winter of 2001-2002, Jamestown Rediscovery archaeologists focused their excavation on the east bulwark of the fort. Previous excavations had shown that instead of completing a circle, as



Figure 25. Lengthwise cross-section of small slot trench JR847 with postmolds visible (facing west).

expected, a ditch or dry moat made a quarter turn around the northeast of the bulwark palisade and took a turn to the east where it was interrupted by the footings of Structure 163. The projected ditch was also under the remains of footings for the 1907 commemorative gates to the APVA property.

After the removal of the gate footings and the excavations of the chimney destruction rubble from Structure 163 and its sub-floor, the remains of the ditch were uncovered. The ditch remnants were disturbed by the construction of Structure 163, but



Figure 26. Overall photograph of the angular outwork trench under Structure 163 foundations (facing south).

were originally so deep that they remained intact enough to trace their direction. What remained was an angular outwork trench beyond the circle of the east bulwark; a ditch that varied from 1' to 3' in depth. The north face measured 32' from the point it turned away from the circular bulwark trench. There it took an 80° turn back to the south. Three subsequent tests to the south showed the trench continued at least 30' more. Due to the disturbances from Structure 163, it was impossible to know what the original soil profile was during the fort period. The bottom elevation of the ditch, however, sloped downward as it got closer to the river. This may have indicated that originally the topography also sloped toward the river. Few artifacts were found in this feature. Besides Native pottery and a quartzite tapering-biface, the finds included colonial material such as two Nueva Cadiz-type beads, a matchlock lockplate, a gimlet, case bottle glass, and lead shot.

Additionally, a small section of a slot trench (JR847) was found to the east of the bulwark trench. The slot trench was oriented in a N/S direction, was 5'6" long by 10" wide by 6" deep, and had clearly defined postmolds. JR847 was likely constructed during the fort period; it was sealed by Midden 1, a second quarter 17th-century fill deposit and it contained mostly prehistoric artifacts, with the exception of one nail fragment and brick bits in a postmold. It was not clear if or how this feature was part of the fortification. Further excavations could reveal more about this feature by excavating more of the destruction rubble from Structure 163 to the north, and fill from Midden 1 to the south.

(Endnotes)

¹ Alexander Brown, *The Genesis of the United States*. (Cambridge: The Riverside Press, 1891), 353.

² John Woodall, *The Surgions Mate 1617*. (Bath: Kingsmead Press, 1978), 112.

³ Beverly A. Straube "But their victuals are their chiefest riches . . ." in William M. Kelso et al., *Jamestown Rediscovery VII*. (Richmond: The Association for the Preservation of Virginia Antiquities, 2001), 51-52.

⁴ R. A. Salaman, *Dictionary of Woodworking Tools* (Newtown, CT: Taunton Press, 1989), 427-443.

⁵ Ralph Hamor, "A True Discourse of the present estate of Virginia," in Haile, ed., *Jamestown Narratives*, 827.

⁶ John L. Cotter, *Archeological Excavations at Jamestown, Virginia*, (Washington, D.C., 1958), 11.

⁷ Nicholas Lucchetti and Beverly Straube, "1997 Interim Report on the APVA Excavations at Jamestown, Virginia," (Richmond, VA, Association for the Preservation of Virginia Antiquities, 1998), 5.

⁸ George Percy, "Observations gathered out of a discourse. . ." in Edward Haile, ed., *Jamestown Narratives: Eyewitness Accounts of the Virginia Colony*, 98.

⁹ Simancas (Valladolid). Archivo General M.P.yD.IV-660M.P.yD.XIX-163.

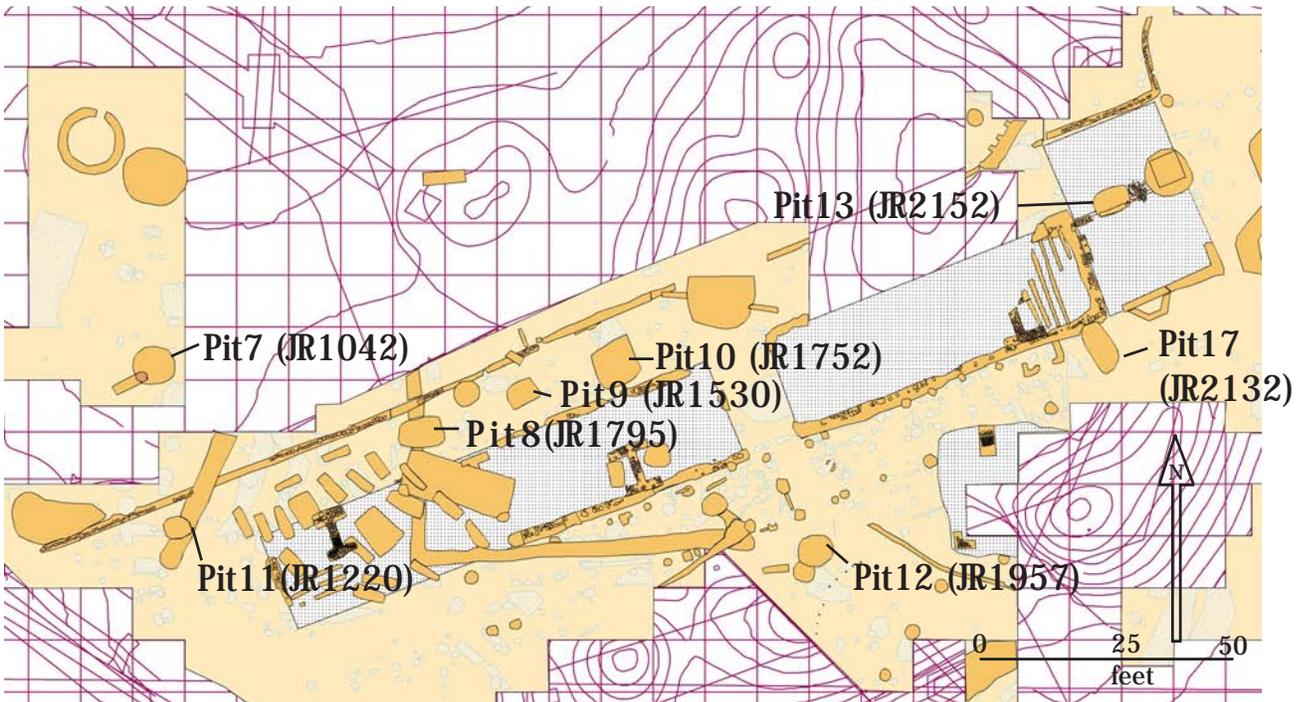


Figure 27. Site plan showing Pits 7-14 & Pit 17.

James Fort Period (1607-1624) Pits: A Summary

This report discusses the excavation and analysis of seven pits believed to date to the James Fort period (1607-24). Four of these (Pits 8, 9, 10, & 11) appear to have served at some point as a form of impermanent shelter during the earliest occupation of James Fort, ca. 1607-10. Primary sources indicate that the “Ancient Planters” of Virginia lived in “holes within the ground,”¹ which is what these pits likely represent.

One of the pits, Pit 13, appears to have been a cellar to an early mud-and-stud structure, the postholes of which did not survive due to disturbances caused by the construction of Sir Thomas Gates’s residence in 1611. Pit 5, located outside of triangular James Fort near the north end of Structure 165, also appears to have been a cellar to an early Fort Period structure. Pits 12 and 14 yielded a number of fort-period artifacts, but the function of these pits remains unclear.

As reported elsewhere, pit numbers for Jamestown Rediscovery are ordered sequentially, beginning with Pits 1-7.



Figure 28. Oyster shell rich layer in bisected Pit 5. See figure 73, p. 41 (facing north).

Pit 5 (JR731)

Pit 5 was basically a circular feature dating to the early fort period (ca. 1608-10) and measured an average of 8’ in diameter and 3’ in depth below the undisturbed subsoil level. The fill consisted of eight distinct layers consistently tipped in from the west, which indicated the feature may have been filled in from that direction. The bottom contours were rectilinear (5’6” by 3’8”), which suggested an architectural use. The pit contained ten separate deposits (JR731A-M); all except the bottom layer appeared to be deliberate trash deposits. Later disturbances to Pit 5 made it difficult to determine

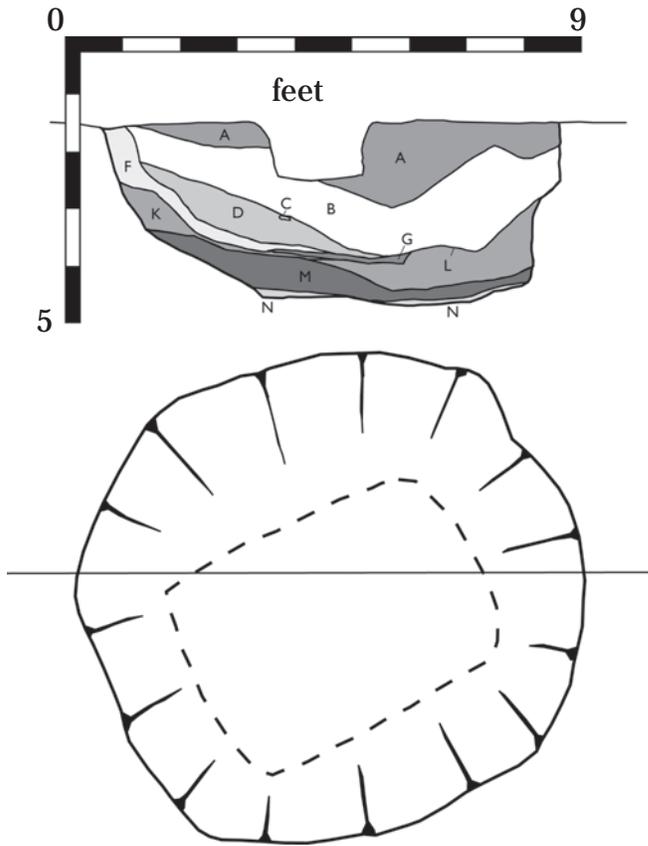


Figure 29. Profile and plan of Pit 5.

whether it ever had a structure associated with it. In the late 17th century, the area around the pit began to be used for burials as part of the Jamestown church graveyard. Although five burials surrounded, and in some cases disturbed, the pit fill, it was possible to excavate the feature without having to first excavate any of the burials.

Pit 5 was 18' to the north of Structure 165 (ca. 1610). There was no direct stratigraphic relationship between the two features, although a contextual association was suggested by the crossmembers of a Spanish olive jar and a Martincamp flask. If the rectangular shape of the pit bottom indicated the axis of a structure overhead, the structure's orientation would have been at odds with both the fort wall and the nearby Structure 165. This did not mean that Pit 5 and Structure 165 did not co-exist, but it appeared unlikely that they were constructed as part of the same structure.

There were many delftware apothecary jars represented in this feature. One small complete 70 mm-tall jar was painted with blue Xs at midgirth. A popular motif on early 17th-century London apothecary jars, this design was first seen in Antwerp in the 16th century and attributed to the Andries family of potters from Italy.² Members of this family



Figure 30. Delftware apothecary jar (height 186mm) from Pit 5 (JR731).

immigrated to England in the late 16th century and may have been responsible for the introduction of the design to London. Another notable early 17th-century apothecary jar from the pit was almost complete and measured 186 mm in height. It was decorated with a stylized peacock feather motif that also had its origins in Italy. Compositional analysis would determine if the jar was an early London product, possibly Aldgate, or was made in the Low Countries.³ Other ceramics found in Pit 5 included a Merida bowl, Midlands Purpleware butter pot, Hessian crucible, a London redware distilling dish, Portuguese faience, North Devon baluster jar, Essex redware, a Santo Domingo pitcher, Beauvais stoneware, and a Frechen stoneware jug. Of the ninety three fragments of clay tobacco pipes, most were made of Virginia clay (n=68), and the majority of these were identified as the products of "Robert Cotton" ca. 1608. One complete English pipe bowl with a teardrop-shaped heel was an Atkinson and Oswald Type 3 and dates ca. 1580-1610.⁴



Figure 31. Eight pence Scottish plack of James VI (ca. 1583-90) (diam.20mm).

Two coins were in the upper layers of fill, one a copper Irish penny dated 1602, and the other a Scottish plack of James VI (ca. 1583-90). Worth eight pence, the coin was made of an alloy of silver and copper known as billon.

A wide assortment of military-related artifacts was found in Pit 5. These included sword parts (n=2), sword hangers (n=24), scabbard parts (n=50), iron and copper-alloy bandolier cylinders (n=26), matchlock components (n=50), a firearm scourer, musket rests (n=2), bullet molds (n=3), and armor fragments (n=21).

Many objects related to the Indian trade were located in this context. These included sherds of shell-tempered Virginia Indian pottery (n=900), twenty-two of which mended into a sizeable section of a cooking pot, copper alloy bells (n=39), glass trade beads (n=53), and scrap copper (n=550). A rare survival was a section of a woven mat made of marsh reeds sewn together with hickory-bark fibers. Copper salts from scrap copper discarded with the mat had preserved it. The colonists wrote of



Figure 32. Woven Indian reed mat with copper scrap, Pit 5 (JR731).



Figure 33. Enameled gold scallop shell ornament, Pit 5 (JR731) (height 10mm).

these finely woven Indian mats, which they acquired through trade to “dress their chambers and inward rooms.”⁵

Of particular note from this context was a leatherworker’s tool known as a creasing iron. Harness makers, saddlers, and bookbinders use creasing irons to decorate leather or to provide a narrow channel as a guide for sewing.

Status was represented in the context by silver threads that accessorized clothing, and by a small gold scallop shell ornament. The shell was enameled with alternating rays of white and black and was pierced three times, which suggested that it was a decorative link. Further research may reveal if it was part of an earring, a chain, or even a rosary. The latter was suggested by the traditional association of the scallop shell with the shrine to St. James of Compostela.

Wild faunal remains were found in abundance. These included hundreds of fish bones (including sturgeon), turtle, raccoon, deer, and birds. Also present was a horse’s jawbone and horse teeth. The multitude of wild faunal remains and the presence of some horse remains was a signature aspect of James Fort during the starving time (ca. 1609-10). However, the professional faunal analysis from this feature has not yet been conducted, and further faunal research and identification must be done before this conclusion can be made.

Pit 8 (JR1795)

During the Spring of 2005, the excavation of several pits along the interior of James Fort’s west palisade wall defined the limits of Pit 8 (JR1795). Located approximately 3’ south of the palisade wall, the feature was oval shaped and measured 8’ E/W

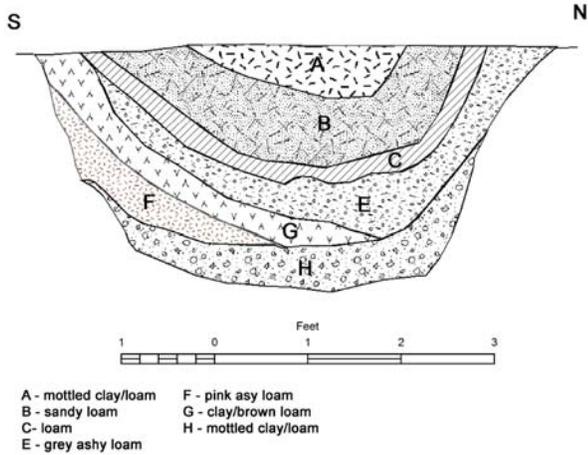


Figure 34. Profile of Pit 8.

by 5' N/S, cut roughly down the center by Ditch 24 (JR1378, JR1384). Pit 8 contained eight layers of fill 2'6" deep, gradually sloping in from the west for 3'6" before dropping off to a rounded bottom for the remaining 3'6". This characteristic made the feature very similar to the E/W profile of Pit 1's sub-pit A, as cut by sub-pits B, C, and D.⁶

Following the removal of a section of Ditch 24 (JR1384), Pit 8 was bisected on the N/S axis. After excavating the east half of the pit first, it became apparent from the profile that the feature had been filled from the south (the interior of James Fort).

The wide variety of finds recovered from Pit 8 closely resembled the assemblages of other James fort-period features. Reinforcing the early date of the feature were a ca. 1580-1610 English clay tobacco pipe bowl and a ca. 1607-09 English silver



Figure 35. Basket-impressed clay pot.



Figure 36. Articulated jack-of-plate during excavation.

halfpenny. Similarly, a majority of the pipe assemblage was attributed to local pipemaker Robert Cotton (1608), along with byproducts of his work such as clay shavings, unfinished stems with fingerprints, and a metal wire possibly used to bore out pipestems. Robert Cotton also may have made a curious basket-impressed clay pot found in this pit.

Artifacts in the pit were reflective of a high-status occupant, as indicated by *façon de Venise* glass, a brass book clasp, an ivory chess piece, and a Chinese porcelain wine cup with flame frieze decoration. Four lead cloth seals for Augsburg fustian were also in the pit. Fustian was a linen-cotton weave used in doublets as a fashionable substitute for silk velvet, and the best quality came from Augsburg in the 17th century. Other gentry clothing was represented by a button made of braided silver threads and 12 gilt copper-alloy spangles used to accessorize clothing.

Pit 8 contained many military artifacts such as a sword hanger and scabbard chape, two powder flasks, several bandolier cylinders, and lead shot of various sizes. The discovery of a nearly complete jack-of-plate slightly altered the excavation strategy in order to recover it in one piece, resulting in a minimal cut into subsoil altering the bottom contour of the pit.



Figure 37. Pit 9 with associated postholes (facing west).

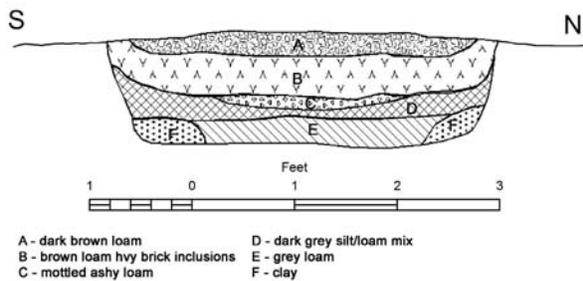


Figure 38. Profile of Pit 9.

Other artifacts, such as 296 pieces of copper scrap, a triangular copper pendant, 227 glass beads, and over 1,000 sherds of Roanoke simple-stamped pottery, indicated the early date of this feature and its association with the Anglo-Powhatan trade and exchange network. Similarly, extensive faunal material was found, including a horse-hoof coffin bone, which suggested the feature may have been open during the “starving time” of 1608-09 when the colonists were forced to eat their horses. Like other pits near the palisade line (such as Pit 9), Pit 8 may have been used as a storage pit under an impermanent, tent-like shelter.

Pit 9 (JR 1530)

Pit 9 (JR1530) was excavated in early 2005 as part of an investigation of a series of pits (Pits 8-11) along the interior of the west palisade wall. Located approximately 4' south of the James Fort wall, the feature maintained a rectangular shape measuring 5'8" E/W by 4'6" N/S. Similar to Pit 11 (JR1220), Pit 9 had a shallow depth of 1'5", as well as the shared characteristic of a flat bottom.

Bisected in the center on a N/S axis, the eastern half revealed six layers of fill. Analysis of the stratigraphy suggested that the feature did not lay open for an extended period of time, and was likely filled in shortly after it fell out of use. The first layer of deposition (JR1530A) was a silty erosion layer resulting from the obliteration of the plowzone and the upper layer of the feature during the Confederate earthwork construction in 1861. The next three layers of fill (JR 1530B, JR1530C, JR1530D) were characterized as having rich organic loam, with clay and charcoal inclusions. The remaining ½" inch of fill was primarily silt and sand, devoid of artifacts.

Temporally, Pit 9 related to the James Fort period, as reflected in the presence of benchmark early artifacts such as Robert Cotton pipes, copper scrap, Hessian crucible fragments, and Roanoke simple-



Figure 39. Unusual fire brick stamped “RF”, possibly the result of contamination from the construction of the Confederate fort in Pit 9 (JR1530).

stamped pottery. In addition, cross mends with Pits 8 and 10 and the western bulwark ditch were established by a Midlands Purple butter pot. A curious artifact, a plaster brick stamped “RF” in a circular cartouche, was recovered from the top layer of the feature. This was probably impressed into the pit fill from the plowzone above it because paving or fire bricks marked with initials of the brickmaker did not appear the late 19th century.



Figure 40. Native American pipe with a spatulate mouthpiece, Pit 9 (JR1530) (length 107mm).

In addition to a significant amount of faunal material, JR1530B contained two Type 5 English pipe bowls (ca. 1610-40)⁷, as well as a Native American tubular pipe with a spatulate mouthpiece, which paralleled a similar example from the Potomac Creek Site.⁸

Other ceramics in the pit included Border ware (a flanged dish, tripod pipkin, mug, and skillet), a Martincamp flask, a delftware drug jar, and a Frechen Bartmann jug with a blue accented mask. The crucibles exhibited clay wraps and residues which will be tested to identify metallurgical processes. Associated with these were fragments of a LPMR distilling dish (scorifier).

A unique find in the pit was an inkpen made from a goose radius with an oblique end-cut. Parallels have been found in Norwich, England in contexts dating from the 14th to the 16th centuries.⁹ Other significant objects included an ivory gaming die, a large sandstone hone, and a conch shell. As with all other early fort-period features, there were many military artifacts, including a sword hilt, a powder flask, jack plates, mail, a scabbard locket, a scourer, and a worm.

The locus of Pit 9 near the palisade wall suggested that it could have served as a storage pit for a crude tent-like dwelling from the first days of occupation of James Fort. A grouping of postholes surrounding Pit 9 further indicated this possibility, but has yet to be confirmed elsewhere. Postholes JR1533, JR1543, JR1578, JR1757, JR1764, and JR1787 were likely part of the tent structure defining the possible limits of this impermanent shelter.

Pit 10 (JR1752)

Excavations 4' 6" from the west palisade wall uncovered Pit 10, a rectangular pit measuring 6' 10" by 4' 1", with a depth of 1' 7". The location and orientation of the pit suggested use during the early period of the fort (ca. 1607-10). The pit's length



Figure 42. Silver Swedish Öre of King Johan III dated 1576, Pit 10 (JR1752) (diam. 26mm).

was parallel to the wall and its width was perpendicular to it. This relationship with the west wall suggested the wall was standing at the time Pit 10 was constructed.

Two smaller pit features (JR1751, JR1802) heavily disturbed Pit 10. JR1751 contained late 19th-century glass, was nearly 1' deep, and cut through a significant portion of the northeast quadrant of Pit 10. JR1802 disturbed the southwest corner of the pit and sealed a posthole (JR1803) which cut, and therefore postdated, the pit.

Pit 10 consisted of only two fill layers. The top layer, concentrated in the center of the feature, was mostly brown sandy loam with some orange clay, along with small brick flakes and light charcoal inclusions. This layer was only a few inches deep and



Figure 43. Pit 10 after fill was removed (note: intrusive features heavily disturbed the original contours of the pit).

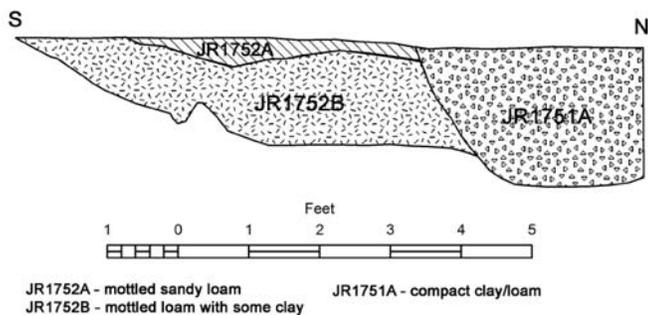


Figure 41. Profile map of Pit 10.



Figure 44. Beamer, fashioned from a deer metacarpal (length 191mm).

appeared to be filling a void created by settling of the surrounding soil. The remaining fill covered the entire pit feature and was 1'4" deep. The fill was a mix of gray and brown sandy loam with minor pockets of ash and orange clay. This layer accounted for nearly the entire fill in the feature, which suggested that the pit was filled quickly in one episode.

The artifacts from Pit 10 indicated that the pit dated to the early fort period, ca. 1607-10. Despite the relatively large size of the pit, there were few artifacts when compared to the other nearby fort-period pits of similar shape and size. The top layer held a silver Swedish Öre of King Johan III dated 1576—the oldest Swedish coin found archaeologically in America. There was also a very small iron tool for cutting glass in the upper strata. Composed of a cutter on one end and a hammer on the other, it was paralleled by a glass cutter found in an early 17th-century privy in Amsterdam.¹⁰ Some late 16th- and early 17th-century ceramic vessel types were found, including an unidentified Bartmann stoneware medallion. Although there was no crossmend, it was likely part of the Bartmann jug found in the cellar of Structure 165, which was 340' to the southeast of Pit 10. A significant portion of a Midlands Purple butter pot was also uncovered. This vessel crossmended with Pit 8, Pit 9, and the west bulwark trench, thereby establishing a relationship between these early fort contexts. Additional ceramics found in the pit included part of a Martincamp flask, delftware apothecary jar, North Devon, and Surrey-Hampshire Border ware. Almost all of the

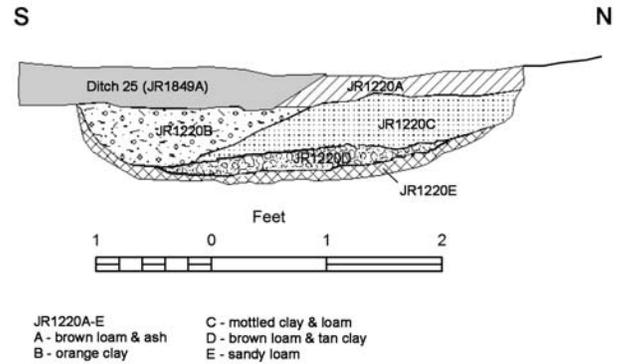


Figure 45. Profile map of Pit 11.

tobacco pipe fragments found in the pit were locally made, and some appeared to be of the style made by Robert Cotton, the 1608 pipemaker. A Type 3 English pipe bowl with a tear-drop shaped heel dated to ca. 1580-1610.¹¹ Military-related artifacts found in the fill included parts of several bandoliers, jack plates, a sword hilt, and a sword hanger. The faunal assemblage held sturgeon scutes, a bird talon, turtle shell, and two bear claws. One deer metacarpal had been fashioned into a tool. Known as a beamer, it was a two-handled tool used by the Virginia Indians to scrape hair from deer hide.

When open, Pit 10 may have been used as a storage pit, which its rectangular shape and a relatively flat bottom contour suggested. There were several postholes around Pit 10, but there was no discernable pattern for any type of structure that may have covered the pit. In the southwest corner, and along the south edge of the pit, there were three small puncheon holes for what were once driven posts; the largest was only 4" in diameter. All three of the puncheon holes were sealed by the fill of Pit 10, and therefore predated the filling. The positioning of the holes appeared random, and none of the holes were excavated. It is possible that posts in these small holes once supported an awning or tent to provide shelter for the pit.

Pit 11 (JR1220)

In the summer of 2003, archaeologists tracing the footprint of the west palisade wall of James Fort encountered feature JR1220, Pit 11. Located inside the fort, Pit 11 was situated 2'3" from the west palisade and 5'6" from a gate in that wall. The pit was 1'1" deep below the surrounding undisturbed subsoil, and its dimensions were 4'7" by 4'4" when measured on an axis with the west palisade.



Figure 46. Partially excavated Pit 11 with heavy concentration of bone and iron artifacts.

The overburden layers covering the feature included some plowzone and residual debris from the removal and subsequent relocation of the Reverend Robert Hunt Shrine in 1960.¹² Little plowzone remained above the feature because most of it had been stripped away by the initial construction of the Hunt Shrine in the 1920s. The Confederate earthwork, Structure 145, had been built above Pit 11 in 1861, but the Hunt Shrine foundation largely wiped out any trace of earthwork fill in the vicinity of Pit 11. A mid 17th-century ditch, Ditch 25, disturbed the eastern half of Pit 11.

Excavation of the pit took place in May of 2005. Before beginning work on Pit 11, however, fill from Ditch 25 (JR1849) was removed. The ditch was 6" deep and impacted the entire eastern half of the pit fill.

Pit 11 was sectioned along a NNW/SSE line perpendicular to the west palisade. The pit contained five fill layers, two with dense loam fill (JR1220A, C), two with predominately compact



Figure 47. London-made distilling dish or scorifier, Pit 11 (JR1220) (diam. ~157mm).

clay fill layers (JR1220B, D), and finally a wash or silt layer (JR1220E) at the bottom of the feature. Layer JR1220A was an artifact rich layer confined to the western half of the feature. The absence of JR1220A in the eastern half of the feature may be explained by the intrusion of Ditch 25 into the pit. JR1220B, a clay fill layer, was confined to the southeastern half of the feature and appeared to be re-deposited subsoil due to its clay consistency. Layer JR1220C, another layer with numerous artifacts, appeared mostly in the western half of the feature, which may have indicated deposition from the west. The final layer (JR1220E) was encountered all along the bottom of the pit and was likely a wash or erosion layer, which was deposited while the pit was an open feature. The strata profile indicated that the feature was filled from the northeast.



Figure 48. Oak leaf maker's mark on English tobacco pipe heel, Pit 11 (JR1220) (length 39mm).

It appears that the pit may have been dug for use as a storage pit as it had a relatively flat bottom and evidence of squared corners. The western side showed signs of two corners, but the intrusion of Ditch 25 left only faint evidence of corners on the eastern side of the pit. There is further evidence that supports the possibility that this feature was dug with regular dimensions for use as a storage pit. When measured on the west palisade wall's axis, the bottom measurements of Pit 11 were 4' by 4'. There was no evidence of postholes relating to the pit, as there was with Pit 9. Had any shallow postholes once existed around Pit 11, disturbances associated with the Hunt Shrine construction, plowing, and construction of the Civil War earthwork likely removed them.

As with many of the early contexts in James Fort ca. 1607-10, Pit 11 contained industrial pottery associated with triangular Hessian crucible fragments, encrusted with residues, which were found with sherds from at least two London-made distilling dishes or scorifiers. Scorifiers are shallow vessels used for initial refining processes that do not



Figure 49. Four lead cloth seals, in situ, bearing the heraldic pinecone symbol of Augsburg, Germany, Pit 11 (JR1220).

require extremely high heat. As a result, they do not need to be made of refractory clays like the crucibles. Also, a shallow Merida-type dish was found reflecting the London scorifiers shape, so it may have served the same purpose.

The ceramic collection included a blue and manganese Anglo-Netherlandish apothecary jar, a baluster jar from North Devon, England, a lead glazed earthenware skillet, and a tripod pipkin, the latter two having been made in Essex, England. The rim of a rare Ligurian maiolica dish painted in blue upon a yellow ground was found in layer JR1220A.

Over a dozen sherds of Roanoke simple-stamped pottery, a common indicator of ca. 1607-10 features, were found in the top strata. Several pieces of English pipes, including three bowls with tear drop-shaped heels (ca. 1580-1610), were found in the strata of Pit 11. One of the bowls had a maker's mark on the heel in the form of an incuse oak leaf. This mark has been recorded in London as die #100155.¹³ Many pipe fragments from the local pipe maker Robert Cotton (ca. 1608) were also found in this context. Four lead cloth seals bearing the heraldic pinecone symbol of Augsburg, Germany were found side-by-side and overlapping one another in layer JR1220A. The four cloth seals were closed, which may indicate they were still attached to fabric when they were thrown away. Twenty-six Augsburg cloth seals have been found during Jamestown Rediscovery excavations, including five from Structure 165 (ca. 1610).¹⁴ Eight Augsburg seals were found at nearby Martin's Hundred in ca. 1619-22 contexts.¹⁵ Augsburg seals marking fustian (a cotton-linen blend) are the most common imported seals found in England.¹⁶

A wide assortment of military-related artifacts was found in Pit 11. These included a powder flask, a trigger guard, a bullet mold, multiple lead shot,



Figure 50. Pit 12 (JR1952) profiled.

small armor fragments, a copper alloy bandolier, and ten brigandine plates with copper alloy tacks attached. The latter appeared to form the neck and shoulder area of the protective garment known as a brigandine. This impressive array of military artifacts closely paralleled those found in nearby Pit 8, which contained a still articulated jack-of-plate.

Wild faunal remains were found in abundance. These included hundreds of fish bones and dozens of turtle remains. The fish thus far identified included sturgeon and gar. A multitude of wild faunal remains is a sign of an early James Fort (ca. 1607-10) deposition.

Pit 12 (JR1957)

Pit 12, JR1957, was a shallow circular pit disturbed by fill in an adjacent well, JR1474 (Structure 181), and a Civil War posthole (JR1457). Pit 12 measured approximately 5' by 7' in plan, and 1'2" deep. In the summer of 2005, the northwest-

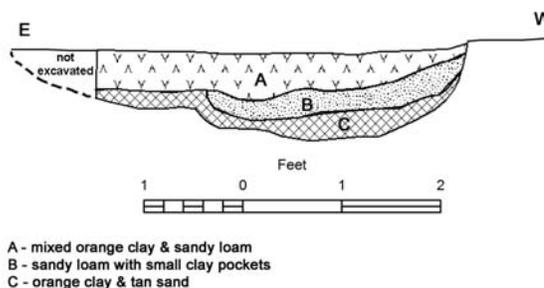


Figure 51. Profile of Pit 12.



Figure 52. Mended refractory clay with the impression of a crucible base, Pit 12 (JR1957).

ern quadrant of the pit was excavated in conjunction with the investigations of JR1474. This was followed by the removal of the southwest quadrant of Pit 12 in order to determine the nature of the strata, and the relationship between Pit 12 and JR1474.

Pit 12 was comprised of three layers of fill. At the surface, JR1957A consisted of equal parts of orange sandy clay, gray sandy loam, and tan sandy loam. Similar to JR1957A, JR1957B contained a greater quantity of dark grey sandy loam and was thus darker in color. The terminal layer, (JR1957C), included orange/tan clay with pockets of tan sand.

Very few artifacts were retrieved from the western half of the pit, but they did show signs of burning. The ceramics were overwhelmingly industrial with at least one LPMR distilling dish (scorifier), a cupel, and 51 sherds of Hessian crucibles. The sherds reflected both the triangular and beaker types of crucible and manifested residues and burning. Two large sections of refractory clay mended together and appeared to contain the impression of a crucible base. These sherds were heavily encrusted with burned material. Tests will be conducted to identify this industrial process.

Other ceramics in JR1957A included Roanoke simple-stamped pottery, green glazed North Devon coarseware, Border ware, delftware drug jar, and a Midlands purple butter pot. Similarly JR1957B contained sherds of native ceramic and English Border ware.

The artifacts indicate a ca. 1607-10 date for the pit, but its primary function is not apparent.

Pit 13 (JR2152)

Excavations just west of hearth JR2160 uncovered a roughly rectangular-shaped feature oriented E/W. This feature, Pit 13 (JR2152), was approximately 12'10" from the west palisade line, and 7'2" long by 5' wide. An addition to Structure 175 (Structure 176) was built over Pit 13, and its location adjacent to a ca. 1611 well (Structure 177) made Pit 13 a likely candidate for one of James Fort's earliest deposits. The orientation approximately 12'10" from and parallel with the palisade wall also lent credence to this early date.

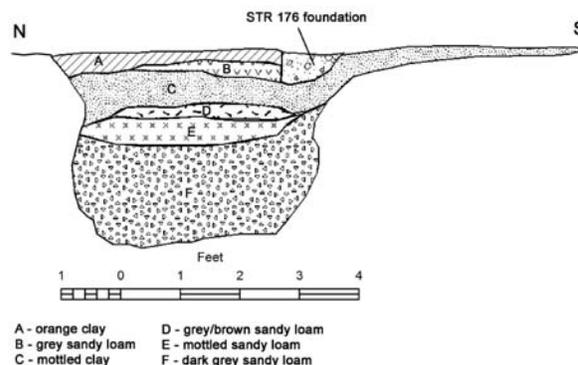


Figure 53. Profile of Pit 13.

The west half of the feature was excavated first, primarily to explore the relationship of Pit 13 to Structure 176. A compact layer of yellow clay (JR2152A), likely related to the construction of the structure or associated hearth (JR2160), masked the true limits of the rectangular pit. This clay layer was less than 1" thick, and it yielded a matchlock trigger guard and a cheek piece to a burgonet helmet.



Figure 54. Cross-section through Pit 13 (JR2152) (facing east).



Figure 55. Green heart-shaped glass bead strung on a brass pin between two bone beads (height 22mm).

A grey sandy layer (JR2152A) was slightly deeper and was probably the last deposit. Three Native American shell disc beads (2 oyster shell and 1 mussel shell), and a Groningen token (dated 1590) were recovered from this level, as were many sherds of Roanoke simple-stamped pottery. A 1' deep layer of mottled orange/brown loam and clay (JR2152C) yielded an unusual green heart-shaped glass bead

strung on a brass pin between two bone beads. A similar heart-shaped glass bead was found at the late 16th-century Spanish settlement of Santa Elena where it was interpreted as an earring.¹⁷ This was a possible use for the bead found in JR2152C, but it could have been part of a rosary, as bone beads were more often associated with rosaries than with jewelry in the early 17th century.¹⁸

The remaining three contexts (JR2152D, JR2152E, JR2152F) contained fewer artifacts and burned wood. The carbonization contributed to the rare survival of a seed and a nut. These layers were very organic in texture, with the highest concentration on the east side of the feature. Of note was a Robert Cotton clay tobacco pipe with the initials "W B" stamped into it. The shape of the pipestem transitioned from faceted to round.

Among the sherds of Native American pottery was a large rim section with a lug handle of Prince George type pottery. This pebble-tempered, cord-marked ware dates to ca. 500 B.C. to A.D. 200 and was made in central Virginia's interior Coastal Plain.¹⁹

Unlike most James Fort contexts, Pit 13 contained freshwater mussel, clam, and cockleshells. There were also eight fragments of coral (*Acropora cervicornis*), which were probably collected by colonists in the Caribbean.²⁰

An examination of the subsoil sides of the pit showed hack marks, likely caused by the shovels and picks used when the hole was dug. The 4' deep pit had a flat bottom and appeared to have been filled in one episode from the east. There was a 7" diameter posthole, JR2309, in the southeast corner of the pit, the function of which is unknown. The posthole had a postmold 4" in diameter and a depth of 9".

Pit 14 (JR1576)

Pit 14 was located 25' from the west palisade line inside James Fort. The pit measured roughly 4'11" by 4'4", with a depth of 1'1" below the grade of undisturbed subsoil. Plowzone layer JR1400C sealed the pit, and the pit did not overlap any other features. Excavations of the east half of the pit revealed two distinct deposition layers, JR1576A and JR1576B. JR1576A consisted of dark sandy loam with ash inclusions, and it contained 21 copper alloy upholstery tacks, aglets, and a book clasp. Ceramics found included Martincamp flask, a Frechen



Figure 56. Robert Cotton clay tobacco pipe with the initials "W B" (length 44mm).

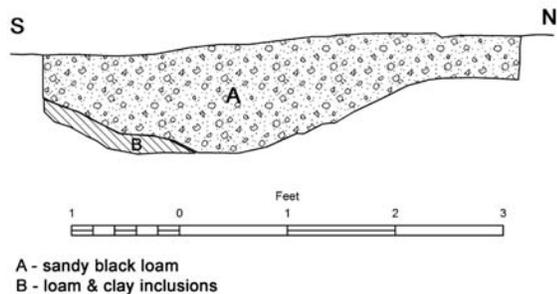


Figure 57. Profile of Pit 14.

stoneware jug, and twenty-seven sherds of shell-tempered native pottery. Besides nails, all the iron artifacts from the pit were military, including two sword belt buckles, one jack plate, and a scabbard base. Twenty-seven lead shot and a single musket ball were also found. Layer "A" sloped towards the center of the pit, and in the north half of the feature this layer rested on subsoil. In the southern half of the pit, a fine dark brown loam layer (JR1576B) was present under JR1576A. The "B" layer was only 2" thick and rested on subsoil. The bottom of this feature was uneven.

The purpose of Pit 14 is unclear. The absence of a flat bottom in the eastern half suggested it was not used as a storage pit. The western half was not excavated, however, and the full extent of the bottom contours is not known. Pit 14 may have been filled prior to the construction of Structure 172. The early artifacts and military artifacts from the feature, as well as the relatively small amount of finds, suggested a fort-period deposit date of ca.1607-10. Nearly half of the feature was found inside a firebox for a chimney base (JR1412), one of the "H"-shaped chimney bases to Structure 172. Consequently, the pit would not have been open while Structure 172 was standing.



Figure 58. Pit 14 half excavated (facing west).



Figure 59. Profile view of Pit 17 (JR2132 & JR2133) (facing north).

Pit 17 (JR2132 & JR2133)

In the course of investigating the remains of Structure 175 during the 2005 field season, a pit (JR2132) measuring 5'2" wide by 8'4" long was found. Oriented N/S near the southeastern corner of the structure, the relationship between JR2132 and Structure 175 was unclear. Excavation later revealed that Structure 175 was probably built on top of the already backfilled JR2132. Further complicating interpretation, JR2132 also was sealed by a circular, clay-filled feature (JR2133), which had brickbat and cobble inclusions. To substantiate the relationship between these features, a section of Structure 175's cobble footing will be removed.

A 4' test section was placed roughly in the center of JR2132 and JR2133, approximately 2' south of Structure 175's foundation, and 2'8" north of the excavation limits. The removal of JR2133 revealed that beneath the yellow clay (JR2133A, B) there was a lens of reddish brown loam (JR2133C) containing early artifacts including a Nueva Cadiz-type bead, jack plates, a breastplate fragment, and a strike-a-light in excellent condition. This shallow

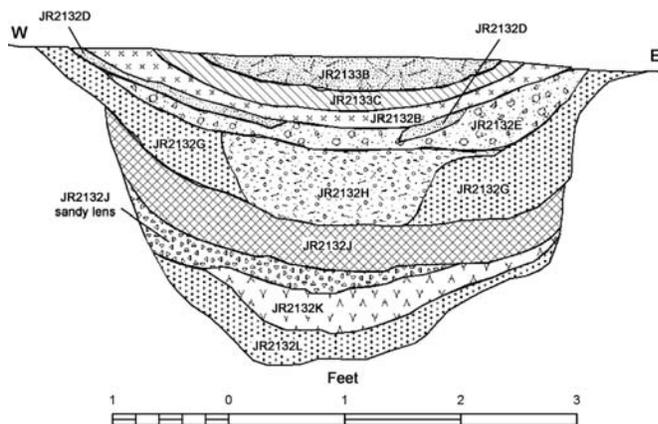


Figure 60. Profile map of Pit 17.



Figure 61. Chinese porcelain bowl fragments found in upper layers of JR2132 & JR2133.

deposit was less than 6" deep and was later determined to be a layer in JR2132, which overlaid a layer characterized by gray, waxy loam (JR2132B). Crossmends of an early 17th-century Chinese por-



Figure 62. Early 17th-century scissors excavated from JR2132H (length 171mm).

celain bowl between JR2133C and JR2132C, G, H, J, K, and L confirmed this relationship. Layer JR2132B contained six Native American shell beads, a glass chevron bead, and Hessian crucible base and body fragments, all artifacts associated with James Fort's earliest features previously excavated.

Two layers (JR2132C, JR2132D) were rich with faunal material and more fort-period artifacts, including Roanoke simple-stamped pottery, Midlands Purpleware butter pot sherds, and "Robert Cotton" marked pipestems. Also recovered from level JR2132E were 16.3 kg of slag and a large amount



Figure 63. Iron strike-a-light from JR2133C (length 82mm).

of charcoal. Fragments of North Devon vessels, elements to snaphaunce and matchlock firearms, "Robert Cotton" pipes and pipemaking saggar fragments, and an intact bandolier came from this sandy/ashy layer. Also found was a Flamingo Tongue—a gastropod found in Bermuda waters. JR2132F, G, H, and J also contained heavy slag and charcoal. Another gastropod from Bermuda or the Carribean, a Checkered Nerite, was found in the G layer. Of particular note in the H layer were five roughly formed clay balls. Thought to be ob-

jects for amusement, one of these was found in each of Pits 8 and 11, and two were found in Structure 166. Also found in JR2132H were several dagger pommels, bandoliers, a powder flask nozzle, and a pair of scissors.

Deposits JR2132K and L were composed of compact orange clay that was sometimes difficult to distinguish from subsoil. Burned daub was found in heavy concentrations in both layers, along with quartz flakes, very small sherds of Native American pottery, fragments of the Chinese porcelain bowl found in the upper layers, and numerous fragments of case bottle glass, some showing signs of heat distortion. This pit had relatively straight sidewalls, a flat bottom, and a depth roughly 2'5" below the 17th-century subsoil grade.

While the purpose of Pit 17 remained unknown, the artifacts indicated it was filled early in James Fort's history. Tests revealed that JR2133 was a Pit 17 layer, not a separate feature.

(Endnotes)

¹ The Ancient Planters of Virginia, "A Brief Declaration...", in Edward W. Haile, ed., *Jamestown Narratives: Eyewitness Accounts of the Virginia Colony* (Champlain, VA, Roundhouse, 1998), 894.

² Claire Dumortier, "Antwerpe zalfpotten in de Koninklijke Musea voor Kunsts en Geschiedeni te Brussel," in Johan Veeckman (ed.) *Berichten en Rapporten oert bet Antwerps Bodemonderzoek en Monumentenzorg*. (Antwerp, 1996), 119-121.

³ Beverly A. Straube, "A Peacock's Flight . . . Across 100 Years," in Robert Hunter, ed., *Ceramics in America, 2000* (Milwaukee, Wisconsin: Chipstone Foundation), 199-201.

⁴ David Atkinson and Adrian Oswald, "London Clay Pipes," in *Journal of the British Archaeological Association* XXXII. 1969: 171-227.

⁵ William Strachey (1610) "A True Reportory," in Louis B. Wright, ed., *A Voyage to Virginia in 1609* (Charlottesville: The University Press of Virginia, 1964), 81.

⁶ Seth Mallios and Beverly Straube, "1999 Interim Report on the APVA Excavations at Jamestown, Virginia," (Richmond, VA, Association for the Preservation of Virginia Antiquities, 2000), 28.

⁷ Atkinson and Oswald, 171-227.

⁸ Dennis B. Blanton, "The Potomac Creek Site (44ST2) Revisited," in *Virginia Department of Historic Resources Research Report Series* No. 10, Richmond, VA, 1999.

⁹ Sue Margeson, *Norwich Households: The Medieval and Post-Medieval Finds from Norwich Survey Excavations, 1971-1978*, East Anglian Archaeology Report No. 58, 1993: 68-9.

¹⁰ Jerry Gawronski, Ranjith Jayasena, Jorgen Veerkamp (2007) *Beerputten en bedrijvighed. AAR (Amsterdamse Archeologische Rapporten)* 6, 31.

¹¹ Atkinson and Oswald, 171-227.

¹² Will Molineux and Rodney B. Taylor, *Images of America: Jamestown* (Printed in Great Britain, Acadia, 2004), 32.

¹³ <http://www.museumoflondon.org.uk/Claypipes/>

¹⁴ Nicholas Lucchetti and Beverly Straube, "1998 Interim Report on the APVA Excavations at Jamestown, Virginia" (Richmond, VA, Association for the Preservation of Virginia Antiquities, 1999), 21.

¹⁵ Ivor Noël Hume, *The Archaeology of Martin's Hundred* (2 volumes, Williamsburg, VA, The Colonial Williamsburg Foundation, 2001) 418-20.

¹⁶ Geoff Egan, "Lead Cloth Seals and Related Items in the British Museum," in *Occasional Paper 93*, The British Museum, 1994: 6.

¹⁷ Stanley South, *Archaeology at Santa Elena: Doorway to the Past* (Popular Series 2, Columbia, SC: University of South Carolina, 1991), 72.

¹⁸ Kathleen Deagan, *Artifacts of the Spanish Colonies of Florida and the Caribbean, 1500-1800* (Washington DC: Smithsonian Institution Press, 2002), 67.

¹⁹ Keith T. Egloff and Stephen R. Potter, "Indian Ceramics from Coastal Plain Virginia," in *Archaeology of Eastern North America*, 1982, Vol. 10, 103.

²⁰ Walter Adey: personal communication.

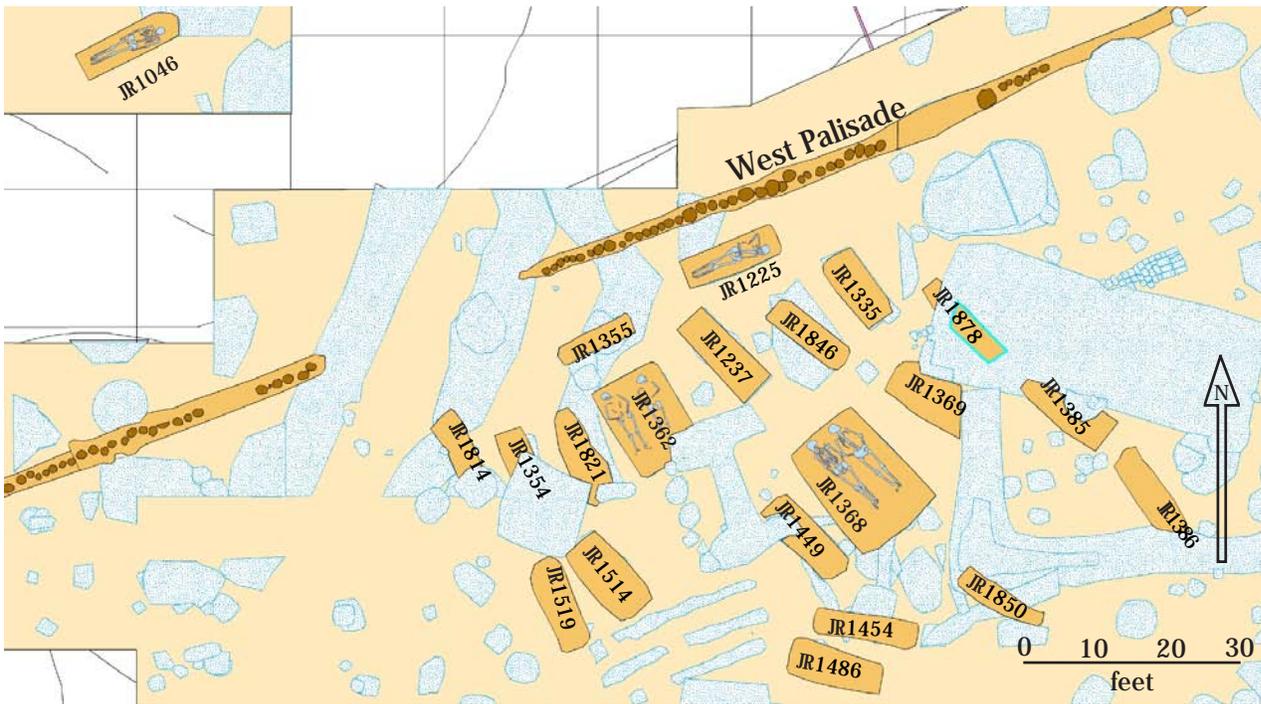


Figure 64. Site plan of James Fort burial ground.

Summary of James Fort-period Burial Ground Just Inside West Fort Wall

Excavations close to the west palisade wall and inside James Fort (2003-2005) revealed twenty early fort-period grave shafts. Eighteen of the twenty graves respected the orientation of the west palisade wall, as they were perpendicular to and/or parallel to the slot trench of the wall. The graves that were perpendicular to the west palisade were on a NW/SE axis, while those that were parallel to the palisade were on a SW/NE axis. Only two of the graves were parallel to the west wall (JR1225, JR1355), and these graves were the closest burials to the wall. The southernmost two burials (JR1454, JR1486) were not oriented with the west fort wall and were oriented E/W. Excavation of the overburden to the south of these burials could uncover more burials.

Further supporting the possibility that there are more graves related to this burial ground was the discovery in 1896, during the preparation for the sea wall, of several skeletal remains “lying in regular order, east and west, about two hundred feet west

of the [Church] tower ruin.”¹ Based on the two hundred foot measurement from the tower, and the fact that the graves were eroding into the river, these burials were likely only fifty feet from the southernmost of the twenty recently discovered burials. John Smith stated that fifty colonists died between May and September 1607, which suggests that if these are the 1607 burials, then there may be two dozen more graves left to uncover.²

The burials must date to the early fort period as they predated Structure 172 (ca. 1611). A chimney base and foundation cobbles associated with Structure 172 partially overlaid three of the burials (JR1449, JR1519, JR1362). Furthermore, evidence of the foundations of this building showed that fifteen of the twenty burials would have been completely or partially under the building when it was constructed. Not one of the twenty grave shafts noted thus far disturbed the fill of any other feature. This showed that the burials were among the earliest English features in this area of the fort. Other graves in the burial ground sealed by later features included burials JR1385 and JR1878, which were disturbed by Structure 173 (late 17th century). Ditch 24 (ca. 1640-60) also disturbed two graves (JR1850, JR1365).

Instructions in late 1606 from the Virginia Company of London Council to the would-be Jamestown colonists stressed “above all things” the need to hide the numbers of English sick and deceased in order to prevent the Virginia Indians from

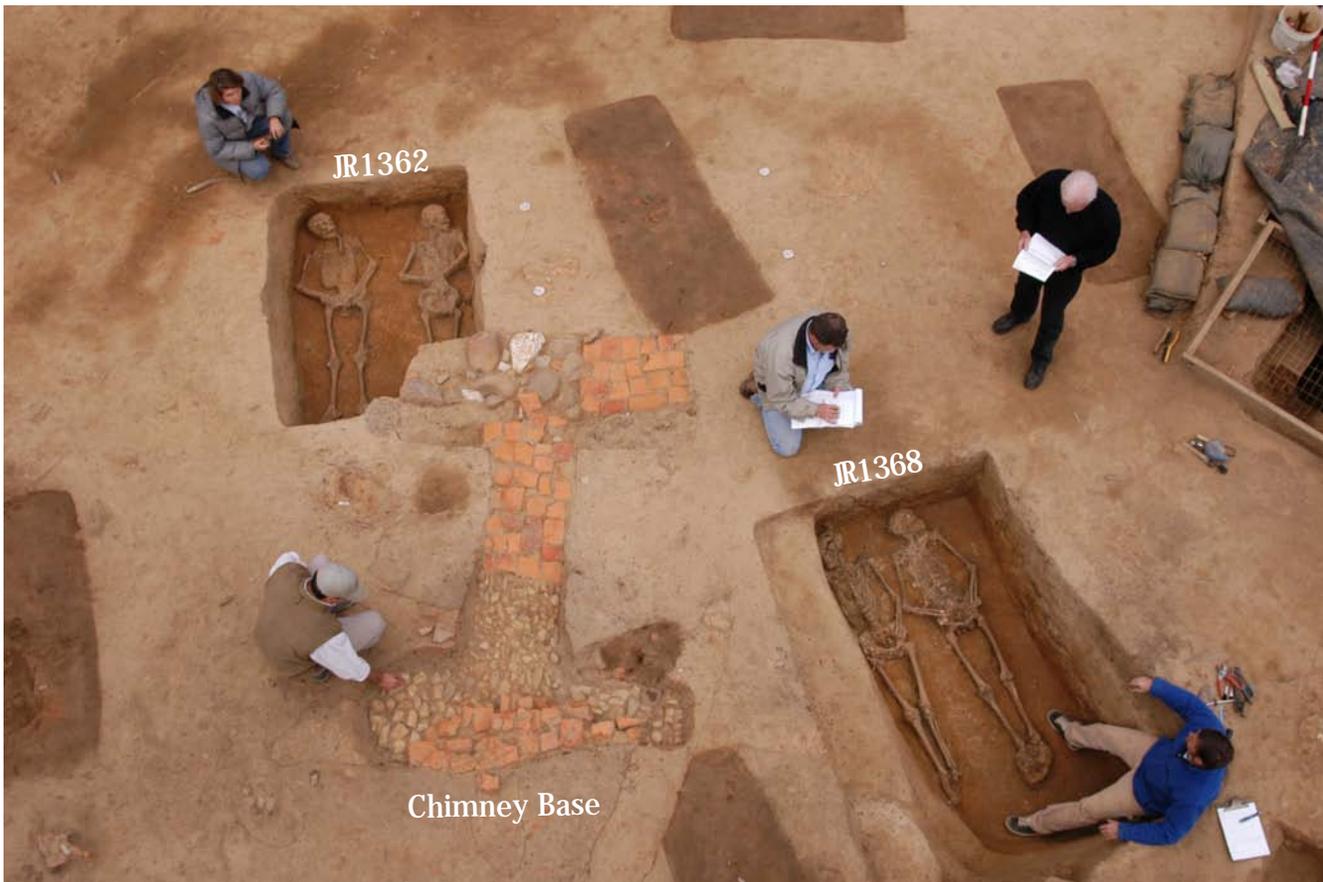


Figure 65. Two double burials (JR1362 on the left & JR1368 on the right) excavated.

“seizing upon their weakness.”³ The instruction to conceal the deaths of the colonists from the Indians may explain the reasoning behind burying the dead inside the crowded confines of the fort walls.

To date, three of the burial shafts (JR1362, JR1368, JR1225) have been excavated. JR1362 and JR1368 were double burials with two adult European males simultaneously interred. These two burials may have implications for dating the burial ground; on four occasions in 1607 two colonists died on the same day.⁴ Finally, JR1225 held the remains of a European teenaged male. All individuals thus far excavated in the burial ground have been male, which is in keeping with the all-male demographics of the colony during its first year.⁵

Burial (JR1362)

In November of 2004, archaeologists excavated the burial shaft of a double burial, JR1362. The shaft measured 6’6” by 4’10”, which was unusually large for a burial shaft. The bottom depth of the shaft varied from a depth of about 1’5” at the north end to roughly 1’11” at the south wall. The burial was only 7’10” from the west palisade wall and was

located inside the fort. JR1362’s orientation on a NW/SE axis, perpendicular to the nearby west palisade wall inside the fort, suggested a fort-period burial. Furthermore, it was apparent that JR1362 was an early fort-period burial because it was disturbed by the later construction of one of the chimney bases (JR1361) of the fort-period building known as Structure 172 (ca. 1611).

In addition to the chimney base from Structure 172, several other features post-dated JR1362. A probable rodent burrow (JR1717) disturbed the fill of the feature. JR1732, a small lens of brick scatter, possibly indicating Confederate fort fill, sealed the northeast corner of the burial. Posthole JR1716 cut into the southern edge of the grave shaft. The posthole was left unexcavated because it did not overlay any remains. Some burial fill was also left around the posthole as a buffer to prevent any possible mixing of the fill with the burial.

The grave shaft fill (JR1362A) was a mix of yellow clay and brown loam with a sandy texture; it was screened through a ¼” mesh. No European artifacts were found in the fill, another indicator that the burial was from the first year or two of the fort’s

occupation. The absence of European artifacts in the fill showed that the surrounding area had not yet been utilized for any intensive domestic or industrial activity. There were prehistoric artifacts in the fill, which reflected native occupation on this portion of the island centuries prior to colonization. For the initial stage of excavation, it was decided to leave the chimney base (JR1361) unexcavated in case it was not directly above the remains. The first skeletal remains, a cranium, were encountered at about 1' below the subsoil grade of the burial. A second individual was found shortly thereafter.

The two individuals in the burial shaft were buried simultaneously, which was apparent given the uniform burial fill sealing the remains, and the even depths of the individuals. The fact that the two individuals were in the same grave shaft may be an indicator of the stressful times at Jamestown. Not only did two individuals die within a short period of time of one another, but the gravediggers may have saved energy by digging one larger shaft rather than two smaller ones. Both individuals were extended adult European males with their heads placed to the north. JR1362B was the eastern of the two skeletons, and JR1362C the western remains. The two individuals had more than ample space between them, and it was evident that the burial shaft was dug as large as it was with the intention of interring two bodies at the same time. JR1362B was positioned firmly against the east wall, which suggested that JR1362B was placed in the shaft first in order to be certain that there was enough room for JR1362C.⁶

The remains of JR1362B were not well preserved, but sex and age were still discernable. The remains were determined to be those of a young European male in his late teens or early twenties. Age was determined by the eruption of the third molars and the minute amount of wear on the dentition. The sex was determined by the size of the long bones and the height of the chin.⁷ JR1362B was not buried in a coffin, and there was no sign of shrouding as the knees were not positioned tightly together, and the elbows were far apart. The head was lying on its side and facing east. Interestingly, the wrists of the individual appeared to have been wrapped together. The wrists came together in an unnatural manner, which probably was achieved by tying them.⁸ The tibia was displaced at the knee, which may have been a result of rodent disturbance

(JR1717). It was determined that the chimney base, JR1361, overlaid the tibias, fibulas, and feet of JR1362B, and a small section of chimney base had to be dismantled in order to uncover the lower legs. This chimney clearly post-dated the double burial.

Individual JR1362C's remains were slightly better preserved. The remains were also that of a young European male, slightly older than JR1362B, with age estimated to have been in the early twenties. The sex determination was based on the narrow subpubic angle, the size of the long bones, and the square chin. Dental wear was used to gather the age estimate. JR1362C also showed signs of possibly having had his wrists tied together.⁹ JR1362C was not a coffin burial, and there was no evidence of a shroud as the ankles and knees were far apart. Since tied wrists were seen in JR1362B and JR1362C, it may have been a burial practice to aid carrying unshrouded corpses to the grave site. There was not

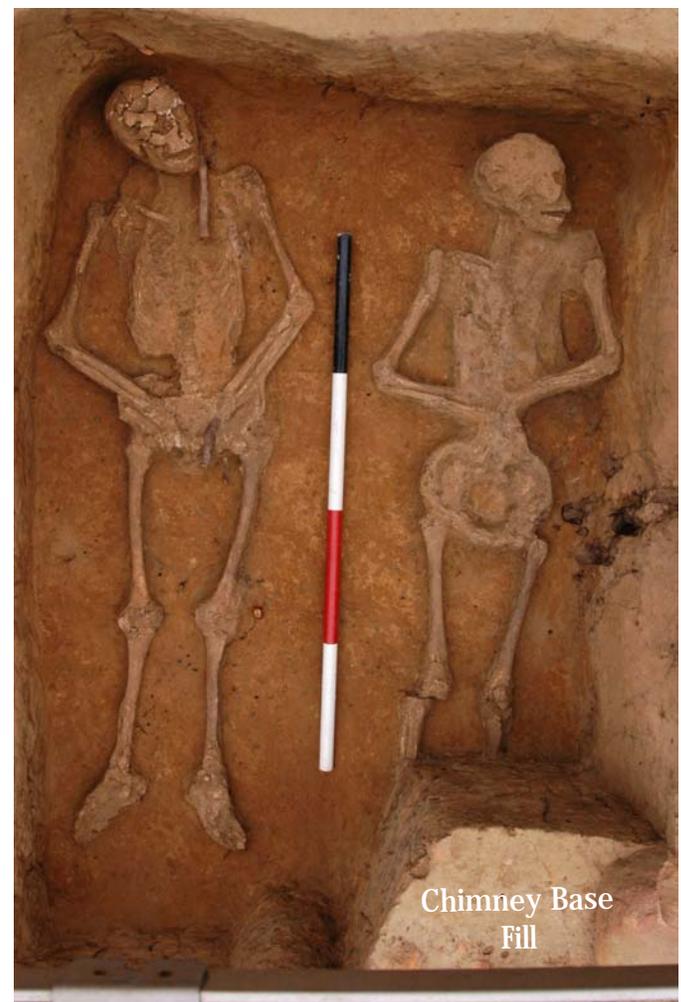


Figure 66. Skeletal remains JR1362C (left) & JR1362B (right).

enough room for the neck to extend; the head of JR1362C was placed tightly up against the north wall in a manner that elevated the face. JR1362C's face was oriented to the east in the same direction as JR1362B.

Again, George Percy's 1607 list of the dead mentions four occasions when two colonists died on the same day. On at least one of these occasions, the two deceased were of comparable age to JR1362B and JR1362C. "The eighteenth day [August 1607], there died Robert Pennington; and John Martine, gentleman."¹⁰ At the time of his death, Pennington was apparently twenty, and Martin nineteen.¹¹ Pennington's age matched JR1362C's age assessment, and Martin's age correlated to JR1362B's estimated age.¹²

Burial (JR1368)

A second large burial shaft was located to the southeast of JR1362. This feature (JR1368) was found to measure 7'11" in length and 5' in width at the subsoil surface. Placed 15'6" from the western wall of James Fort, it can be deduced that JR1368 was one in a group of graves that date to the early James Fort period. Support for this hypothesis comes first as JR1368 was oriented along a NW/SE axis, with the northern wall of the grave shaft roughly paralleling the western wall of James Fort. In addition, JR1368 was aligned with sixteen nearby graves. This careful positioning suggested a contemporaneous interment, and the nearby graves sealed by Structure 172 (ca. 1611) implied a pre-1611 burial. Additional features disturbing, and therefore post-dating, JR1368 were postholes JR1718, JR1367, JR1366, JR1508, and JR1720, as well as a possible fence line (JR1450).

The excavation of JR1368 commenced by removing the above-mentioned intrusive postholes. The excavation of grave fill followed. The soil, labeled as JR1368A, consisted of compact orange clay with light brown loam and tan sand pockets. Screening all of JR1368A through ¼" hardware cloth yielded a sherd of shell-tempered Native American ceramic, an iron nail, a single piece of lead shot (3mm diameter), fire cracked rock, and a quartzite flake. As with other graves located within the limits of James Fort, the absence of historic period artifacts pointed towards an early fort-period interment.

While excavating JR1368A, a subsoil shelf was discovered along the western side of the grave shaft.

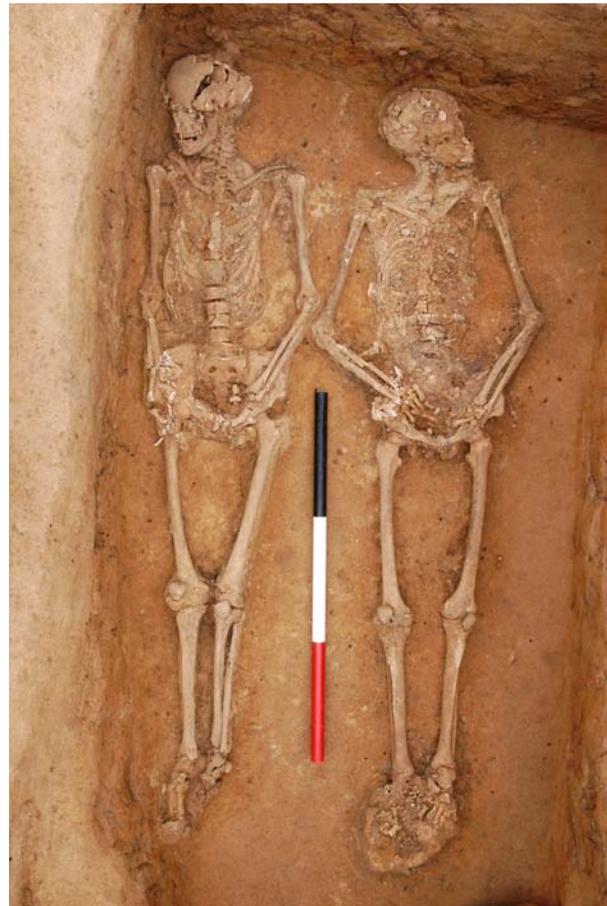


Figure 67. Skeletal remains JR1368B (left) & JR1368C (right).

Measuring 6" deep and 1'3" wide, this shelf could have been a "step" left in place to facilitate the positioning of bodies. Alternatively, this remaining subsoil ledge could have represented a correction by the James Fort gravediggers who decreased an oversized grave shaft. Supporting this interpretation was the fact that the consistency of the subsoil changed at the base of the undisturbed ledge. On the surface of this location, soft sandy subsoil and a native occupation level were found at a depth of 5"-6", with harder packed clay subsoil present below this. Consequently, the 17th-century digging may have become difficult, resulting in the shaft being made smaller. The fully dug portion of grave JR1368 was found to be 3'10" wide along the northern wall, with a length of 7'10" along the eastern wall.

Other than the shelf on the western side of the grave shaft, the walls of JR1368 were vertical. Of note, the eastern and western walls of the burial were not parallel to one another. The western wall appeared to be roughly perpendicular to the west wall of James Fort; the eastern wall was slightly ob-

tuse to the palisade. Additionally, the northeastern corner of the shaft was sharply dug, whereas the other three corners were more rounded in shape. These characteristics again may have indicated a modified grave digging strategy during which the gravediggers corrected themselves while digging to reduce the amount of work. The floor of the grave was relatively even and was found 2'11" below the surrounding undisturbed surface in the south, and 2'5" below in the north. Overall, the floor had an elevation of 11'3" above sea level.

Accounting for the large size of JR1368 were the skeletal remains of two individuals buried contemporaneously within this shaft. The first, JR1368B, was positioned in the western half of the grave, with the second, JR1368C, located in the east. Both JR1368B and JR1368C were extended adults oriented along a NW to SE axis with their heads laid in the north. Similar to grave JR1362, the size of the grave shaft easily accommodated the two bodies, even leaving unused space along the southern end. The heads of the two individuals, for instance, were tight against the northern wall of the grave while their toes were almost two feet from the southern wall. This placement was probably the result of lowering the heads of these bodies into position first along the northern wall without regard for unused space below the feet. It appeared that JR1368C was placed in the grave first, as this individual was more centrally positioned, leaving less room for the interment of JR1368B. Furthermore, there was little distance between JR1368B and JR1368C, and it appeared that the left elbow of JR1368B was laid on the right arm of JR1368C. Given the positioning of JR1368B close to the western wall of the shaft, it can be assumed that this grave was designed to hold two individuals.

Individual JR1368C was an adult European male who died between 35 and 45 years of age, as suggested by moderately advanced wear on the maxillary central incisors. Sex was determined from the size of the long bones.¹³

Although no pins or aglets were found associated with JR1368C, the positioning of the arms and feet suggested that this individual was wrapped in a shroud, albeit not tightly bound. For instance, both the metatarsals and tarsals had an upward inclination, with the feet closely positioned at the ankles and the knees. Furthermore, both arms were semi-flexed at the elbows, with the right hand bones draped into the pelvic bowl and the left forearm rested on the left ilio-public ramus. The head, po-

sitioned squarely on the neck vertebrae, was lying on its left side facing east and had tightly closed teeth. The latter indicated a chin wrap was used.¹⁴

Similar to JR1368C, JR1368B was found to be an adult European male. Large long bones and a square chin were indicative of an adult male. A narrow orbital distance and shape of the nasal aperture suggested European origin. United iliac crests and a lack of lipping on the vertebrae pointed towards an age of 23 at death.¹⁵

The general position of JR1368B indicated that this individual was buried with a loosely wrapped shroud. The use of a shroud was evident from the tight arrangement of the knees, angles, and slightly elevated feet. However, the left elbow was widely spaced from the rib cage, suggesting a loose shrouding. Nevertheless, a shroud was used, and this was supported by two aglets found at the base of the feet.

The ages at death suggest JR1368C and JR1368B may have been George Walker (age 45) and Edward Harrington (age 25), respectively.¹⁶

Burial (JR1225)

In the summer of 2003, removal of topsoil and modern overburden along the west palisade wall exposed the burial shaft JR1225. The area directly above the grave shaft had been stripped of soil during the construction of the Confederate earthwork (Structure 145). It was then partially filled back over, likely through landscaping activities in the late 19th century.

JR1225 was the northernmost burial in the group of early fort-period burials. All of the burial shafts in the group were oriented perpendicular to the fort wall except for JR1225 and one other burial (JR1355); both were parallel to the fort wall and SW/NE in orientation. Burial JR1046, located nearby, was also parallel to the fort wall on a SW/NE axis, but it was located outside of the fort wall. The orientation of JR1225 suggested that the burial shaft was either a fort-period burial that was dug when the west palisade was under construction, or already existed at that time. The burial was situated 1'6" from the west palisade wall.

In August of 2005 the shaft was excavated. It was 5'7" in length with an average width of 1'7". The east end of the shaft was slightly wider than the west end. The depth of the burial was 1'3" below the surrounding undisturbed surface. The fill



Figure 68. Burial JR1225B with contact-period quartzite projectile point found next to the left femur (circled).

in the burial shaft (JR1225A) was mostly orange clay with loam pockets. The fill was screened through a 1/4" screen, but the fill directly around the skeletal remains was screened through a 1/8" screen. Only two European artifacts were found—two small pieces of lead shot. The scarcity of European artifacts in the fill can indicate an early fort-period date as the area around the burial likely had not been occupied long enough by the English to have European artifacts present on the landscape. Prehistoric lithics and ceramic fragments were found throughout the burial fill.

The skeletal remains, JR1225B, were first encountered at 1' beneath the surrounding undisturbed surface. This burial was originally much deeper, however. The starting excavation level was not original grade because the top of the burial shaft was scrapped away during the construction of Structure 145, the Civil War fort. The individual was buried with the head to the east.

Individuals in European graves are typically fully extended, but the grave shaft of JR1225 was not dug to a length sufficient to allow the skeletal remains to fully extend. The neck was bent and the back of the cranium rested against the side of the shaft. In addition, the individual's feet were tightly placed against the opposite side of the shaft. While there were no shroud pins or aglets to indicate shrouding, the individual's ankles were close together with the knees nearly touching, which possibly indicated that a shroud bound the legs.

The preservation of the bone in JR1225 was above average for fort-period burials. From the remains it was apparent that the individual was a young male in his early teens. Age was determined by the ends of the long bones which had not completely ossified, and the wisdom teeth which had not fully erupted.

Several artifacts found near the remains may be significant. For instance, the two small pieces of lead shot in the burial were found in the fill close to the remains in the vicinity of the upper torso. But, neither piece of shot was noted *in situ*; both were found loose in the fill. Another artifact of interest was a Contact-period quartzite projectile point found within 1/2" of the left femur. The point was lying flat, but the exact direction of the point was not precisely recorded because the excavation tool dislodged it when it was first encountered. Due to the proximity of the point to the bone, and the Contact-period date for the type of projectile point, however, the point likely was embedded inside the individual's left thigh at the time of death. Two sizeable quartzite stones were found in the eastern end of the shaft. One was a river-worn cobble found next to the cranium in and against the east end of the shaft. The other stone was a worked stone positioned next to the thoracic vertebrae.

It is possible that JR1225B was the boy mentioned by John Smith in *A True Relation...* as being killed in May of 1607 during an attack by the Virginia Indians—an attack that precipitated the rapid palisading of the fort. "Indians the day before assailed the fort . . . most of the Counsel was hurt, a boy slaine. . . . With all speed we pallisadoed our Fort."¹⁷ Smith lists four boys among the first 1607 colonists—Samuell Collier, Nathaniell Pecock, James Brumfield, and Richard Mutton. There is evidence to suggest that Collier and Pecock lived beyond 1607, leaving either Brumfield or Mutton as this individual; their names do not appear in later records.¹⁸

Burial JR1046, and Related Features (Trash pit JR1042 & Posthole JR1127)

Trash Pit JR1042, Pit 7

In late summer of 2002, the excavation of unit JR1003 (10' by 10') uncovered a large trash pit (JR1042). This pit covered the eastern end of JR1046, a possible burial, extending beyond the perimeters of JR1003 to the west. The trash pit was divided into quadrants and 100% of the fill was screened through ¼" mesh. The trash pit was oval shaped with a N/S width of 3'1", and an E/W length of 4'5". The depth of the trash pit reached a maximum relative depth of 11", with the vertical limits being primarily defined by subsoil. Artifacts (n=422) in the fill of the pit established a *terminus post quem* (TPQ) of 1630.

The upper layer of the pit (JR1042A) yielded several dateable artifacts, including a tobacco pipe with a "W" marked on the heel. It had lead glaze covering the mark on it, indicating that it may be attributable to potter Thomas Ward who came to Virginia in 1619.¹⁹ Numerous fragments of European tobacco pipes, two fragments from a native pot, and several varieties of European ceramic sherds were found in the pit as well. The ceramics included fragments of Spanish olive jar, a delftware bowl and drug jar, Donyatt slipware, North Italian slipware, and multiple pieces of Jamestown coarseware. In addition, a piece of Westerwald jug was found that crossmended with pieces from the interior strata in an adjacent well (Well 27) in levels JR1101B and JR1101F. This upper deposit also had a considerable amount of brick rubble, as well as four fragments of floor tile.

The next layer in this sequence was JR1042B, and it yielded much less brick rubble than JR1042A. It did produce two English tobacco pipes attributable to Bristol pipemaker Edward Lewis (ca. 1631-41), North Italian slipware, star-type costrel, and a profusion of Jamestown coarseware, all indicating a ca. 1630 date.

The bottom layer (JR1042C) of the SE quadrant of the pit included a large lens of oyster shell in a sandy, medium brown loam, with no dateable artifacts.

Posthole JR1127

In addition to the burial below the trash pit, there was also a posthole, JR1127, which disturbed the east end of the burial shaft fill (JR1046). Temporally, therefore, the burial predated the posthole, and then both were covered by the trash pit. This suggested that not only was the burial earlier than the trash pit, but a considerable amount of time may have elapsed between the burial and the construction, use, and subsequent loss of the post. No other features in the area were associated with this posthole.

The posthole was circular and measured 1'11" in diameter and had a maximum depth of 7". The posthole fill was a sandy, green/tan loam, with brick and charcoal flecking.

There was a faint, centrally located postmold (JR1127B) which measured 7" in diameter and reached the same depth as the posthole. The postmold fill was a sandy, dark brown loam. There were few artifacts in the fill of both the posthole and postmold. However, there was a section of a metal object projecting into the southern edge of the posthole from the grave shaft fill (JR1046A) and it was clearly associated with the grave shaft fill. The end of the object, later determined to be a finial for a ceremonial staff weapon, was noticeably twisted, and it may have been intentionally moved or accidentally damaged by the initial digging of the posthole. The post in the hole may have been part of a grave marker put in at the estimated head of the grave some months after the burial.

The Grave Shaft (JR1046A)

Owing to the fact that the trash pit was determined to have a TPQ of 1630, there was a compelling reason for excavating this burial (JR1046). *Jamestown Rediscovery's* State House burial project was still in progress only 600 feet to the west. Comparative data from this likely fort-period burial, with its accurate TPQ, could help date and identify the State House interments.

The grave shaft was oriented along a SW/NE orientation and measured approximately 6'10" by 2'1". The upper fill (JR1046A) consisted of mixed loamy clay with highly mottled inclusions. The fill in the west end of the grave shaft was more highly

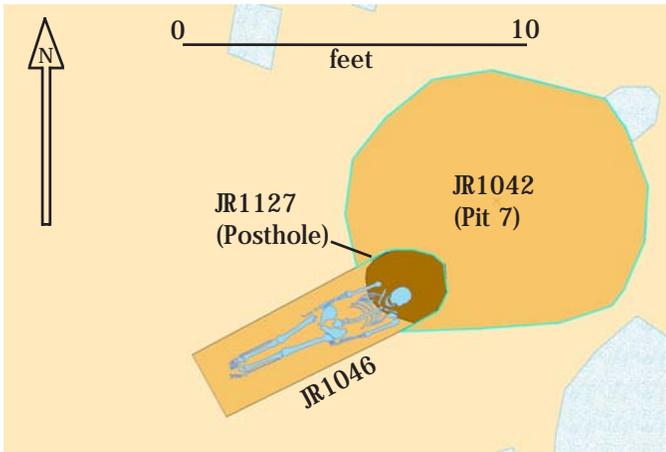


Figure 69. Site plan of Pit 7, posthole JR1127, & burial JR1046.

compacted, with the soil gradually becoming less compacted toward the east. Artifacts in the fill were sparse and included native ceramic sherds, brick bits, and a small number of non-human bone fragments.

The ferrous object initially encountered in posthole JR1127 was completely uncovered, mapped, and left *in situ* for the duration of the burial excavation. While *in situ*, it was determined that the object had two long straps of thin metal continuing south from a finial. These straps were pierced by copper-topped iron rivets at three-inch intervals. There was also a clear soil stain that continued beyond the strap ends indicating that the remains of a wooden staff had been attached to the straps and finial. This object had an estimated length of 5'6". The iron section was 3'4" long, and the wood below the iron was 2'2" in length. The elevation of this object, 1" to 4" above the skeletal remains, suggesting it lay on the lid of a disintegrated coffin. Nail patterns indicated this was a gable-lidded coffin. The length and angle of the staff was connected with the coffin lid, as indicated by the soil stains and nail locations. The spear was later determined to be a captain's leading staff, indicating that this was the burial of a captain.

The burial was ultimately determined to be that of an adult male, buried carefully in an extended position, in a well-built, trapezoidal coffin with a gabled lid. One-hundred percent of the fill was screened through ¼" mesh screen. Soil and flotation samples were collected for both soil contexts (JR1046A, JR1046D).

The Coffin (JR1046C)

All coffin nails were mapped and left *in situ* for detailed photographs and piece plotting. The nails were found along the perimeter of the coffin stain as well as down the centerline of the burial. The consistent pairing side-to-side and top-to-bottom of the coffin nails revealed the original coffin size, shape, and quality.

To determine the sequence of coffin construction, the positions and locations of the nails were analyzed. The floor of the coffin was built first. Then the sideboards were nailed to the coffin bottom with approximately thirty nails. The horizontally placed nails indicated that the sideboards sat outside the edge of the base. The footboard, attached by a half dozen nails, also was added to the outer edge of the baseboard. The headboard was attached in a different way with nails vertically driven from the baseboard bottom through the bottom edge of the headboard. The headboard was then nailed in place with

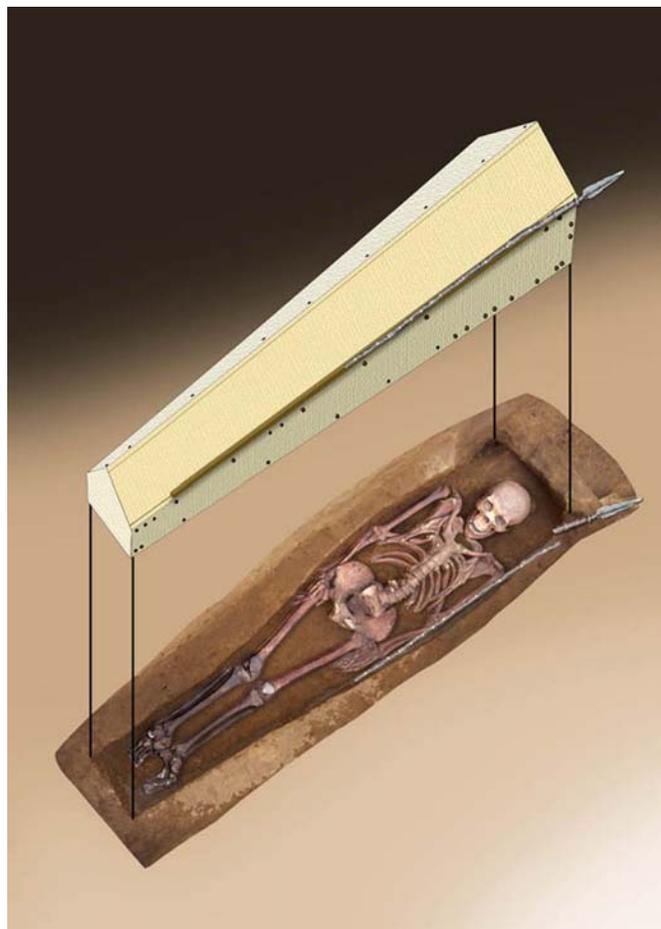


Figure 70. Burial JR1046 with artist's rendition of gable-lidded coffin and leading staff.



Figure 71. The iron finial of a Captain's leading staff recovered with burial JR1046 (length 170mm with languets).

the sideboards using paired sets of nails at each side, setting the headboard within the perimeter of the base and sideboards.

The gabled lid would have been more intricately fitted, as the majority of the nails were driven horizontally from the outer sides and footboard into the lid. The lid would have needed either an outer vertical edge to which the nails could be attached, or a carefully angled cut to fit the interior sides of the sideboards. The gable ran the full length of the coffin, and there was a clear line of at least seven single-gable nails found down the center of the burial. These nails all tipped at approximately a 45° angle, with the heads toward the northwest. An estimation of the possible width of the gable boards placed the maximum height of the coffin at 1', with the sideboards accounting for approximately 7" of that height.

The location of the coffin nails, in combination with the coffin stain, revealed that this was a well-constructed, trapezoidal coffin with a gabled lid. The coffin length was 5'8", with the width at the headboard at 1'5", and the width at the footboard at 10".

Skeletal Remains (JR1046B)

The individual was buried in an extended fashion with the head placed in the east. This orientation was contrary to the well-recognized Christian tradition of placing the head in the west (however, at Jamestown this is not an unusual orientation). This variation in orientation cannot be explained as being due to a lack of care. The presence of the coffin, which was extremely well built, and the careful placement of the coffin in the ground, as indicated by the uniform elevations of the coffin nails, both indicated a careful and respectful burial. Confusion in placement also was not likely, as the coffin was trapezoidal, and the head end of the coffin would have been distinct when the coffin was closed.

The individual was tightly positioned within a relatively narrow coffin. This may have caused a mimicking of the posture typically seen in shrouded burials. The only artifact associated with the individual (JR1046B) was the head of a copper shroud pin, located on the medial superior left clavicle. The pin left a small amount of dark staining on the bone surface. This may indicate the remains were shrouded, but is by no means conclusive.

The bone preservation was remarkable. Contemporary burials excavated at the State House showed considerably less preservation, and there are questions as to why the preservation was higher in JR1046B. Three possible factors seemed likely to explain this. The burials at the State House were all interred in subsoil that is very dense, waxy clay which would inhibit drainage. Possibly, there was more efficient drainage in JR1046, as the subsoil was much sandier. This could have reduced the impact of water seepage to the bone. This sandy soil would have afforded additional drainage from the burial shaft. The second factor is that of the soil chemistry. Although detailed soil analysis is still pending, it is initially possible to attribute the higher level of bone preservation to the presence of a large amount of oyster shell in the bottom of the trash pit (JR1042C) above the head and shoulders of the burial. The calcium in the shell may have created a



Figure 72. Burial JR1046 with the leading staff visible to the right of the skeletal remains.

distinctly different soil profile—a chemical balance in the loose burial fill that preserved the calcium in the bone. The third factor is that JR1046 had no tree root disturbance. This was certainly very different from what was found in the State House burials when the abundance of tree roots negatively impacted the preservation in the majority of the burials.

(Endnotes)

- ¹ Samuel H. Yonge, *The Site of Old Jamestown*, (Richmond, VA: APVA, 1903), 72.
- ² John Smith (1624) "The General History: The Third Book," in Edward W. Haile, ed., *Jamestown Narratives: Eyewitness Accounts of the Virginia Colony* (Champlain, VA: Roundhouse, 1998), 230.
- ³ Philip Barbour, *The Jamestown Voyages Under the First Charter (1606-1609)*, Vols. 1-2 (London: Cambridge University Press, 1969), Vol. 1:52.
- ⁴ George Percy, "Observations gathered out of a discourse. . ." in Haile, ed., *Jamestown Narratives*, 99-100.
- ⁵ Douglas Owsley, "The James Fort Double Burials (Graves JR1362 and JR1368)," draft mss. on file, APVA Jamestown Rediscovery Center, 2005. All remains of individuals excavated were analyzed by the Department of Anthropology in the National Museum of Natural History at the Smithsonian Institution.
- ⁶ Owsley ms.
- ⁷ *Ibid.*
- ⁸ *Ibid.*
- ⁹ *Ibid.*
- ¹⁰ Percy, 99.
- ¹¹ Catherine Correll-Walls, Jamestown Biographies database project, Jamestown Rediscovery Center, Jamestown, Va., 2004.
- ¹² Owsley ms.
- ¹³ *Ibid.*
- ¹⁴ *Ibid.*
- ¹⁵ *Ibid.*
- ¹⁶ Kelso, *Jamestown, The Buried Truth*, (Charlottesville: University of Virginia Press, 2006), 161-2.
- ¹⁷ Philip Barbour, *The Complete Works of John Smith (1580-1631)*, Vols. 1-3 (Chapel Hill: University of North Carolina Press, 1986), Vol. 1:31-33.
- ¹⁸ Kelso, 162-3.
- ¹⁹ Martha W. McCartney, *Virginia Immigrants and Adventurers* (Baltimore, Md., Genealogical Publishing Company, 2007), 719.
- ²⁰ Statehouse burial ground report in progress.

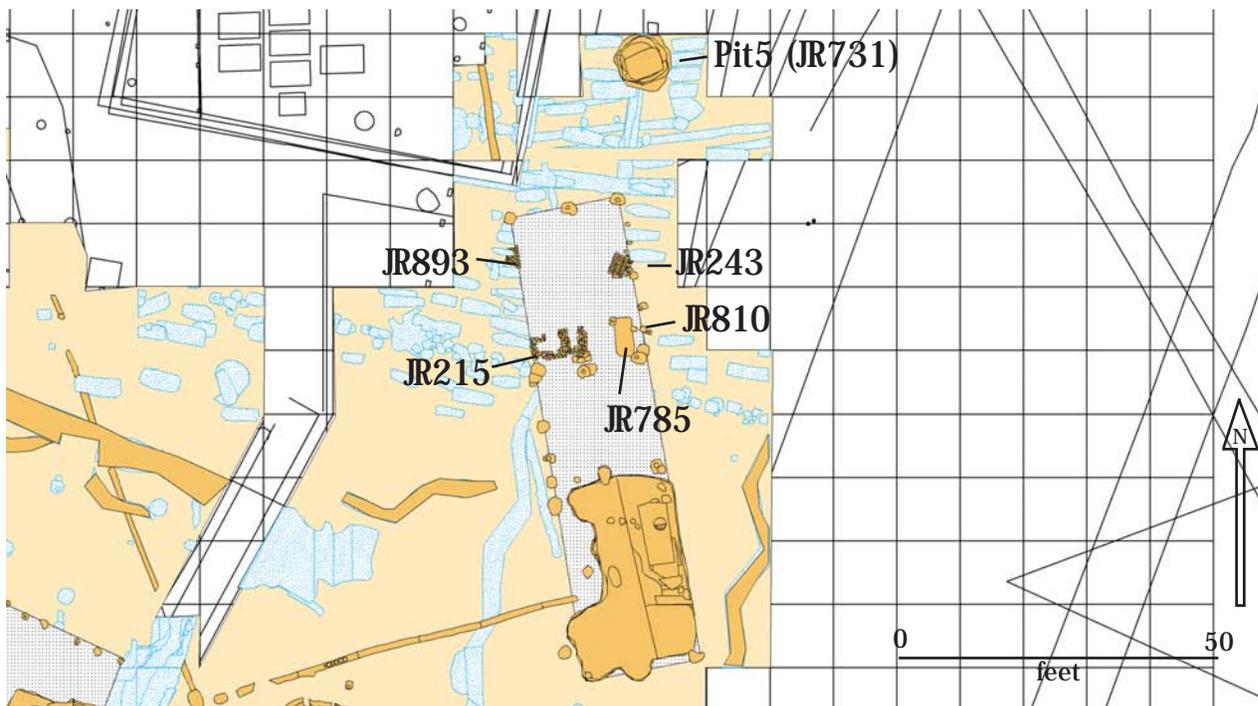


Figure 73 Site plan of the north end of Structure 165.

Fort Period Structures

Structure 165 (Northern Unit)

Located along the palisade of the fort, Structure 165 was defined by a series of postholes with limits that measured 18' by 72' N/S. It had a large cellar (13' by 25' N/S), an 18' by 24' northern room with a prepared clay and ash floor outlined by postholes, and three hearths (JR215, JR243, JR893).¹ The removal of the plowzone exposed a clay floor throughout the northern room, the only space in Structure 165 with a clay floor. The floor was between 6" and 10" thick and made up of a mixture of clay and ash.

Three hearths, JR215, JR243, and JR893, were found in the north room of Structure 165. Hearth

JR215 was located in the southwestern corner of the room and consisted of dry-laid brick oriented with the building along an E/W axis. A copper alloy aglet was the only artifact found in this context. The brickwork was 9' long and 4'6" deep and consisted of both complete bricks and brickbats. A row of bricks on the southern edge had been burned on their northern sides, indicating the hearth faced the room to the north. The hearth suggested two periods of construction; the builder's trench from the eastern cheek disturbed the builder's trench from the initial hearth construction. The eastern cheek was not at a right angle to the bricks from the fireback; it was offset at a 103° angle.

Hearth JR243's brick pad measured 3'6" wide by 3' deep and was laid in three even rows of 11



Figure 74 Remains of hearth JR215.



Figure 75. Hearth JR893 and intrusive churchyard burials (facing west).



Figure 76. Hearth JR243 (facing east).

bricks each. The hearth was located along the eastern wall of the northern room at a 45° angle to that wall and had remnants of two rows of bricks from a possible fireback. The hearth's angled position and location adjacent to one of the main structural posts suggested there had been a wall dividing the northern room into two equal-sized rooms; there would have been little reason for the hearth's orientation and location unless it was in a corner and served two rooms. The hearth base was not sealed by the clay floor and did not appear to have been constructed within the existing floor; the bricks must have been assembled first followed by the clay floor packed against them.



Figure 77. Broken case bottle and associated small quartz pebbles.



Figure 78. 1577 Livonian silver coin found in floor with Border ware candlestick (diam. 18mm).

Only a portion of hearth JR893 survived the disturbances of multiple churchyard burials, but enough remained to define the original structure. The hearth was 3'6" wide and 2'4" deep, and was located along the west wall near the northwestern corner of the building. Most of the brickwork was outside the line of west wall postholes, which suggested an external fireplace. The bricks were dry-laid with their lengths perpendicular to the west wall, and the surviving bricks formed a solid brick pad.

Two unusual artifact caches were found in the floor at what was possibly a lobby entrance to the north room, just opposite hearth JR215. One of the holes (JR810) contained a nearly complete Border ware saucer candlestick, and a 1577 Livonian silver coin. Nearby, an early 17th-century case bottle was found with a pewter threaded collar for a screw cap on the neck; it was buried in association with dozens of small quartz pebbles, which may have once been inside the bottle.⁴ Close to these artifacts was a small shallow pit (JR785) that may have been associated with the building. This feature was quartered, and numerous artifacts were found. The only dated object was a 1601 Irish penny, but there was also a Hans Krauwinkel Franco-allegorical jetton from a series produced ca. 1588-1589. Thirteen of the more common Hans Krauwinkel rose and orb jettons were also found in this context. The only ceramics in JR785 besides native pottery were delftware drug jar, London redware, and sherds of a Border ware saucer candlestick like the one in JR810. These wares, plus one large "King's Touch" token, a "Robert Cotton" pipe, and eight glass chevron beads, indicate a context from the early Fort Period.



Figure 79. Border ware candlestick found in shallow hole in the floor of what was likely a lobby entrance to Structure 165 (height 66mm).

Clay floors were common during the early 17th century in England for all types of buildings from barns to churches, and especially dwelling houses. An East Riding farmer, Henry Best described the process as follows:

*When they are to make a newe barne floore, they grave it all over; and then rake it all over with hey rakes or yron waine rakes till the mowles bee indifferent small; then they bringe water in seas and in greate tubes or hogsheads on sleddes, and water it till it bee as soft as mortar, or almost as a puddle; then lette it lye a fortnight, till the water bee settled in that it beginner to wase hard againe, and then beate it downe smooth with broad flatte peeces of wood.*²

The resulting floor could be as hard and polished as plaster. Why this specialized surface was laid in Structure 165 remained unknown.

Structure 165 was large enough to have had multiple uses. Why a clay floor is the question. One possibility would be space for malting; beer was a vital foodstuff in the early 17th century. While most households could brew their own beer, the malting of the grain was a specialized task that would have been done in a centralized area. In the “The English Housewife” from 1615, Gervase Markam described the construction of floors for a malt house. He wrote:

Stone was best, but if not available, the next floor to the cave, or dry sandy rock, is the floor which is made of earth, or a stiff strong binding clay well

*watered, and mixed with horse dung, and soap ashes, beaten and wrought together, till it come to one solid firmness.*³

Test excavations of the clay floor recovered forty-seven jettons, possible clues to the function of this room. The building’s location at the perimeter of James Fort’s addition would have made it a secure place for trade outside the actual fortification; merchants may have used the jettons as casting counters to calculate trade, or as copper trade items for barter with the Virginia Indians.

Artifacts associated with Structure 165 suggested that the hearths may have been used for distilling. In *The Buried Truth*, William Kelso highlights the significance of these artifacts:

*Perhaps most telling of all, a fragment of a glass alembic (a domed vessel used in distilling) was found in the floor; almost certainly broken off of the alembic recovered from the trash levels in the cellar under the southernmost room. There, a ceramic boiling vessel known as a cucurbit rested in the fill with the alembic. The alembic and the cucurbit are the two main components of a distilling operation. These objects and other specialized ceramic vessels found with them—including crucibles, a distilling dish, and a dipper—are all implements required for the detection and refinement of precious metals. These artifacts may also be the only clue to the purpose of the three brick fireplace hearths found in the north room, as no other evidence of industrial waste appeared in any of the fill from the occupation period.*⁵

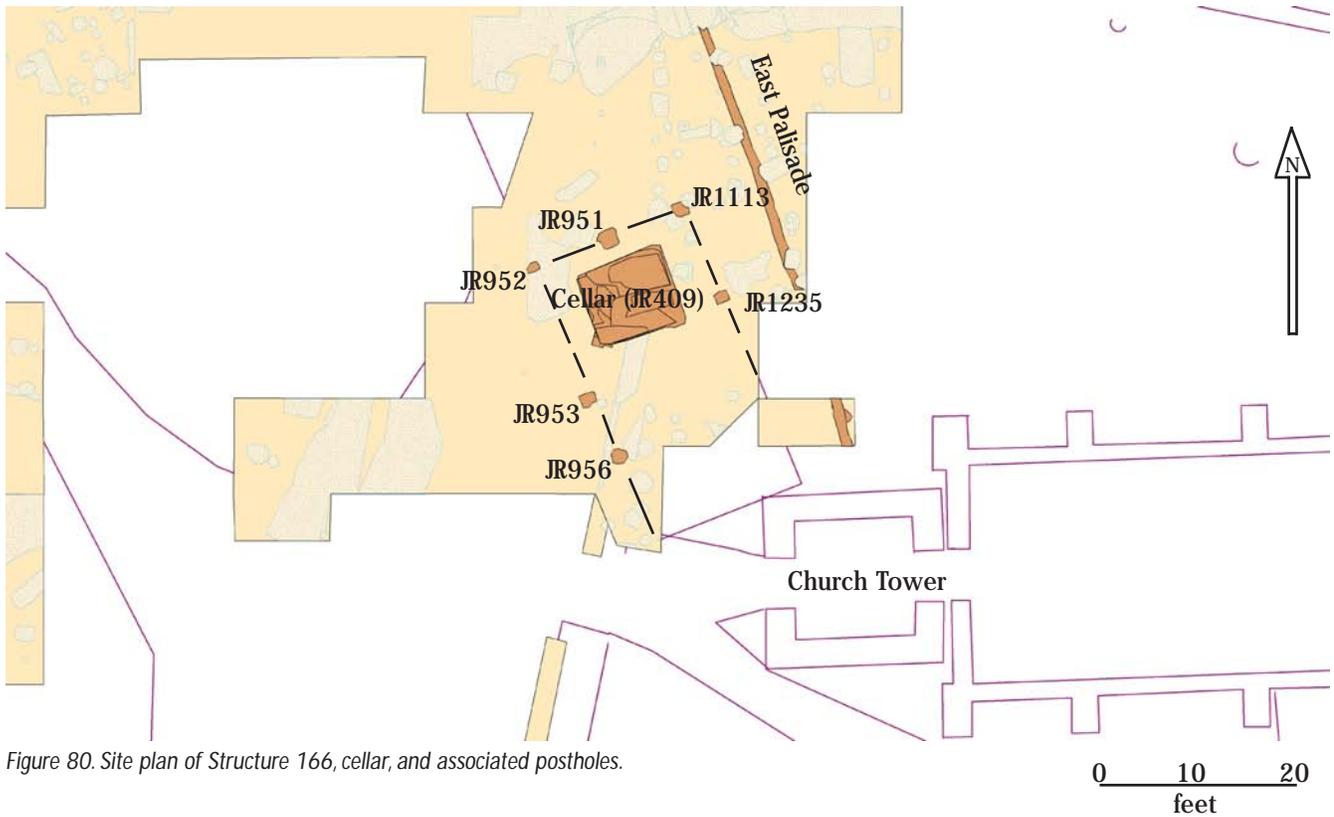


Figure 80. Site plan of Structure 166, cellar, and associated postholes.

Structure 166 (JR409, JR951, JR952, JR953, JR978, JR1113, JR1176, JR1177, JR1178, JR1179, JR1180, JR1181, & JR1235)

In the spring of 2000, the archaeological remains of Structure 166 were found during the removal of concrete curbing that supported a cast iron fence around the Jamestown Memorial Church. Subsequent excavations in 2002 revealed an 8' by 9' back-filled, unlined cellar with six associated postholes (JR951, JR952, JR953, JR978, JR1113, JR1235). The posthole pattern delineated a rectangle that was 17' wide and at least 36' long. Together the cellar and aligned postholes were the remnants of an earthfast building that was parallel to the east wall of James Fort, 10' from the palisade.

There were many ground disturbances in this area; a significant portion of the original structural evidence was missing. A defensive ditch associated with the Confederate earthwork (Structure 145) severely impacted all features in this area, removing the upper fill of the cellar as well as the postholes in the northwest quarter of the building. Grading at the base of the earthwork occurred following the

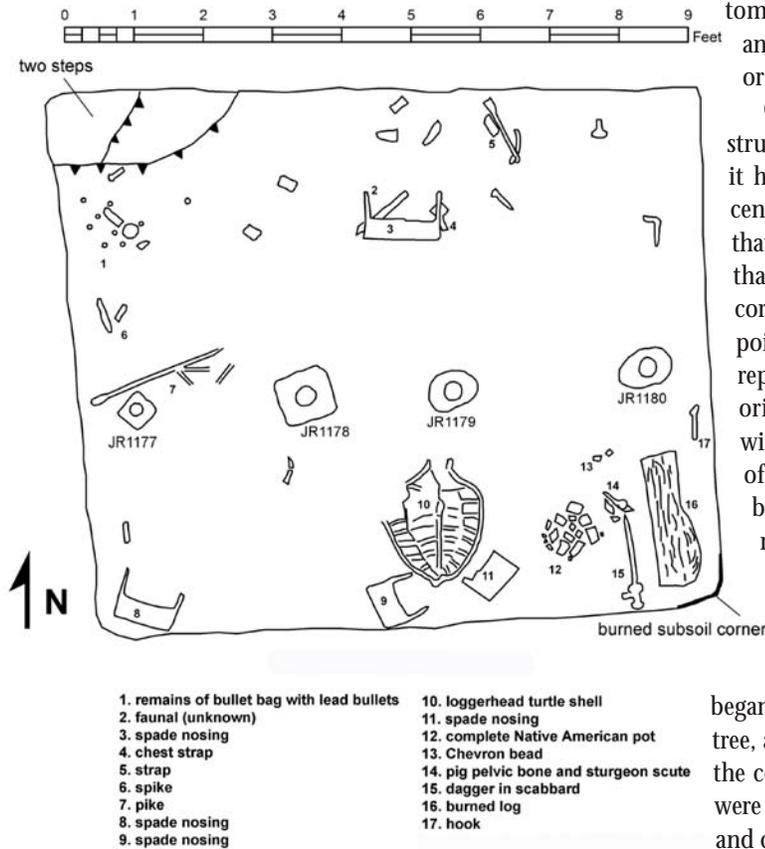
Civil War and further impacted the structure's western half. During the construction of the Jamestown Memorial Church in 1907, a fence placed around the churchyard cut into a pre-James Fort horizon around the cellar. Additionally, a large oak tree growing for approximately 280 years along the eastern wall of Structure 166 disturbed the southeastern corner of the cellar and associated postholes.

The eastern half of the structure fared somewhat better, probably because of its proximity to the church tower where agricultural activity would not have taken place. Therefore,

This unplowed portion of overburden presented a unique chance to determine the original depth of postholes and the cellars of this and possibly the other mud-and-stud structures. The unplowed building surface stood four feet above the cellar floor. . . . As much as two feet of the original seventeenth-century surface in and around the west side of the barracks were missing.⁶

In overall construction methods, this building closely resembled two previously excavated structures from the James Fort period, Structures 160 and 165. The structural posts delineated the perimeter of the structure but were not aligned in tie-beam pairs. Like the other two structures, the bot-

Figure 81. Artifacts found in the occupation layer of the cellar.



tom elevations on the posts varied considerably and displayed no obvious pattern of alignment or depth.

Of the eight postholes associated with the structure, only one (JR978) was not sectioned; it had been heavily impacted by the late 19th-century roadbed. The other seven had postmolds that ranged in depth from 1" to 1'2" in postholes that extended from 3" to 1'5". The northeast corner post (JR679) had been replaced at some point during Structure 166's lifespan, with the repair post (JR1113) dug just to the east of the original. All postholes and molds associated with Structure 166 shared the characteristics of soil composition; postmolds were a dark brown sandy loam, and the postholes were more compact with a much lighter brown color. Artifacts in the postholes were few and were exclusively prehistoric in the form of lithic debitage and prehistoric potsherds.

The 8' by 9' cellar (JR409) excavation began by removing several invasive roots of an oak tree, as well as 19th-century road ruts. Deposits in the cellar were very uniform in composition and were characterized by orange/brown mottled loam and clay. This indicated that the filling of the cellar occurred in one episode, and it was likely that this deposition represented the "walls" of the mud-and-stud structure following its demise.

Excavation of the "occupation layer" cellar floor (JR409N) began first by piece plotting and photographing artifacts on the surface. These included four spade nosings, an iron pike head, two glass chevron beads, an articulated loggerhead sea turtle shell, a sheathed dagger, and a crushed Roanoke simple-stamped pot. Near the southeastern corner wall, the remains were of a leather shot bag with eight 15mm pieces of shot.

In the northwestern corner of the cellar pit, a burned area of subsoil was found with the remnants of what appeared to be a hearth. There were no bricks or other structural remains, but burned wood from the fire was *in situ*. In the opposite southeastern corner were two small "steps" crudely carved out of the natural clay subsoil. Below the occupation layer, four small postholes were found roughly in a line down the center of the cellar.

There were several possible explanations for the existence of the postholes and burned area. One was that the posts made up a light partition wall in the cellar, supporting the ceiling above. This theory,



Figure 82. The remains of a leather bullet bag; lead shot & the copper bag base.



Figure 83. Burned subsoil in the northwestern corner of the cellar with burned log, dagger in scabbard, & Native American pot.

however, made it difficult to explain the presence of the burned northwestern corner. Another explanation came from the documents themselves. In an excerpt from the Virginia Company Records, a description of the housing situation in January of 1608 stated, “all utterly destitute of houses, not one as yet built, so that they lodged in cabins and holes within the ground.”⁷ Apparently, similar structures were not unusual in colonial America as Cornelius van Tienhoven wrote of an “up-scale” version in 1650:

in New Netherland and especially in New England, [those] who have no means to build farm houses at first according to their wishes, dig a square pit in the ground, cellar fashion, six or seven feet deep, as long and as broad as they think proper, case the earth inside with wood all around the wall, and line the wood with the bark of trees or something else to prevent the caving in of the earth; floor this cellar with plank and wainscot it overhead for a ceiling, raise a roof of spars, clear up and cover the spars with bark or green sods.⁸

Structure 166’s cellar may well have been one of the first forms of shelter built at Jamestown in the fall of 1607, and later incorporated into a larger structure. Structures 160, 165, and 166 were products of the English colonists’ background. These structures, built before the settlers had been in America long enough to incorporate native building techniques, or have their own traditions, evolved into what later became the “Virginia House.” Interestingly, all shared characteristics with traditional building signatures from Lincolnshire along

England’s east coast.⁹ Known in the East Lindsay region of Lincolnshire as “mud-and-stud,” this building style used small timbers, simple framing, and mud walls plastered over a slight wooden frame in what Eric Mercer called, “the poorest of all timber framing . . . a technique perhaps as closely related to solid earth construction as to substantial timber framing.”¹⁰

This building may have been leveled like Structures 160 and 165 by De la Warre as he “cleanse[d] the town,” since it was possible to crossmend the artifacts with the other pits that date to this early phase of James Fort’s occupation.¹¹

Like the construction methods used in Structure 166, the artifacts recovered from this feature also indicated an early James Fort period context. The early date was indicated particularly by: the large amount of military equipment (n=20), the small number and types of European vessels represented (n=7), the number of specialized ceramic objects (a pipemaking sagger, a distilling dish, 2 crucibles, and 2 burnishers fashioned from pottery sherds), Native American Contact Period pots (at least 3), Robert Cotton-type tobacco pipes (ca. 1608), bullets of large diameter (7 of 16 mm, 1 of 18 mm, and 1 of 19 mm), a Bermuda limestone cobble (ca. 1610), an Andesite cobble from the West Indies, seven Krauwinkel jettons (ca. 1586-1635), early glass trade beads (n=3), and the remains of a loggerhead turtle of the type observed by the colonists in the Chesapeake Bay, Bermuda, and on the Outer Banks of North Carolina

Aside from the large number of spade nosings (n=8), the assemblage suggested occupation by a single individual of high status. In addition, a complete Native American pot in the floor of the cellar, and in association with a large chevron bead (IIIIm1), suggested the possibility that an Indian woman may have been preparing food for the occupant.

The pot was shell tempered and was finished on the interior and exterior surfaces by scraping with mussel shell.¹² It had a flat bottom and was rather heavy and clumsy in comparison to other Indian wares found at Jamestown. The rim of the 13 cm tall by 15 cm diameter pot had broken off, but the vessel appeared to have been used in this condition. It was found crushed in place in the cellar floor where it was apparently being used to cook pieces of a large loggerhead turtle, as indicated by fragments of turtle carapace found amidst the sherds of the smashed pot. A burned timber found in the cellar floor suggested the location of the cooking fire.



Figure 84. Mended Native American pot and some of the charred wood found with it on cellar floor (JR409N) (height 133mm).

The ceramic wares and forms found (see Table below) were supportive of a single-person-household theory. These included one Border ware hollowware, one delftware drug jar, one Essex Post-Medieval Blackware cup, one Essex Post-Medieval Fine Redware hollowware, one London Post-Medieval Yellow Slipped Redware jar, one Martincamp flask, and one Midlands Purpleware butter pot.

Glassware was represented by one *façon de Venise* drinking glass, one case bottle, and one small square glass phial for medicines. The *façon de Venise* drinking glass indicated that the single occupant was probably a gentleman.

A number of specialized vessels were also in the assemblage, including sherds of a pipemaking saggur like that found in Structure 165 in association with Robert Cotton pipes. These vessels were probably used by the pipemaker to fire his pipes.¹³ There were also one distilling dish and two crucibles—at least one of which was a very small triangular type. Residues were visible on the inside of the base of the triangular crucible and will be tested to identify the process for which the crucible was used. This equipment was brought for use in high-heat processes, such as the search for precious metals and the production of glass.

Two additional ceramic objects appeared to be burnishers formed from broken sherds of coarse earthenware. The sherds were rectangular shaped

and curved to fit beneath the index finger when held in the hand. All edges of the sherds were rounded as if they had been water-worn. It was not known how these “burnishers” were used. Possibly, they were finishing tools for the locally made Robert Cotton pipes, which have a burnished surface. Perhaps they were used to smooth the exterior of a 1.8" diameter clay ball that was found in the feature. Ten small clay balls have been found during the excavations of James Fort. Ball games such as golf, bowling, and tennis were quite popular English pastimes in the early 17th century, but most of these balls were made of wood or leather. Perhaps the clay ball was a local substitute because the other materials were not available.

Although there were no elements of firearms, the military equipment in Structure 166 also implied the presence of a single person and included one musket rest for use with a matchlock musket. A dark stain associated with a copper-alloy bag base, along with some lead bullets, suggested a possible leather bullet bag. In total, there were thirty-one lead bullets (balls over 10mm in diameter) and twenty-eight small shot from the context.



Figure 85. Dagger in scabbard after conservation (JR1717) (length 365mm).

Also present were a pike and parts of two scabbards. A complete left-hand dagger, still in its scabbard, was found on the cellar floor close to the Indian cooking pot. Dating to the late 16th or early 17th century, the dagger had a thumb ring and spatulate quillons curving down toward the blade. Until about 1640, a rapier and a dagger were part of a gentleman's everyday dress. In swordplay, a dagger would be wielded in the left hand to parry blows while the rapier was used to thrust with the right. A rapier was represented in Structure 166 by two fragments of blade. There were also four buckles, which may have been part of a sword belt holding the suspension device for the rapier.

There were hints of body armor represented by eight jack plates, two brigandine plates, one copper alloy link of chain mail, and three copper alloy rosette washers for armor rivets.

Personal clothing accessories were represented by at least seven iron clothing hooks and forty-five

copper alloy aglet fragments. The clothing hooks were all of the large robust variety used to secure men's hose to their doublets. The large number of aglets would not be unusual for a single individual because laces were used to secure many parts of 17th-century clothing. Of course, it was possible that the aglets, as copper alloy objects, were present in number as trade items.

Seven copper alloy jettons also may have been objects for the Indian trade. It has not yet been determined if the hundreds of jettons in James Fort contexts were in the colony for use in the original sense as reckoning counters, or if they were used for some sort of internal currency or trade items. Six of the jettons were the common rose and orb variety, and were all products of Hanns Krauwinkel, a Nuremberg jetton master from 1586-1635. The seventh jetton was a German allegorical type that dated to ca. 1590-1610. Its message was that "money creates scoundrels."¹⁴

Ceramics in Structure 166		
WARE TYPE	# OF SHERDS	MINIMUM VESSELS
Border ware	5	1 hollowware
Coarseware	4	1saggar (pipe)
Delftware	4	1 drug jar
Essex Post-Medieval Blackware (EPMBL)	1	1 cup
Essex Post-Medieval Fine Redware (EPMFR)	5	1 hollowware
London Post-Medieval Redware (LPMR)	1	1 distilling dish
London Post-Medieval Slipped Redware Yellow (LPMSRY)	2	1 jar
Martincamp	2	1 flask
Micaceous coarseware	2	2 burnishers
Midlands Purple	1	1 butter pot
Virginia Indian	711	3 pots
Refractory ware	3	2 crucibles

Figure 86. Minimum vessel count of ceramics found in cellar fill.

Three glass trade beads comprised other artifacts for trade. The chevron bead (IIIIm1) mentioned above was found split in two and pressed into the floor near the mussel-shell-scraped pot. The two other beads, a robin's egg blue IIa40 and a Nueva Cadiz-type IIIc1, were both varieties common in early fort-period contexts.

One cloth seal was found in the feature. Unfortunately, it did not provide any information about the type of fabric it once sealed. It was a privy seal bearing a small fleur-de-lis with the initials "CP"

over "WL." These seals were known in London, but there was no firm dating evidence for them.¹⁵

A final object of significance from Structure 166 was a lead net weight. Eight of these large heavy tubes have been found during the Jamestown Rediscovery excavations. They were used to weigh down the seines used to net large fish, such as sturgeon.

Structure 172 & Structure 175

Excavations along the interior of the west palisade wall in the 2003-05 field seasons uncovered the cobblestone foundations of two large fort period structures, Structure 172 and Structure 175 (ca. 1611), both of which had brick chimney bases. Separated by a 10' gap, the buildings were oriented to the west palisade and were set back from the wall by about 12'6".

Structure 172

Structure 172, the westernmost of the two structures, measured 92' in length and 20' in width. The foundation was built of cobblestones laid in a yellow clay mortar-like material.



Figure 87. Overall photograph of Structure 172 (background) & Structure 175 (foreground), with small section of the west palisade trench visible to the right of Structure 172.



Figure 89. Chimney base (JR1361) constructed using brickbats and cobbles.

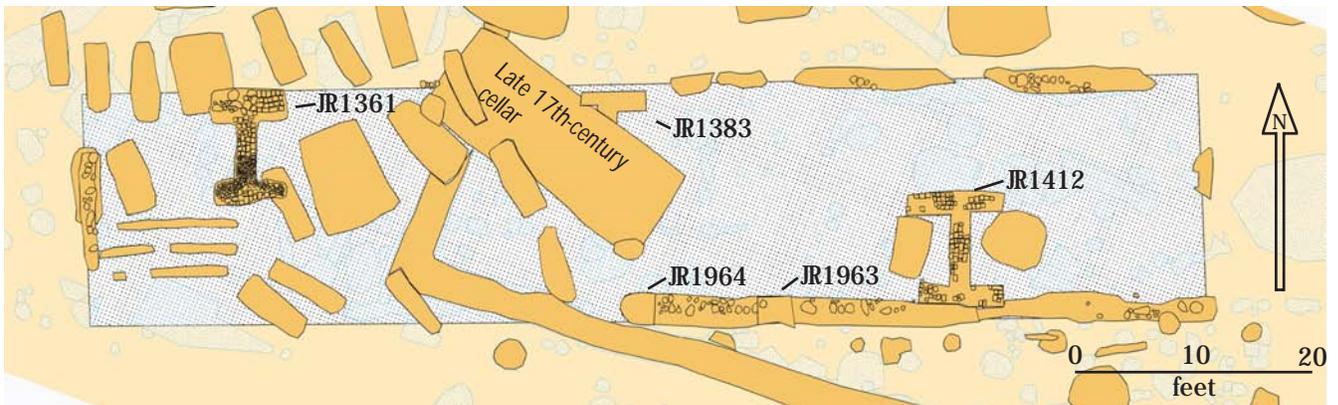


Figure 88. Site plan of Structure 172.



Figure 90. Chimney base JR1412 (facing west).

Three “H”-shaped chimney bases (JR1361, JR1383, JR1412) were found in the structure for a total of six fireplaces, which established that the building had at least six rooms. The dimensions of both the far western room and the far eastern room were 9’6” by 17’, and 17’ by 17’, respectively. The sizes of the other four rooms remained unknown; no archaeological evidence for partition walls was found.

The three chimney bases were constructed mostly of dry-laid bricks and brickbats held together with the same yellow clay “mortar” as the main cobble foundation. Clay found between the bricks was the same type of yellow clay found between the cobblestones. JR1361, the westernmost chimney base, was made of brickbats. Unique to this foundation were both small and large river cobbles packed against one another. The smaller cobbles were mostly in the southern end of JR1361, while the larger cobbles were mostly in the northern end. This chimney base also contained several limestone cobbles from Bermuda.¹⁶ The presence of Bermuda limestone in the structure was significant because



Figure 91. The remains of three entrenched floor joists in the far western room of Structure 172 (facing east).

it placed the construction date after May 1610 when the first ships from Bermuda came to Jamestown.¹⁷ From cheek to cheek, the two fireplaces (JR1412) measured 6’, with fireboxes measuring 6’ by 2’8”. JR1361’s fireplaces were smaller measuring 5’6” from cheek to cheek, with fireboxes that were 5’6” by 2’2”. There was not enough remaining of JR1383 to determine the size of its fireplaces; eighty percent of the structure had been disturbed by a late 17th-century cellar (Structure 173). Only JR1412, the easternmost chimney base, showed signs of burning in the fireboxes, with clay subsoil burnt red in the backs of both fireboxes.

Two of the chimney bases (JR1361, JR1383) were built against the north wall of the building. Their locations suggested that two lobby entrance doors into the rooms were situated directly oppo-



Figure 92. Test JR1964 into the foundation of Structure 172 (facing west).

site each chimney on the southern end of the building. Archaeological evidence strongly suggested that the lobby entrance was adjacent to chimney base JR1383. Directly opposite that chimney was evidence of a gap in the cobblestone foundation, likely marking the location of a door. Later features and plowing destroyed the foundation opposite JR1361, but it was likely that an entrance was located there as well. The third “H”-shaped chimney base (JR1412) was situated against the south wall toward the interior of the fort. This location indicated that there was probably a third lobby entrance to Structure 172 on the north end of the building opposite JR1412. However, a 1930s utility line cut the north wall at the precise location where an entrance gap in the foundation would have been located.



Figure 93. Archaeologist pointing to an English clay tobacco pipe bowl found in the builder's trench of Structure 172.

Despite the later disturbances, large sections of the cobble foundation of Structure 172 survived, including a 46' section of the south wall. The foundation and associated builder's trench averaged about 1'3" wide. These foundations consisted mainly of quartzite river cobbles, which can be found locally along the banks of the James River. Other rocks present included sandstone, basalt,

chlorite schist, and weathered granite. Packed between the cobbles was a distinct canary-yellow clay. Two test excavations (JR1963, JR1964) were dug into the foundation along the south wall. The excavations found that the bottom of the foundation trench was flat, and determined that there were two fill layers present in each test. The top layer was compact yellow clay serving as a mortar between the cobbles and was 1" or 2" thick. Removal of this layer revealed a loam layer several inches thick resting on subsoil. Artifacts from JR1963 and JR1964 were typical of early fort-period contexts, and included Frechen stoneware, North Devon baluster jar, London distilling dish, Hessian crucible, Native pottery, glass trade beads, and "Robert Cotton" (ca. 1608) clay tobacco pipes. There was also one complete Type 5 English white ball clay tobacco pipe, ca. 1610-40.¹⁸ East of these test sections, along the south wall of the structure, another Type 5 English clay tobacco pipe bowl was found imbedded in the builder's trench (JR1918A). This pipe was marked with a relief pinwheel maker's mark on the heel, a mark known in London from ca. 1610-30 contexts.¹⁹ The plain unmilled rim of the pipe in the trench placed it nearer in date to the beginning of this range.

At least one of the rooms in Structure 172 had a wooden floor. Evidence of three entrenched floor joists was found in the western-most room. The joist trenches ran parallel to the length of the structure. There were only faint traces of these joists, and it was likely that the rest of the joists in the room were lost to plow blades. The three joists were not excavated. They appeared to be 9" wide and 1' apart.

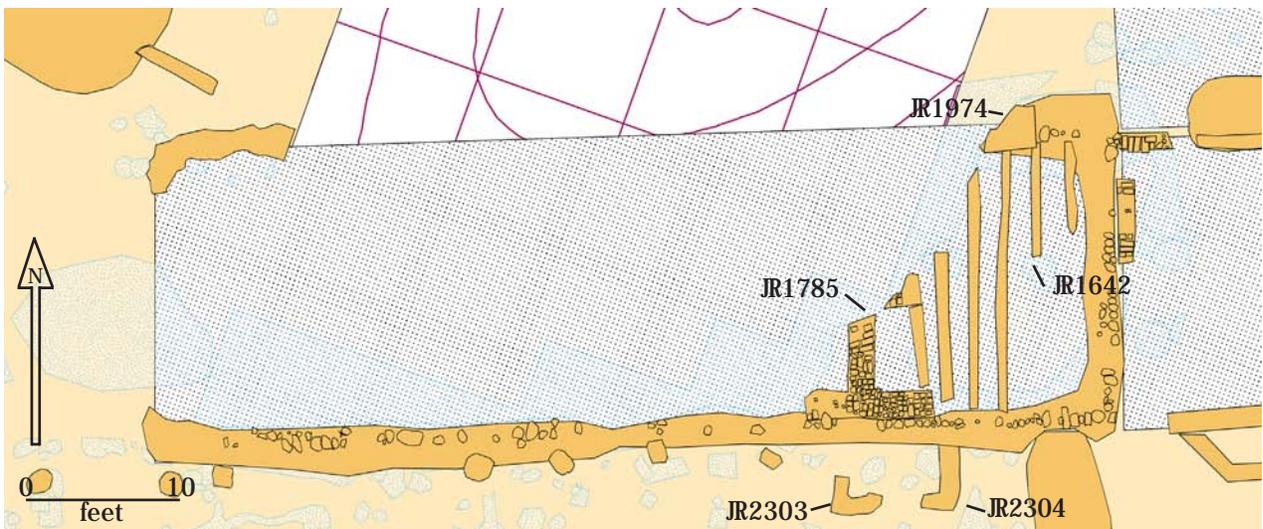


Figure 94. Site plan of Structure 175.



Figure 95. Chimney base JR1785.

Structure 175

Structure 175 was similar to Structure 172 in everything except length and state of preservation. The exterior dimensions were 64' by 20', but a large portion of the northern end of the building was lost to the removal of soil during the construction of the Civil War fort. The entire south cobblestone foundation wall, evidence of all four corners to the structure, and a large portion of one "H"-shaped chimney base did survive.

The best-preserved portion of the structure was in the far eastern end where much of the cobblestone foundation, chimney base, and floor joists survived. By contrast, the western end of the structure was poorly preserved with only the outline of the builder's trench extant, and no cobbles remained in the northwestern corner. The cobbles from the western end of the structure were lost to a later feature (JR1704), which likely was another quarried-out area from the Civil War fort construction. The area over the projected northern end of the structure was never excavated because nearby test-



Figure 96. Cobble foundation and entrenched floor joist stains in the eastern end of Structure 175.

ing showed that the north wall of the structure could not have survived the construction of the Civil War fort.

The "H"-shaped chimney base (JR1785) was located near the eastern end of the building along the south wall. A lobby entrance may have been located on the northern end of the building across from JR1785. There was likely another chimney base located somewhere in the western half of the building along the northern wall. If a chimney base had existed in this area, it would have been lost to Civil War fort construction. The presence of a second chimney base would have meant that the structure had four fireplaces and likely four rooms.

The chimney (JR1785) was partially destroyed by Civil War fort construction, but a substantial portion of the eastern end survived. It was made up of dry-laid bricks and brickbats with yellow clay



Figure 97. Chiseled block of sandstone used in the foundation of Structure 175.

"mortar." From cheek to cheek, this eastern fireplace was 5'6" wide, with a firebox 3'1" deep.

The room this fireplace served (the far eastern room of the structure) had interior dimensions of 11' by 17'. Evidence of six entrenched floor joists was found in this room, but no wood survived. The joists were laid north to south, the opposite direction of the joist marks found in the far western end of Structure 172. The joists abutted the foundations and were better preserved on the northern end of the room where plowing had done less damage. Flooring nails were still *in situ* in many of the joist slots. A pattern of the flooring nails suggested that the floorboards were 1' in width. One joist (JR1642) was partially excavated. The fill in the joist consisted of compacted plowzone that filled the void left once the joist rotted away. The bottom contour

of the joist was flat, and it was 2" deep. All flooring nails from the joists were mapped and removed.

One 3' by 2' test (JR1974) was made across the cobblestone foundation of Structure 175. This excavation found the same yellow clay "mortar" around the cobbles that was found in Structure 172's footing. A mixed clay and loam layer (JR2162) was found underneath the yellow clay and the cobbles; it may have been intentionally placed in the eastern end of the building to level the ground prior to the placement of the cobbles. The foundation trench for the cobbles was roughly 4" in depth. After the test was completed, the original four cobbles that were removed to excavate the foundation trench were placed back in their original location. To date, only one stone from Structure 175's foundation has been removed to the lab. The stone (a worked elongated block of sandstone) measured 16" by 6" by 4". This stone had pick or chisel marks on its faceted sides, presumably from quarrying and/or shaping it into a rectangular form for use in masonry building. This was likely a stone imported from Europe, although the majority of the stones in Structure 175's foundation were Virginia quartzite cobbles.

South of the far eastern room of Structure 175, and directly south of chimney base JR1785, traces of additional brick work was found measuring 8'6" by 5'. These "foundations" were probably part of one overall footing consisting of two distinct sections (JR2303, JR2304). They were similar to the nearby chimney base in that they were both made up of brickbats and yellow clay "mortar." The footings were about 1' wide and together formed a rectangular footing 5' from the cobblestone foundation. JR2304 had several heavy concentrations of shell mortar covering portions of the foundation, and it appeared to be bonded into the cobble foundation. JR2303 did not bond with the cobble wall and was 3' south of the wall. Another gap (2'6" wide) was found between the two foundation sections at the southern end of the apparent footing. What this footing supported is problematic. It could not have been the foundation for a ground-level entryway into the far eastern room of Structure 175 because the chimney stood there. One speculation was that this was a footing for a guard station heated by conduction from the opposite fireplace.

Added on to the eastern end of Structure 175 was Structure 176, which was likely built between 1617 and 1619. This structure is discussed in detail in a separate report.²⁰



Figure 98. Small brick foundation additions (JR2303 & JR2304) to Structure 175.

Documentary evidence strongly supports that both Structure 172 and Structure 175 existed in 1611. Colonist Ralph Hamor described two buildings in the fall 1611:

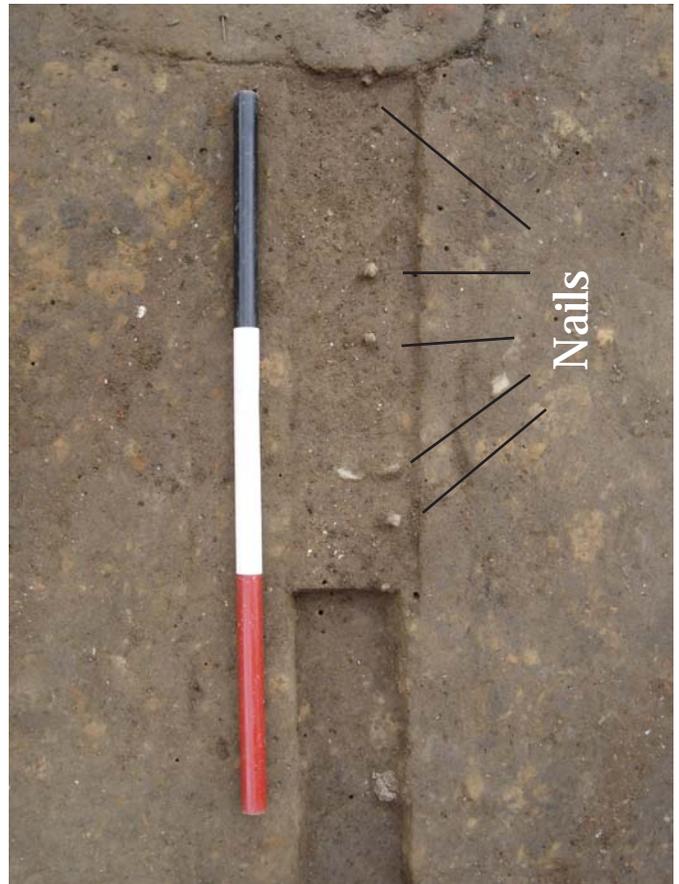


Figure 99. Partially excavated floor joist (JR1642) with flooring nails in situ

The Town [James Town] itself by the care and providence of Sir Thomas Gates, who for the most part had his chiefest residence there, is reduced into a handsome form and hath in it two fair rows of houses, all of framed timber, two stories, and an upper garret, or corn loft high, besides the three large, and substantial storehouses, joined together in a length some hundred and twenty foot, and in breadth forty, and this town hath been lately newly and strongly impaled, and a fair platform for ordnance in the west bulwark raised.²¹

From this statement, it can be inferred that the eastern end of Structure 175, if not the entire building, may have been the Governor's residence.²²

Post-in-ground Structures South of Structures 172 & 175

South of Structure 172 and Structure 175 were dense clusters of postholes, some of which may have belonged to two large post-in-ground structures. Over sixty posts were found clustering in this area. This number of closely associated postholes made it difficult to determine which were associated with which structure, and which were not structural at all. There was, however, enough of a post pattern to suggest that there were at least two structures, and that these structures were parallel to the west fort wall.

The northern ends of these post buildings were 35' from the west fort wall. Furthermore, the northern ends abutted the foundation trenches of Structure 172 and Structure 175. Some of the northern posts that may have been associated with the eastern-most post structure disturbed the foundation of Structure 175. This suggested that at least the eastern "scattered post" building postdated Structure 175. It could not be established if the "scattered post" buildings were standing at the same time as Structures 172 and 175 (ca. 1611).

The width of the probable post structures seemed to be about 14'. The lengths could not be determined precisely due to disturbances by later features, such as a mid-17th-century cellar (Structure 180). Only the eastern end of one post structure and the western end of the other seemed to have a clear posthole pattern.

None of the postholes were excavated; they were preserved for future in-depth study. The postholes believed to be associated with the structures were tested by probing with a metal rod, however, in order to get an idea of their depths. The probing found that the apparent deepest posts were those at the suspected ends of the post structures (JR1553, JR1623, JR1628, JR1902, JR2032). Several narrow trench-like features were found between the probable structural postholes. These were typically clay filled, 2' to 4' in length, and just over 6" wide. The trenches may have been for seating studs between the posts. The trenches were not consistent

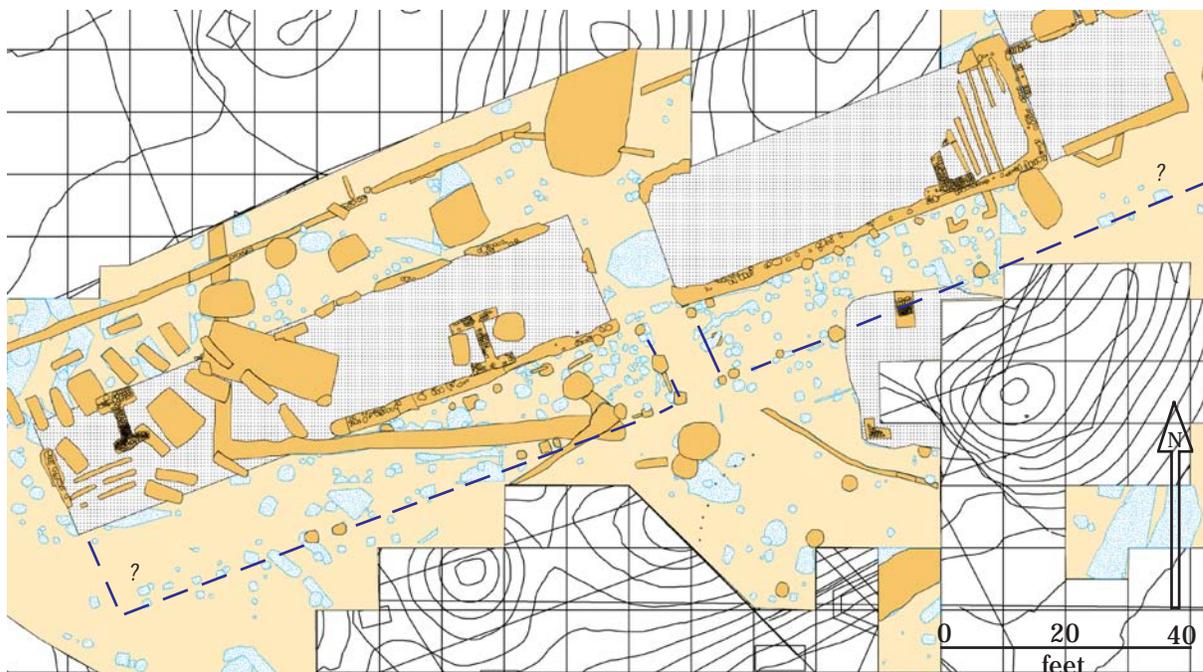


Figure 100. Plan of postholes associated with the "scattered post" buildings due south of Structures 175 & 172.

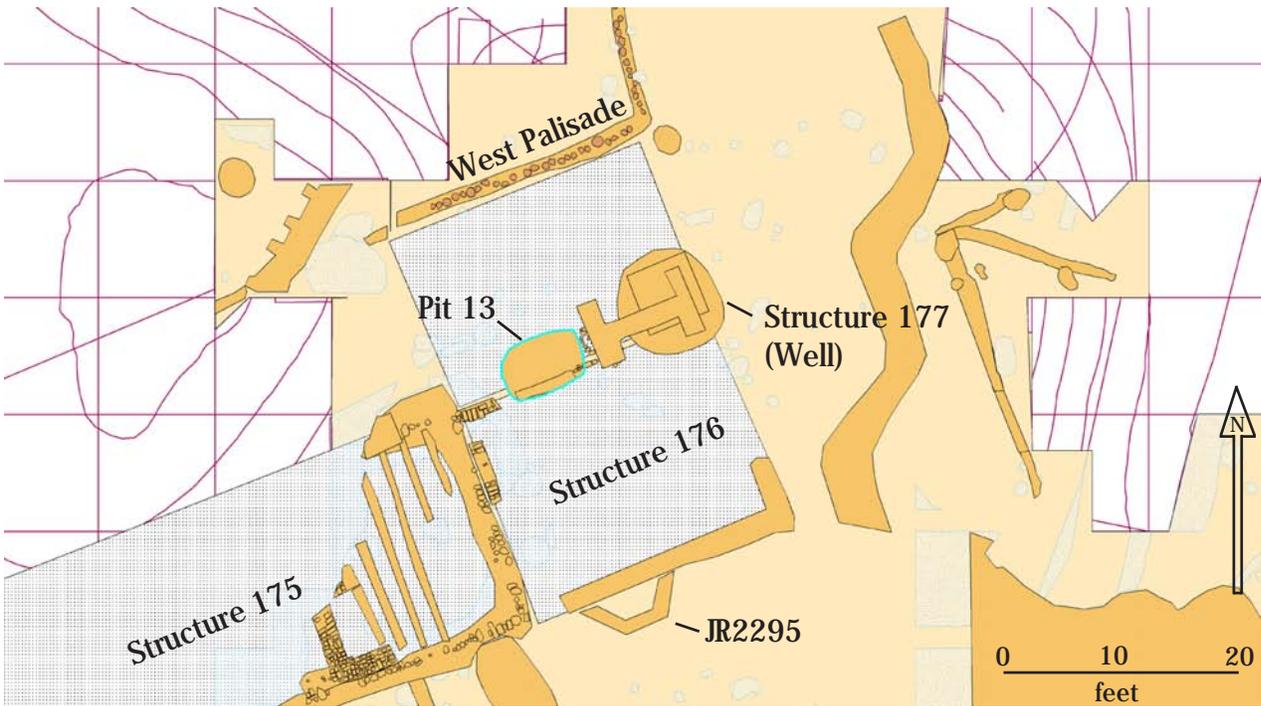


Figure 101. Site plan of Structure 176 and Structure 177, the well.

in location or size, however, and did not cover the entire probable wall line between the posts. These trenches were not excavated and remain for future investigation.

Interestingly, the gap between the two post-in-ground structures aligned with the gap between Structure 172 and Structure 175. This suggested that a path or road existed in these gaps, and perhaps that Structure 172 and Structure 175 already stood before the “scattered post” buildings were constructed.

Structure 176 (JR2160) & Structure 177 (JR2158)

While expanding the excavations of Structure 175 to the northeast in the summer of 2004, the foundations of a structural addition were located, as were an “H”-shaped hearth and a fort-period well. The addition (Structure 176) was found to abut the eastern end-wall of Structure 175. In contrast to the trench-set cobbles that formed the footings for Structure 175, Structure 176’s foundation was built of brick, quartzite, and flint cobbles bonded with white shell mortar one course wide.

An associated “H”-shaped brick hearth (JR2160) was found bonded to the addition foundation. This double hearth had settled as much as 5’ below the

ground surface since the early 17th century because it was built upon fill in a well (JR2158/Structure 177). The excavations of JR2158H-AC—the fill below the brickwork—revealed that this well was constructed in the early years of James Fort using a 5’ by 5’ wooden box frame for a lining.

Records suggest that Structure 176 was constructed between 1617 and 1619 and was used as part of the Governor’s residence. As noted elsewhere, Structures 172 and 175 likely were the “two fair rows of houses” referred to by colonist Ralph Hamor in 1611.²³ Such were built according to the “care and providence” of Sir Thomas Gates²⁴ and later noted by Hamor in 1623 as “wherein the governor always dwelt, [with] an addition being made thereto in the time of Captain Samuel Argoll.”²⁵ Taking into account the historical and archaeological evidence, Structure 176 was likely the addition to the Governor’s house built by Argall during his deputy Governorship between May of 1617 and April of 1619. Well JR2158 (Structure 177) therefore predated Argall’s tenure and could have been the first well of the fort, described by John Smith in 1609 as having “excellent sweet water, which till then was wanting.”²⁶ However, archaeological evidence more strongly supported that this well was James Fort’s second well constructed in 1611, which will be discussed below.



Figure 102. Structure 176 foundation added to the cobblestone footing of Structure 175 (facing west). Close up of interface between cobble building (Structure 176) and brick addition (Structure 177).



Chimney Base (JR2160) to Structure 176

Only some of the wall foundations of Structure 176 survived due to extensive 18th- and 19th-century plowing. However, approximately 9' of a wall foundation measuring 1'6" wide were found abutting and parallel to the eastern end-wall of Structure 175; the foundation extended south from the northeast corner of Structure 175. Consisting of a single course of header bricks and white shell mortar, this N/S footing (JR1701) was built upon the builder's trench fill of Structure 175 (JR1649), yet did not overlie the existing cobble foundations of this earlier construction. From this parallel orientation and careful positioning, it was clear that Structure 176 was an addition to Structure 175. Further supporting this conclusion was the fact that 12' of a second wall foundation (JR2153) for Struc-

ture 176 were found extending from the southwest to the northeast along the same orientation as the west wall of James Fort. The western 4' of this foundation wall existed as a series of brick headers bonded to the top of ground-set cobbles with oyster shell mortar. To the east, however, episodes of plowing and a series of later postholes (JR2151, JR2155, JR2156, JR2157) removed the brick and nearly erased any sign of this wall. Thus, instead of an intact foundation, all that remained was a builder's/foundation trench and a few *in situ* bricks laid as stretchers to the east. As these stretchers were set back from the previously mentioned headers present to the west, it was deduced that the original foundation for this northwest wall had a width of 1'6" and was laid with a series of headers facing south and stretchers along the northern side.

Twelve feet away from the northeast corner of Structure 175, a double hearth (JR2160) was found with the cheeks of the south firebox aligned with the northwest wall foundation of Structure 176. The double hearth established that each fireplace served separate rooms and, therefore, the 12' section of



Figure 103. Chimney base (JR2160) to Structure 176, seen here settled into the well.



Figure 104. Structure 176 foundations, the well (Structure 177), & west palisade and north bulwark trenches (digitally enhanced image).

Structure 176's foundation (JR2153) was indeed an interior or partition wall. This conclusion was substantiated by the varying construction methods of Structure 176. For example, this partition wall (JR2153) contained both cobbles and brick, and the N/S wall of Structure 176 used only brick. This indicated that the footing (JR2153) likely supported a partition wall. Thus, Structure 176 had at least two large rooms—one to the south of the partition wall, and one to the north.

While the partition wall and the double hearth indicated that there was a room to the north of the partition foundation, no further archaeological evidence of this room survived. The declining grade of undisturbed subsoil in that area indicated that the foundations to the north unit were lost to extensive digging during the Civil War. Further, the Civil War digging removed all traces of a pre-Civil War plowzone. The complete dimensions of this northern unit could not be determined, but the partition wall coupled with the width of the chimney base was 24' long E/W. Assuming the west fort wall was still standing when Structure 176 was constructed (ca. 1617-19), then the north room of the addition could not have been more than 18' wide.

Excavations during the 2006 field season found more evidence of the south room of Structure 176, including the south wall and southeastern corner. The foundation trench was 2' wide and contained a foundation made of shell-tempered mortar mixed with small quartzite and English flint cobbles. The south wall foundation did not connect directly to the southeast corner of Structure 175, but Structure 175 was oriented along the same line as the



Figure 105. Three-sided brick foundation (JR2295).

south wall. The gap between the south wall of Structure 175 and the south wall of Structure 176 was 4'. With the location of the south wall defined, the dimensions of the south room of Structure 176 were found to be 24' from east to west, and 18' from north to south. Thus, both rooms were likely of equal size.

A three-sided brick foundation (JR2295) was found attached to the exterior of Structure 176's south wall. The foundation extended 4' beyond the south wall line, 10' from the southeast corner of Structure 176, and 4' from the southeast corner of Structure 175; it was not centered in the south room. The south wall foundation was uninterrupted where it was attached to JR2295.

The bricks in the JR2295 footing, secured by shell-tempered mortar, were low fired and soft, and some appeared underfired. This kind of soft brick appeared occasionally in the double hearth (JR2160), as noted below. The foundation was two brick-courses wide on all three sides with a width of 1'7". While the south side of this feature was parallel to the south wall of the building, the other two walls were set at roughly 45° angles from the wall. Because its location and elevation would have provided a view of nearly the entire interior of James fort, this feature may have been the foundation of a bay window or balcony, or possibly an elevated gun



Figure 106. Initial section of chimney structure (JR2160) revealed (facing north).

mount.²⁷ Future analysis of plowzone from above this feature may provide more evidence for its function.

Hearth JR2160 heated the west room of Structure 176. This hearth was first identified in the west of the 10' by 10' unit JR1721 as a small group of ground-set cobbles beneath a course of brick laid with oyster shell mortar. This 4' square foundation continued to the east, only to slump and disappear into a rubble-filled feature, JR2158. To reveal the limits of JR2160 and JR2158, three 10' by 10' units (JR2168, JR2169, JR2170) were opened to the north and east. Beneath the plowzone, JR2158 was found to be roughly circular in shape with a diameter of approximately 9'. To investigate and define

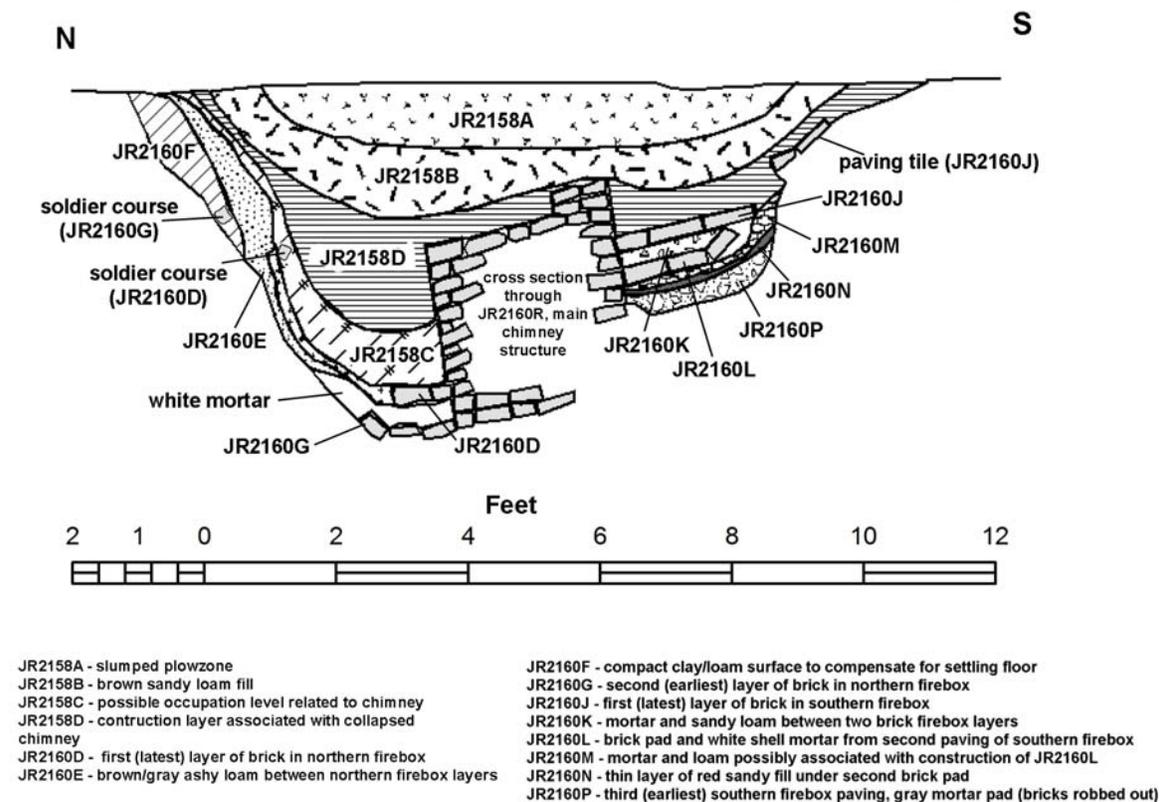


Figure 107. Profile of chimney construction phases (JR2160D-G, J-N, & P) with above fill layers (JR2158A-D).

feature JR2160, the southern half of JR2158 was excavated first. JR2160 was an extensive brick hearth with a surviving firebox facing south. The hearth and firebox had a floor laid with 8" by 8" clay floor tiles that extended into the east room. This initial excavation revealed the extent to which the eastern half of hearth JR2160 had sunk into JR2158 as the well backfilling material settled over time. Constructed on solid ground at the edge of the well, the northwestern corner of the southern firebox remained nearly 2' above the northeastern corner of the eastern firebox—the portion constructed over the well.

Three distinct strata rested on hearth JR2160—plowzone slump (JR2158A), the destruction level of the hearth/chimney (JR2158B), and trenching from brick robbing (JR2158C). The plowzone layer (JR2158A) had settled into the upper 7" of the feature. JR2158B was about 1' thick and contained a concentration of small brick rubble and mortar; likely the residue from robbing and salvaging bricks from the hearth. Artifacts recovered from JR2158B included locally made clay tobacco pipes, and Green Springs and Morgan Jones coarsewares, which indicated that this layer of fill was deposited during the last half of the 17th century. Below this layer, JR2158D contained a heavy concentration of intact oversized bricks (9" by 4" by 2'4"), brick fragments, and oyster shell mortar, which suggested this layer was from the destruction of the hearth/chimney JR2160. Four pipestems with 8/64" diameters and London type 5 pipe bowls ca.1610-40 determined the TPQ of this layer. The northern excavation of JR2158A, B, and D revealed that hearth JR2160 was double, or "H"-shaped, with fireboxes facing north and south. A layer of dark brown loam



Figure 109. Photograph showing the chimney's andesite cobble base settling into the well (facing south).

with a significant concentration of coal (JR2158C) was present above the firebox floor (JR2160D), which was found beneath the destruction layer (JR2158D). Given that stratigraphic sequence, deposit JR2158C must have accumulated while the hearth was being used. Level JR2158C contained numerous London type 5 pipe bowls dating to the first half of the 17th century. In addition, 86% of pipestems had 8/64" or 9/64" bore diameters, which established a 1620-50 deposition date. The western half of the hearth had sunk as much as 4'5" into feature JR2158.

The extreme sunken elevation of JR2160 made it almost certain that this hearth was built upon fill in a deep, backfilled cavity, like a well. This conclusion was substantiated by the straight sidewalls and cylindrical shape of JR2158 exposed by the removal of layers JR2158A, B, and D. The remnants of hearth JR2160 also revealed that the possible well fill was settling throughout the time hearth JR2160 was in use. Therefore, various episodes of hearth construction, repair, and shoring were originally carried out (see below).



Figure 108. Whitewashed plaster (circled) on face of southeastern hearth cheek (facing north).



Figure 110. Oyster shell mortar (JR2160P) used in south firebox in preparation for brick floor surface (facing south).



Figure 111. Brick soldier-course (arrow) hearth edging in the north firebox. Photo taken after the firebox floor had been removed.

Phase I: Construction

The first phase of hearth JR2160 construction consisted of dry-laid andesite cobbles (West Indian volcanic rock) in an “H” shape. The andesite cobbles (JR2160AA), were found to be set shallowly into a builder’s trench (JR2160Z, JR2160U), with two courses of cobbles laid along the fireback, and only a single course within the hearth cheeks. Brick (JR2160R) was then laid in English bond with oyster shell mortar on the cobble base. The excavation exposed ten courses of brick *in situ*. While whole bricks measuring 9" by 4" by 2'6" were used on the exterior of JR2160R, brickbats, flint, quartz cobbles, and limestone pieces were often used as infill. The eastern firebox cheeks were two bricks wide, whereas the western cheeks were one and a half bricks. Whitewashed plaster was found on the exterior of JR2160 along the face of the southeastern hearth cheek, as well as along the interior of the southern firebox.

As the stack was built, a running bond pattern of the brick firebox floors—JR2160G in the north, and JR2160P in the south—was laid in place with

oyster shell mortar similar to that used in JR2160R. Grayish oyster shell mortar was used on the western cheek of JR2160P. Neither of these floors was tied into the brick stack (JR2160R), and most of the paving bricks were reused from some other construction. In the southern hearth, a narrow trench (JR2160T) measuring 6" wide was found running east to west along the face of the firebox. Within JR2160T, a line of six nails was found in an upright position, as if they were left in place when the surrounding wood timber rotted. Accordingly, JR2160T undoubtedly established that a ground-set floor joist edged the firebox paving and supported the edge of what was likely a wooden floor in the south room of Structure 176. A brick soldier-coursing was found along the northern face of the north firebox.



Figure 112. Cobblestone foundation (JR2160W) for the east wall of Structure 176. Also pictured are the two eastern fireplace cheeks to the “H”-shaped chimney base.

Phase II: Preliminary Repairs

This phase indicated that most of the “H”-shaped hearth (JR2160) was sinking into backfilled well JR2158 while the building was still occupied and the fireplaces still in use. Evidence for these repairs was seen in the form of shoring/leveling actions along the east of the hearth; construction of a cobble buttress along the eastern side of the hearth apparently was initiated to stop the chimney from falling over to the east. Additionally, a second firebox floor (JR2160L) was added in the south. The repair was composed of brick in a running bond with white oyster shell mortar. Paving was laid in to level the original floor (JR2160P) that was sinking along its eastern half into the well. The northern firebox was not repaved at this time; there was a layer of yellow clay (JR2160F) in the box that was possibly an initial abutment to compensate for the hearth’s sinking. JR2160F had clay that was very similar to a prepared clay floor, and it sloped down into JR2158, thereby sealing paving phase I (JR2160G).

Shoring or leveling may have been carried out along the eastern exterior of hearth JR2160 by laying in brick and mortar rubble (JR2160Y) along with clay, brick, and mortar debris (JR2160X). However, this construction may not have been associated with shoring the hearth. These deposits could have been part of the ground leveling process in preparation for the construction of the cobble wall or sill (JR2160W) of Structure 176, which ran

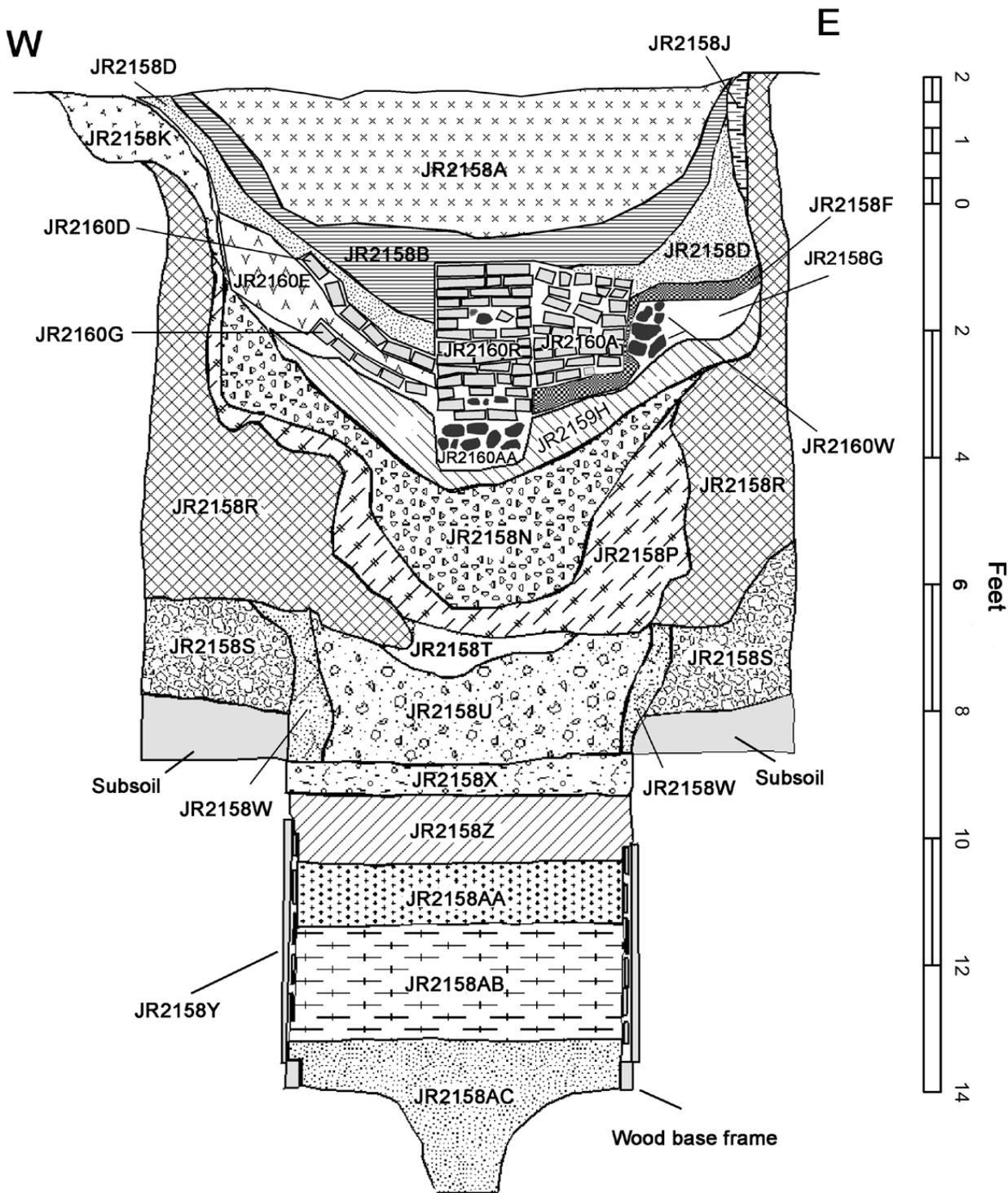
N/S along the outside of the hearth. The foundation (JR2160W) consisted of an 8’ stretch of cobbles set in grey-toned mortar. This cobblestone foundation was likely the original foundation of the eastern wall of Structure 176, which would have supported a wooden sill. As the hearth settled into the well, the cobblestone wall may have separated from its original position up against the eastern end of the hearth. This separation of the cobblestone wall from the hearth may have been visible from the southern living space and could have necessitated the construction of another cobblestone wall (JR2160V) to conceal the gap. JR2160V was a 3’ long cobble/Bermuda stone mortared wall, which ran perpendicular to the southeastern cheek of JR2160. JR2160V also may have served to shore up the eastern end of the hearth as it settled into the well. Through the subsidence of JR2160, JR2160V may have shifted 4” to the north.

Phase III: Later Repairs

After the initial phase of repairs to the hearth (JR2160), additional repairs were made over time. At some point, the fireboxes of hearth JR2160 were repaved for a second time, and a buttress was added to the eastern side of the hearth. Rather than using white oyster shell mortar, however, the second paving of the fireboxes was bonded with sandy yellow mortar. In the south, paving episode JR2160J consisted of bricks in a running bond with a line of 8” by 8” paving bricks along the southern edge of the



Figure 113. Brick buttress (JR2160A) built to shore up the sinking hearth (oval).



Fill above chimney
 JR2158A - slumped plowzone
 JR2158B - brown sandy loam fill

Chimney and associated fill
 JR2158D - destruction rubble associated with collapsed chimney
 JR2158F - builder's trench for JR2160A
 JR2158G - sand and clay fill used to shore up settling chimney
 JR2160A - brick buttress to stabilize chimney

JR2160D - first (latest) layer of brick in northern firebox
 JR2160E - brown/gray ashy loam between northern firebox layers
 JR2160G - second (earliest) layer of brick in northern firebox
 JR2160R - intact brick chimney cheek
 JR2160W - cobble foundation to Structure 176
 JR2160AA - andesite cobble chimney footing

Well lining and fill layers
 JR2158H, K, J, N, P, T, U, W, X, Z, AA, AB, AC - well fill
 JR2158R - mixed well fill and builder's trench
 JR2158S - builder's trench
 JR2158Y - oak well lining (horizontal & vertical planks)

Figure 114. Profile map of the chimney base in well fill, and the well fill layers below.

firebox. The pavers were laid on top of JR2160S, which consisted of loam with a concentration of brick and mortar. This modification may have represented an attempt by the builders to level the ground in preparation for the construction of JR2160J. To the north, paving JR2160D also incorporated a yellow buff mortar with bricks in course. However, a line of bricks was laid on edge (soldier coursing) bordering the brickwork hearth floor rather than using the floor tiles as found in the south. The fireback and/or stack of hearth JR2160 likely was repaired at this time as well. Contrasting with the original white mortar of the hearth used in hearth JR2160R, the repair (JR2160H) incorporated the same yellow sandy mortar that bonded the phase III hearth paving. This repair probably was due to the sinking of the hearth, and led to an attempt to strengthen the stack of JR2160. Much of what remained of the firebox was repaired at this time, as well as some of the easternmost cheeks. It was apparent that most of the original interior brickwork for the hearth survived due to being encased by the surrounding brickwork (JR2160H). Additional repairs at this later date included a modification of the cobble/Bermuda stone wall (JR2160V) that had been built east to west along the southeastern cheek of the hearth. JR2160C, a plaster face on rotten wood, was added to JR2160V, and plaster was found adhered to the end of the southeastern cheek of the fireplace. At one point, the plaster associated with JR2160C likely met up with the plaster on the fireplace cheek, but the settling of the feature separated the two over time.

Abutting the north face of JR2160C was a buttress (JR2160A) constructed of brick bonded with yellow sand mortar along the eastern exterior of the hearth. Measuring approximately 3' long by 2' wide, this brickwork was undoubtedly built to shore up the sinking hearth. Since JR2160A was constructed using the same yellow sand mortar as found in the fireback repair (JR2160H), and in the latest phases of firebox paving, these repairs appeared to be contemporaneous. JR2158E and JR2158F were probable builder's trenches for the construction of buttress JR2160A. They were composed of soft sandy loam and contained a high artifact concentration, which suggested that this fill was disturbed well fill (JR2158). A final element of the construction consisted of a brick wall or footing running east from the southeastern cheek of JR2160. Made of three

stretcher bricks stacked on top of one another, this wall (JR2160B) was built on top of a bed of plaster. Apparently, JR2160B was constructed to be flush with the face of the southeastern cheek of JR2160 in order to fill in the space caused by the sinking hearth in the south room.

The Recording and Removal of JR2160

Since the double hearth (JR2160) was constructed over a backfilled well, the hearth had to be disassembled to continue excavation of the well (JR2158) beneath. To record JR2160 in detail, three-dimensional mapping was recorded using a total station plotting each brick *in situ*.

As bricks and cobbles were removed individually, measurements were taken from each brick corner and cobble angle. The resulting data were then integrated to generate a three-dimensional map.

Structure 177 (JR2158)

Excavations below the slumped hearth (JR2160) revealed the first deposit of well fill. First exposed 4' below the ground surface, JR2158H consisted of brown/grey loose sandy loam with ash and charcoal (see figure 109). This roughly circular layer extended across most of the well shaft and sloped downwards from the outside of the feature to form a cone. The ash and charcoal content of this layer, along with oyster shells, burnt corncobs, nuts, and domesticated animal bones, indicated that this fill was a deposit of hearth/domestic debris. Further finds included many "Robert Cotton" pipes, a Martincamp flask, Weser ware, Surrey-Hampshire Border ware, and a Spanish standing costrel. Fragments of Spanish olive jar crossmended with the JR2158N and X layers of the well, and a London redware chafing dish and tripod pipkin also crossmended with N. One of the many apothecary jar fragments crossmended with JR2361D (Structure 183). Two complete English white ball clay tobacco pipe bowls were in this context. One, a Type 3, had an incuse "S" maker's mark on the heel, similar to pipes found in London contexts dating ca. 1580-1610. The other pipe bowl was a Type 5, ca. 1610-40. All of this material was consistent with a 1st quarter 17th-century date for the complete filling of the shaft.²⁸



Figure 115. Well shaft first appeared as the contrast between the dark organic fill layers in the well shaft and the orange clay builder's trench layers surrounding the shaft.

Below and sealed by JR2158H was a layer of compact orange clay (JR2158J) deposited around the outside edges of the well shaft. Located around the top of the well, and similar in shape, was a layer of grey loam with sand pockets (JR2158K) that was sealed by JR2158J. While indeed isolated, these rings of soil may have been traces of stratigraphic layers that became compressed and/or shifted deeper into the well over time. As such, JR2158K may have been a displaced part of JR2158H.

Located directly below JR2158H, JR2158N had similar dimensions and first appeared at 5' below the surface. This layer extended across the entire original well shaft as a circular form in plan, and it tipped towards the center of the well as it formed a cone shape in profile. The JR2158N fill was composed of rich gray loam with pockets of concentrated red/brown ash, crushed shell, brick, and charcoal. Artifacts held in this level included a pumpkin seed and a small section of fired clay impressed with the stamps of a pipemaker, presumably Robert Cotton. This may be evidence of an experiment with Virginia clay during the pipemaking process. Overall, however, the artifact content was similar to layer JR2158H. Of particular note was a Martincamp flask that crossmended with JR1425F, the western bulwark trench. There were many Frechen stoneware jugs in this context; one bore a blue-accented medallion with the Arms of Cologne and crossmended with JR2158P. Another jug that crossmended with the P layer had the medallion of the Julich-Cleve-Berg duchy. One complete Type 3 English white ball clay tobacco pipe bowl indicated a ca. 1580-1610 date. There were many sherds of Native shell-tempered pottery present, as well as eight mussel shell beads of the type traditionally



Figure 116. Unfinished mussel shell beads with a quartzite drill used in their manufacture, found in the well.

associated with Indian manufacture. All of the beads had rough edges and appeared unfinished, suggesting that the bead production was taking place within James Fort. A quartzite drill found in JR2158AA may have been associated with the bead manufacturing as it was the type of tool used to grind out the central holes. The N layer was also full of animal bone, including over three thousand Atlantic sturgeon scutes, which indicated the well may have been filled in the late summer at the height of the sturgeon run.

A third layer of artifact-rich fill found tipping into the center of the well shaft was a loose brown sandy loam with ash, brick, and charcoal (JR2158P). Differing from JR2158N and JR2158H, JR2158P took on an angular shape in plan at its base. When excavated to its bottom elevation 9' below the surface, the limits of this layer were square with distinct right angles visible at the four corners. Found in this layer were several triangular panes of mica, known as Muscovy glass, held in iron strapping. Throughout the 17th century, the English Navy used mica on board ship to glaze cabin windows and for poop deck lanterns. Perhaps the colonists used one of these 8' lanterns to illuminate the well area. Along with the many "Robert Cotton" pipe fragments, there was a flat piece of fired clay bearing four of Cotton's diamond-shaped marks. This object, which crossmended with



Figure 117. Triangular panes of mica, known as Muscovy glass, which were once held together with iron strapping to form a lantern.

JR2158R and JR2158V, may have been a test piece or the base of a vessel. Distilling equipment was present in the form of Hessian crucibles, London redware scorifiers, and a cupel with residues. Sherds of a Surrey-Hampshire Border ware roasting vessel known as a schweinetopf represented the first documented appearance of this Germanic form in America.²⁹ Other significant ceramics included a nearly complete Essex tripod pipkin, a Valencian lustreware handled bowl that crossmended with JR2361E (Structure 183)³⁰, a Beauvais pitcher, a Werra ware dish, and a Chinese porcelain tea bowl that crossmended with JR2158R, JR2158U, JR2158W, and JR2158X. Jamestown's association



Figure 118. Essex tripod pipkin (height 158mm).



Figure 119. Valencian Lustreware handled bowl.

with Bermuda, which began in 1610 with the arrival of the *Sea Venture* survivors, was seen in a reed-stem pipe made from Bermuda limestone and two Cahow (Bermuda petrel) bones. This layer was full of faunal remains, particularly sturgeon and other fish. Crab claws have been found in James Fort contexts, but this layer of the well had an extraordinary number (n=85). It was evident from this layer that faunal analysis of Structure 177 could reveal valuable information about the early fort period. A rare early 17th-century copper alloy hoof-ended spoon was also found in this context, one of the few spoons found in James Fort.

Sealed by JR2158N and JR2158P was the mixed context JR2158R. Composed of orange sand/clay and brown loam, this layer of fill extended in plan



Figure 120. Reed-stem pipe made from Bermuda limestone (length 44mm).



Figure 121. Copper alloy hoof-ended spoon (length 127mm).

to the exterior limits of the well shaft from a starting elevation of only 1' below the surface to a depth of 8'. In the early stages of excavation, JR2158R was believed to be the builder's trench for the well. As the base of the layer was approached, however, more significant loam deposits and irregular contours suggested that JR2158R was not builder's trench, but was a mixed context formed from both eroding/sinking builder's trench and later well deposits. Presumably, as the well compressed, soil from construction and deposition gravitated to the center; artifacts mending with other layers supported this scenario. Robert Cotton pipes, for example, mended to those found in JR2158P, as did sherds from the Essex Pipkin. Other artifacts from JR2158R included a rim sherd of pierced, shell-tempered native pottery with charred cordage remaining in the pierced hole, sections of a porcelain tea bowl, a copper alloy crucifix, and an ivory chess piece.



Figure 122. Shell-tempered native pottery, which had some charred cordage still in the pierced hole (JR2158R).

Similar to JR2158R, JR2158T likely was slumped builder's trench. As shown in the profile map, JR2158T tipped towards the center of the well following the western half of JR2158R. In fact, JR2159R and JR2158T could have been considered one layer by virtue of significant clay contents that likely derived from the original well builder's trench. Nevertheless, the 7" thick level (JR2158T) was separated because it had a greater percentage of orange clay and only very minor loam content. Moreover, JR2158T contained a concentration of whitewashed architectural plaster not found in any surrounding contexts. The plaster did not reflect lath marks on the unfinished side, which suggested it had been attached directly to a mud-and-stud wall.



Figure 123. Ivory chess piece found in well (standing, height 25mm) along with a similar example from a nearby fort-period context (height 35mm).



Figure 124. Surgical forceps found in well (JR2158X) (length 178mm).

Below JR2158T, JR2158P, and JR2158R, excavations uncovered well deposits (JR2158W, JR2158U) and a builder's trench (JR2158S) unaffected by erosion/sinking. The deposits JR2158W and JR2158U had nearly identical top elevations (9' below the surface) and an upper contour that was nearly level. At the same level and underneath JR2158W and JR2158R was the well's undisturbed builder's trench (JR2158S), which consisted of orange sand and clay with no artifacts. The builder's trench (JR2158S) was found to be circular in shape along its exterior limits and square along its interior. This helped to reveal how the well was constructed, as discussed in more detail below.

A context of loose dark grey/brown loam and sand pockets with charcoal and light brick inclusions, JR2158U, was incased within JR2158W, and it had a heavy oyster shell content tipping in from the west. The food remains indicated that this deposit, like layers H, N, and P above, was probably trash from day to day hearth/domestic cleaning. There were also fragments of Robert Cotton pipe bowls from JR2158U that mended with an example found in JR2158P.

At 10'6" below the surface, the modern water table was reached, as was the next stratigraphic layer (JR2158X). This had a brick and oyster shell content similar to JR2158U, but was denser with a higher percentage of clay. Layer JR2158X also contained a wealth of faunal material. Surgical tools were found, including a tooth extractor and a pair of forceps, as well as sections of a human cranium. This cranium fragment was from a skull of an approximately 20-year-old male.³¹ Given the surgical instruments found with it, the skull may have been surgical waste.

The water table level necessitated arbitrary strata recording (begun at 11' below the surface). It became impossible to distinguish strata by color and texture after water began to rush into the work area; the soil appeared only as dark, wet mud. At arbitrary level JR2158Z, anaerobic conditions preserved organic artifacts such as wood, leather, and seeds. From this layer to the bottom of the well, a sequence of core samples was taken with the hope of determining the stratigraphic record later in a lab setting. These samples were taken by pushing PVC pipes 2" in diameter and 1' long into the mud until they went 1' into the fill, or encountered something solid preventing a deeper test. The cores were then capped, thereby capturing a vertical sample for extraction.

Another arbitrary break (JR2158AA) was made at 12'3" below the surface in a layer that consisted of a compact grey clay and silt. This fill contained heavy concentrations of twigs, bark, seeds, and insect parts, all of which were nearly perfectly preserved.

The next layer (JR2158AB) was set when organic artifact quantities diminished and silt increased. This layer may have been fill that accumulated in the well while it was still in use; multiple mendable pieces of Bartmann jugs were found, including one that crossmended with others from Structure 165 (JR158AV). These jugs probably represented accidental losses by individuals filling the vessels with water at the wellhead. Another indica-



Figure 125. Two Bartmann jugs found in the well. The jug on the right (height 195mm) was found in the bottom of the well and was nearly complete; the only missing component was its handle, which had been found previously in Pit 1 (JR2H) in 1994 (left jug, height 151mm).



Figure 126. Halberd with heraldry of Lord De La Warre found near the bottom of the well.

tor that JR2158AB accumulated while the well was still in use was the presence of a halberd and a boarding pike, both with bent blades and a portion of their wooden shafts still present. The points of the halberd and the pike may have been shaped into tools for retrieving objects accidentally lost in the well. The halberd proved to be a significant artifact for dating the fill deposition in the well; it bore heraldic griffins in the openwork of the blade as well as engraved upon it, matching the crest of Lord De La Warre. Since De La Warre did not arrive at Jamestown until June 1610, the halberd sets a TPQ for the fill above it.

Seeds and leaves from native plants were recovered from layers JR2158Z, JR2158AA, and JR2158AB.³² Maize, pumpkin, squash, and tobacco seeds were found, all of which were cultivated Virginia species. However, wild flora made up the bulk of the assemblage, which included blueberries, wild cherry, blackberries, and various nuts such as walnut, hickory, beech, and acorn. The presence of only Virginia plants in these fill layers demonstrated that the fill was deposited at a time when the colonists were living off what the land had to offer, rather than relying on locally cultivated plants, or plants imported from Europe.

The final arbitrary layer of fill in the well (JR2158AC) was from 15' to at least 16' below the surface. This layer had a heavy concentration of silt and multiple ceramic crossmends with fragments from JR2158AB. The silt in both JR2158AB and JR2158AC may indicate that the well silted in at the bottom over time, accounting for the ultimate abandonment and subsequent backfilling of this well.

Excavations in the bottom center of the well exposed a natural spring from which emerged large volumes of water. The rapid flow made it difficult to pump the water out fast enough to fully investigate a deep central cavity. Artifacts were retrieved from the cavity, but it may not have been fully investigated because of the rising water and danger to the excavator.

The artifacts in JR2158AB included a complete Bartmann jug and significant portions of several more Bartmanns. The complete jug was missing only its handle, which had been found previously in Pit 1 (JR2H) in 1994. Also found in this layer

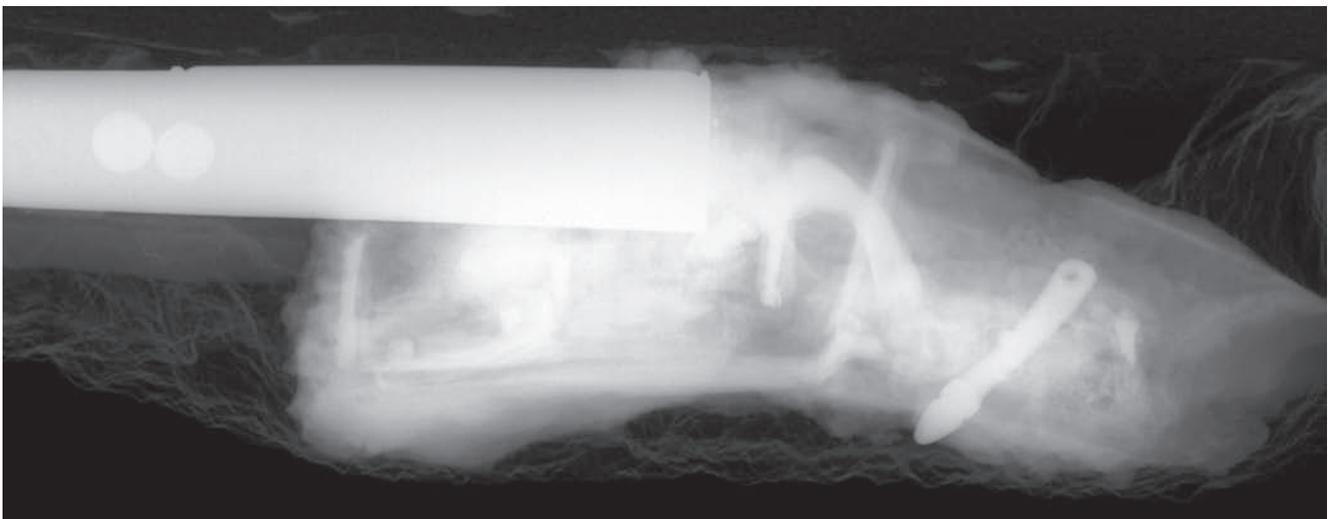


Figure 127. This X-ray of the late 16th-century Scottish snaphaunce pistol found in the bottom of the well showed that it was loaded with two pieces of shot.



Figure 128. Vertical and horizontal oak planks, which made up the well lining (JR2158Y).

was a late 16th-century Scottish snaphaunce pistol with a wooden fishtail butt. X-rays of the pistol showed that it was loaded with two pieces of shot. Additionally, the base section of a deftware drug jar found in JR2158AC mended with JR2158P. This crossmend, and many others throughout the layers of this well, suggested that the well was filled in the space of months, not years.

Remnants of a square, wooden well lining were found directly below JR2158X. At 11'6" below the surface, the box-like lining (JR2158Y) was essentially intact and consisted of two distinct layers of oak planks—one of horizontal planks on the interior, and one of vertical planks on the exterior. The horizontal planks were no more than 2" thick and no greater than 7" in height. They were connected to one another at the corners by a simple lap joint, and then secured further by wooden pegs driven into square corner posts located outside of the frame beyond the lap joints. Behind the horizontal planks, the vertical planks were packed tightly together to prevent silt from seeping into the open well. These planks were on average about 1" thick and 5" wide.



Figure 129. Corner of the wooden well lining showing horizontal planks connected by a simple lap joint, and a wooden peg driven into the corner post through one of the horizontal planks.

At the bottom of the wood frame were four large beams forming a strong box-frame footing. These beams were 10" in height, but their width and how they were connected could not be determined because of the rate of incoming water. The wood shaft survived to a height of 5' from the bottom of the well.

A metal detector was used to determine that no iron nails were used in the construction, but some construction details probably were indiscernible. For example, just prior to backfilling, three small, elongated beams were found lying parallel to one another and parallel to the well lining just outside the northern wall of the frame. These three beams may have been horizontal planks that fell out of place over time, or they could have been another component of the square structure.

The interior of the wood frame structure measured 5' by 5'. The box frame, which must have continued above ground to form a wellhead, was oriented with the west palisade and directly aligned with the northern wall of nearby Structure 175. This strongly suggested the well and the building (Structure 175) were constructed at the same time in 1611. Documentary evidence supports this conclusion in that James Fort's second well apparently was built in 1611 after the arrival of the new deputy governor, Sir Thomas Dale.³³

With the discovery of the wooden lining, it became clear that the colonists constructing the well first dug a large round hole to the water table; the wooden frame was then built in this space. Ten feet below the surface, the builder's trench terminated where the ground became saturated. It can be deduced that the 17th-century excavations stopped at this level for construction of the well casing (JR2158Y). After this was built, the casing was likely undercut to sink the shaft below the water table, thereby creating a reservoir of potable water.

Retrieval of the wooden shaft was considered, but cost and impact on the nearby church tower prohibited that process. Shortly after completing excavations in the well, the open shaft was backfilled to protect the original wooden lining from external pressures, which could have led to the collapse of the structure. The wooden lining was carefully filled with sand, and the remaining open well shaft was filled with previously screened archaeological spoil.

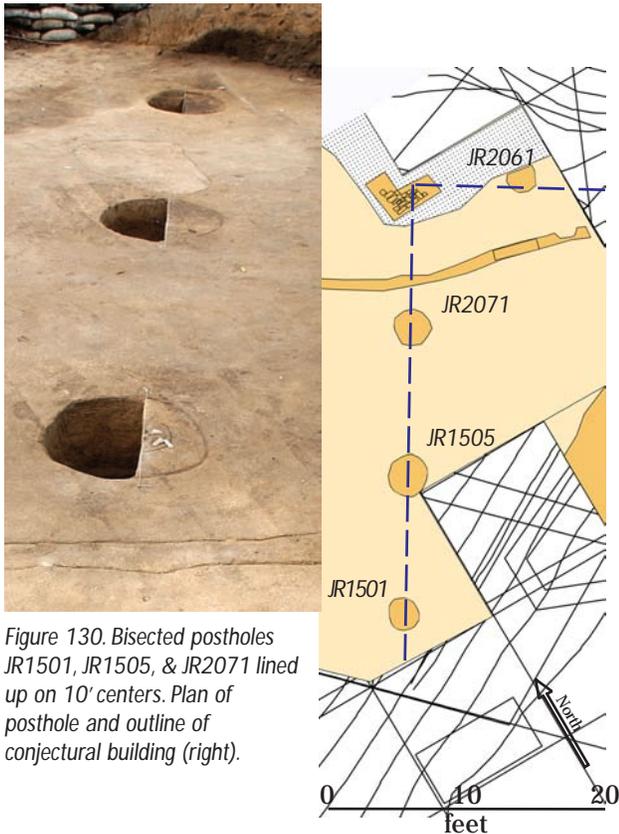


Figure 130. Bisected postholes JR1501, JR1505, & JR2071 lined up on 10' centers. Plan of posthole and outline of conjectural building (right).

Structure 179: Possible Storehouse (JR1501, JR1505, JR2061, & JR2071)

Located close to the geographic center of James Fort were three or four large related structural postholes. At least three of the postholes were likely part of a substantial post-in-ground structure, possibly James Fort's early storehouse.³⁴ They predate the Civil War earthwork (Structure 145) and plowing (ca. 1750-1889), and they neither disturbed, nor were disturbed by, any other features in the area. Three of the posts (JR1501, JR1505, JR2071) lined up on an SW/NE axis that was nearly perpendicular to the south palisade wall of James Fort, 85' to the south. These posts were spaced evenly on 10' centers and had clear postmolds. A fourth posthole (JR2061), opposite and at a right angle to postholes JR1501, JR1505, and JR2071, may have been associated with the aligned postholes and the structure they represented.

The four postholes were bisected, and only the south halves were excavated. All of the postholes had nearly identical orange clay fill with small pockets of loam (JR1501B, JR1505B, JR2061C, & JR2071B). This clay fill was re-deposited subsoil

and probably came from digging the holes initially. All posthole fill was screened through 1/8" screen, and predominately prehistoric artifacts were found, with the exception of one fragment of case bottle glass in JR2071B. The lack of European artifacts in the posthole fill indicated that these postholes were likely from the early fort period. The area around the postholes probably had not yet been occupied by the colonists long enough to leave European artifacts on the landscape (i.e. artifacts that in turn may have found their way into the posthole fill at the time of construction). The postmold fill layers of JR1501A, JR1505A, and JR2071A were sandy brown loam and contained some early 17th-century objects, including delFTWARE drug jar fragments, a glass "gooseberry" bead, case bottle glass, a glass phial base, London redware, Red Border ware, English white ball clay tobacco pipe fragments, a crucible fragment, one straight pin, one aglet, and clinker. None of the artifacts provided a firm TPQ, but in JR2071A there was also a small fragment of slipware, thought to be German, that was found in quantity in Ditch 7 (TPQ ca. 1625). Since the postmold artifacts were deposited after the destruction of the building, and after the posts had been removed or rotted away, this may indicate that Structure 179 stood until the 2nd quarter of the 17th century.

The sizes and depths of the three postholes in the line were nearly identical; they were all circular in shape with circular postmolds. JR2071, the northernmost post, had a postmold 10" in diameter and 2'6" deep. JR1505, the center and largest of the posts, was 3' wide and 2' deep, with a postmold 9" in diameter. Finally, JR1501 was 2'5" in diameter, 2' deep, and had a mold diameter of



Figure 131. Excavator pointing to postmold in JR2071.

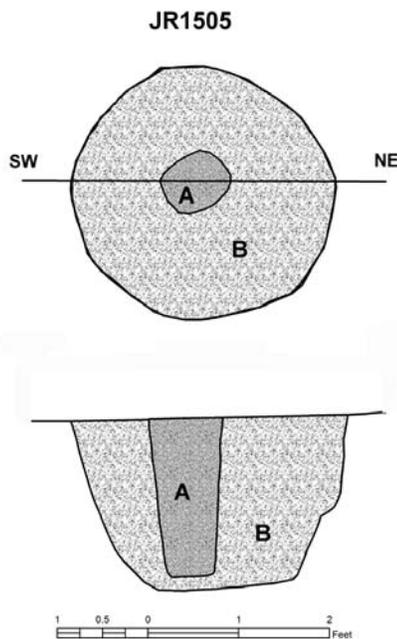


Figure 132. Profile and plan of posthole JR1505.

10". We can logically estimate that at least the top 1' of all three of these posts was plowed away; the initial depths of the postholes may have been approximately 3'.

Excavations continued to the north along the line of posts in an attempt to determine the building's size and orientation. Evidence suggested that if the building had continued in the direction indicated by the postholes, and on 10' centers, the next post would have been destroyed by a mid-17th-century brick-lined cellar (Structure 180). The cellar was deep enough for its construction to have erased any trace of a continuation of the building. Extensive excavations to the west of this line of posts revealed that the building did not continue in that direction, as no more postholes were found. Therefore, the bulk of the building must have been located to the east of the three-post line; the discovery of posthole JR2061 located 8' to the east supported this conclusion. JR2061 looked like the other three in fill composition but was much smaller; it had a 2' diameter with a depth of 1'5". Unlike the other three posts with obvious molds, there was no discernable postmold in JR2061. However, if a post once had been located 10' north of JR2071, following the same line as the three known postholes,

then JR2061 would have formed a right angle with the established line, possibly indicating the northern end of the structure. Excavations have not advanced in the area where the other wall line of the building could have been located because there the postholes were likely destroyed by the construction of the Civil War fort's 6' wide moat (JR1269E-H). If there had been another post to the south along the line of postholes, it may have been destroyed during the construction of this moat as well. Future excavations will determine if in fact any more postholes were deep enough to survive the Civil War construction.

The location and size of the four posts indicated they were associated with one of James Fort's large public buildings. A document left by the secretary of the colony, William Strachey, suggested that the Virginia Company storehouse may have been located in the center of the fort. "In the midst is a market place, a storehouse, and a *corps de garde*."³⁵ At this point, it is believed that the posts were a section of this storehouse, but it is far too early to rule out the possibility that the posts were part of a church or guardhouse. The length of the building, however, was likely oriented along a SW/NE line, not an E/W one, the traditional orientation of a church.

Structure 170, Well 27 (JR973 & JR1101)

Trenching in search of the estimated location of the western palisade of James Fort in 2002 revealed an early 17th-century well (Well 27, also recorded as Structure 170) that was brick lined and extended to a depth of 14' below modern grade. A large builder's trench surrounded the well shaft and, combined with the builder's trench, produced several hundred artifacts dating to the early, fortified years of Jamestown.

Removal of topsoil, plowzone, and a drainage ditch associated with an adjacent Civil War powder magazine (Structure 169) initially defined the limits of the well cavity as a circular soil disturbance 12' in diameter. Removal of a slump layer (JR973A) revealed the brick lining of the well shaft and the builder's trench. The diameter of the brick well shaft was 3'6", and the width of the surrounding builder's trench averaged 4'3" outside the shaft. Through subsequent excavations of both the builder's trench

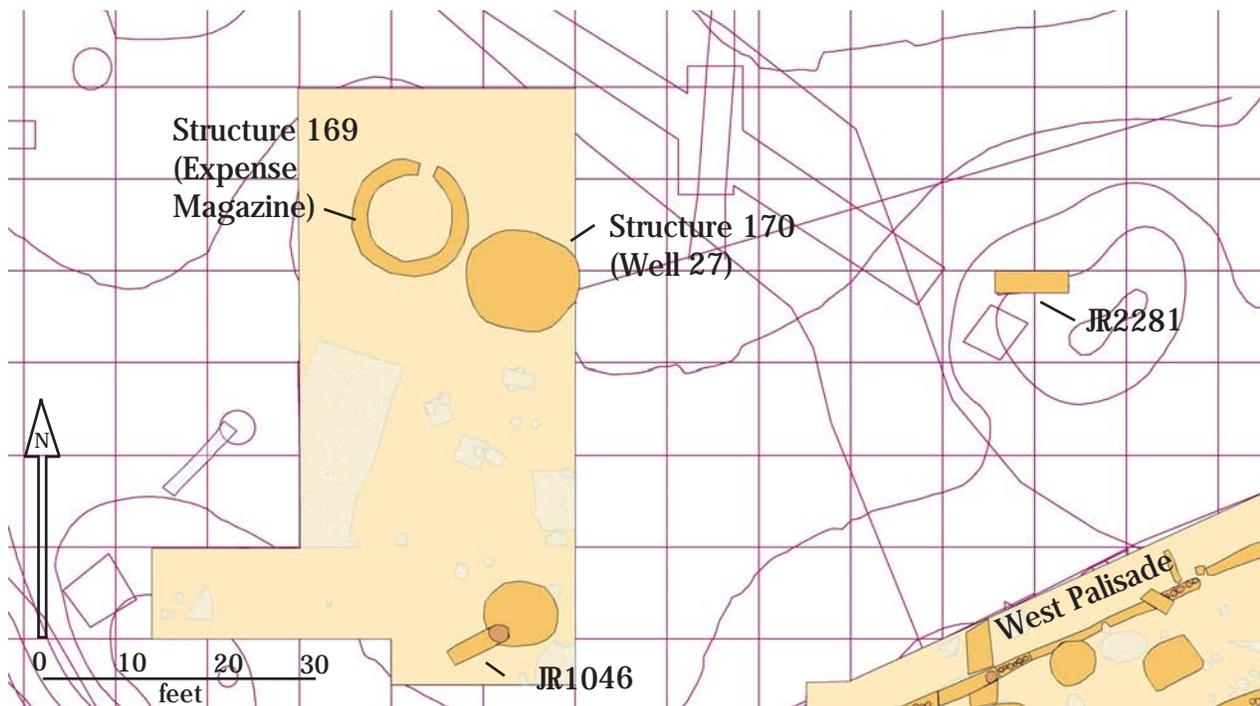


Figure 133. Site plan of Well 27 and vicinity.

(JR973B, D-H) and the well fill (JR1101A-J), the methods of construction, a timeframe for construction, and a timeframe for the well's abandonment all could be determined.

Excavations of the builder's trench revealed eight separate layers (JR973B, D-H), some natural and some arbitrary. As a precautionary step to avoid any contamination from unrelated disturbances in the builder's trench, 1' of builder's trench fill (JR973B) was removed first. The second layer of fill was designated JR973D, and both JR973B and D were yellow and orange mixed clay and sand with little or no inclusive material. JR973D sealed JR973E just over 1' below the elevation of the first *in situ* well bricks. Distinguishing JR973E from the builder's trench fill above it was a dense concentration of brick flake inclusions along with some loam mixed in with the clay. At this level, the brick inclusions covered the entire surface area of the builder's trench, but the inclusions were much more prevalent closer to the well shaft. At its densest point, JR973E was no more than 2" thick. The large amount of brick flake inclusions in JR973E indicated that this may have been a working surface that formed while individuals chipped at brickbats to form wedge-shaped bricks used in the well ring. The loam present in this layer may have been from mud tracked into the well on the shoes of the workmen constructing the well ring.

As builder's trench fill was removed, the circular pit narrowed twice in a stepped fashion. The first step was 2'6" below the top of the well shaft followed by the second step at 4'6". Both steps were cut into the subsoil and averaged over 1' wide. These distinct levels probably provided steps for the well builders to move more freely in and out of the pit. New layer designations were assigned at both step levels (JR973G, H). These layers shared a similar soil composition to layers JR973B and D, with mixed clay, sand, and the absence of inclusions.

Another potential working surface was revealed (JR973J) six feet below the second step level. This was nearly identical in composition to JR973E, distinguished by a large amount of brick flakes. Underneath JR973J was the final layer of builder's trench fill to be excavated (JR973K). All builder's trench fill was water screened through 1/8" mesh. The excavations stopped short of removing all builder's trench fill as a safety precaution to keep the sides of the excavation intact. At that level, the width of the trench ranged from 3" to around 1'. Excavation of the builder's trench ended at 7' below the top of the well because the limited amount of space outside the brick shaft left little fill to explore.

The builder's trench yielded several dateable artifacts.³⁶ The first 1' (JR973B) produced a swept-hilt rapier of the type found elsewhere on Virginia sites, dating to the first two decades of the 17th cen-

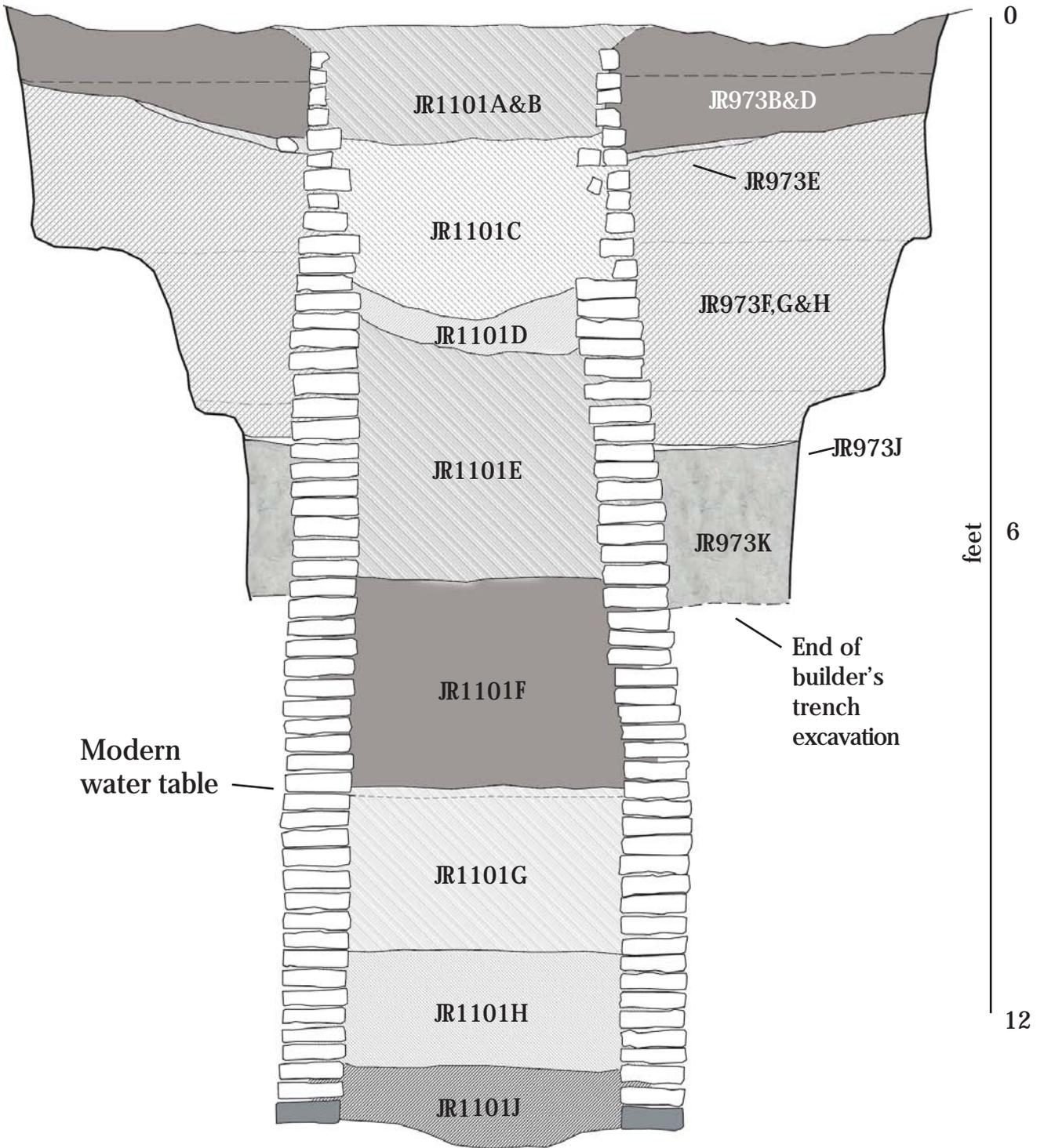


Figure 134. Profile of fill in well shaft and builder's trench fill.

End of
interior of
well
excavation



Figure 135. Excavator pointing to brick debris from working surface (JR973E) in the builder's trench fill.

tury. Marbleized North Italian Slipware and an Iberian Star-Type Costrel provided a TPQ for the fill of the builder's trench. These ware types appeared on Virginia sites no earlier than the 1620s,³⁷ but they had a beginning manufacture date of 1600.

Thirty-eight pounds of clinker (blacksmith waste or waste from iron smelting) was recovered throughout the builder's trench, suggesting that smithing was taking place nearby. In the 1950s, National Park Service archaeologists excavated a pit (Structure 139) 30' from the well, which was also filled with clinker. Structure 139 yielded many fragments of weaponry, including gun parts in various states of repair. This iron-working activity at nearby Structure 139 was likely the source of the clinker in the builder's trench.

The brick well lining (JR973C) was constructed of rectangular bricks made into a circle with smaller brick wedges or brickbats as spacers to fill in the gaps between the whole bricks. A typical brick course contained twenty-eight whole rectangular bricks and twenty-eight brick wedges. The dimensions of a standard brick were 8½" by 4" by 2". All brick courses *in situ* were laid with mud and sand mortar.

The brick surviving *in situ* around the top ten courses of the well shaft were predominately half-bricks likely broken or worn by the daily impact of a swinging well bucket, with full-sized standard bricks found above. The complete well lining context (JR973C) included both the bricks and the mud between the bricks. While excavating the well fill, 6' of the brick shaft had to be carefully disassembled for safety reasons.

The well shaft contained nine fill layers (JR1101A-J), all of which were water screened through a 1/8" mesh. JR1101A filled the well shaft where it was partially intact. The second layer of well fill (JR1101B) appeared where the ring of bricks was completely intact. With the exception of JR1101D (a silt layer), all of the layers contained brick rubble undoubtedly from the collapse of the brick well shaft above. There were over 1,300 pounds of brick rubble in the fill.

Most fill layers consisted of light brown sandy loam with varying amounts of brick or mortar inclusions, with few clearly defined layer breaks in the fill. The silt layer (JR1101D) may have been the result of the well remaining open at this level for an extended period of time, which allowed wash layers to accumulate.

Layers JR1101E and JR1101F had mortar mixed with the brick; in layer JR1101E several bricks were found mortared together, including a complete brick with two smaller brick wedges mortared to it. This same construction technique was seen in the surviving shaft (JR973C) mentioned above, with the smaller brick wedges used to fill the gaps between the whole rectangular bricks in the well wall. The mortared bricks apparently fell from the wellhead above the original ground surface. Bricks above ground did not have the well walls to keep them in place, as did the bricks lining the shaft, so it was necessary to mortar wellhead bricks in place to keep the ring intact. A second layer change was made between JR1101E and JR1101F at the discovery of

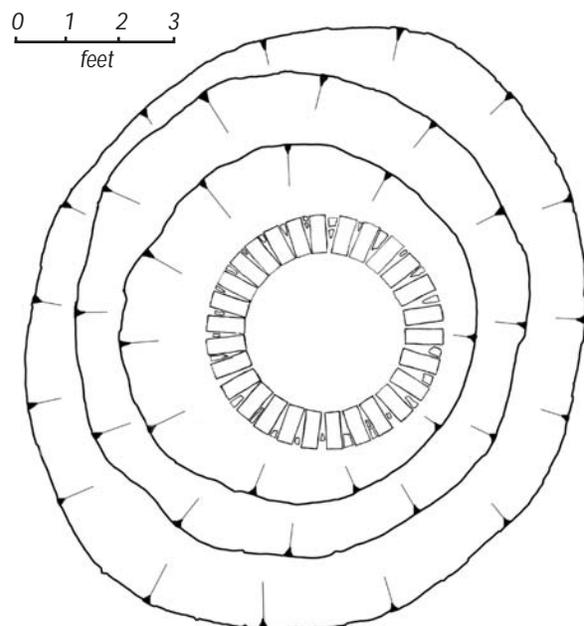


Figure 136. Plan view of brick well ring with brick wedges and the stepped levels in the builder's trench.

100 frog skeletons that either had fallen, or were born, in the open shaft.

Despite the presence of clearly recognizable layers of fill, the well was not filled all at once. It appeared to have filled relatively quickly over a period of months, not years. Layers JR1101B-G had fragments of a Westerwald jug, which crossmended. This suggested that these layers were deposited in a fairly short period of time. A complete breastplate was recovered from JR1101C, as were gun parts, a sword blade, three spade nosings, and a large concentration of armor in layers JR1101F and JR1101G. The armor in these layers included several gorgets, tassets, and a burgonet helmet. This abundance of armor suggested that the time the well was filled, the military climate in the colony was such that plate armor was no longer needed for defense. These various parts of full body armor may have been part of one person's stock, another indication that the well was filled quickly.

A variety of different species of faunal remains found in the well came from both domesticated and wild species. The domesticated fauna included a horse scapula and a pig skull. The wild fauna included small mammal bones, such as rabbit and possibly fox, as well as several fish and turtle remains.

Well fill strata, JR1101A-G, were deposited after the well no longer functioned as a water source and had become a rubbish pit. The bottom two layers (JR1101H, JR1101J), however, were deposited while the well was still in use. These layers, recorded as arbitrary, made up the bottom 2' of fill and were beneath the level of the modern water table. This suggested that at one time there was enough water (2' in depth) for the well to continue operating.

A pewter lidded flagon fitted with a thumb piece and lid, a pewter wine measure minus its handle, a significant portion of a Bartmann jug, and a nearly complete Merida-type jug were found in JR1101H and J. All four of these vessels likely were lost into the well while colonists were attempting to retrieve well water.

Axe heads and hoe blades were found in sizeable numbers near the bottom of the well fill. These suggested bucket counterweights that fell off of the bucket rope over time.³⁸

The presence of some artifacts found in layers JR1101H and J cannot be explained easily. An intact iron bill or staff weapon, a complete cleaver,

and a gridiron were found in JR1101H. These three artifacts were all in usable condition, and a practical explanation could not be found for why they were discarded.

The removal of the bottom layer (JR1101J) exposed subsoil and a timber ring foundation (JR973L) under the final course of well bricks. During construction, the ring would have been laid in place in the bottom of the pit. The bricks then would have been built up on the ring while the ring was undercut to the desired level beneath the water table. The ring held the above courses of brick level and in place. The wood ring consisted of at least four sections of curved red oak with lapped joints and a large spike running through each joint. A large sample of the oak ring was extracted from the ring in the hopes that the growth rings still present in the oak could be studied using dendrochronology to determine the year the tree was felled. Cutting out a 5" length of the ring revealed two separate sections of wood, presenting the possibility that the wooden ring was constructed of more than four sections of wood. The wood sections were 3" thick, with a combined length of 10", making them only slightly longer than the well-brick lengths.

On two separate occasions in 2002, the well water was tested to determine if it was potable. The first water sample was collected after the well had been pumped dry and naturally filled (16 October 2002). This sample was analyzed for salinity, pH level, and coliform bacteria. A final test was conducted using Inductively Coupled Plasma Spectrometry, or ICP scan, to determine inorganic chemical concentrations in the water.³⁹



Figure 137. Wooden curb (JR973L) beneath the final course of bricks.

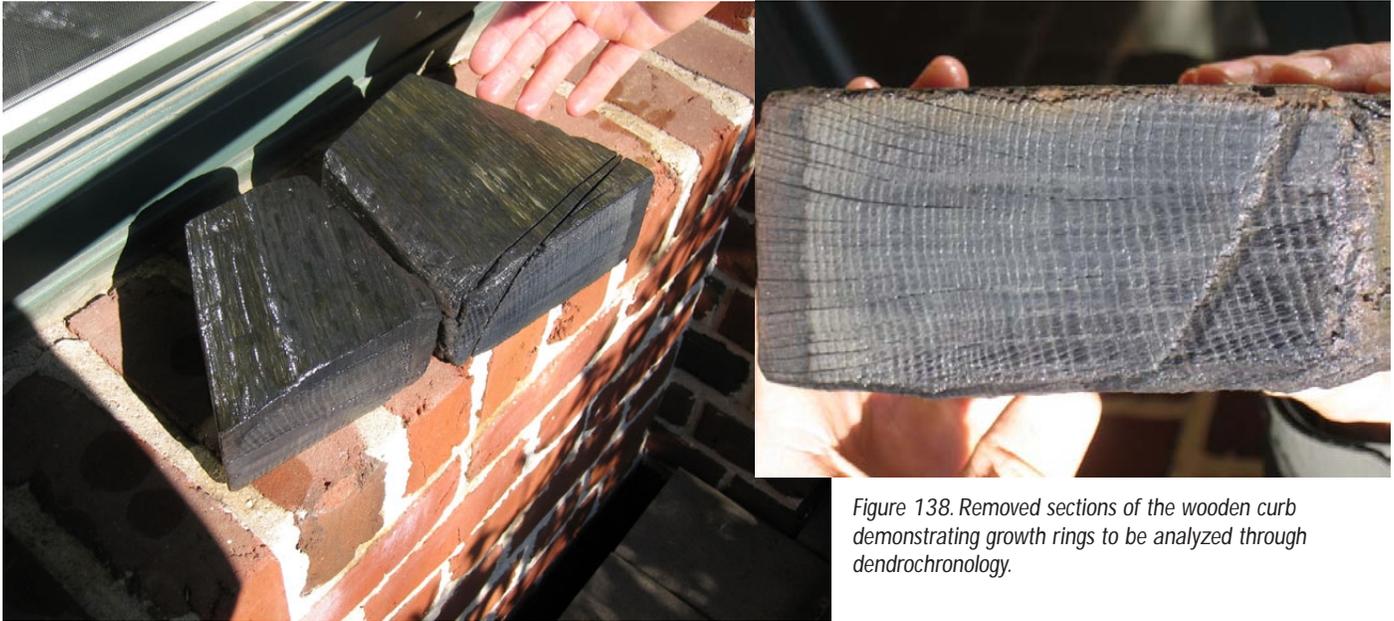


Figure 138. Removed sections of the wooden curb demonstrating growth rings to be analyzed through dendrochronology.

The salinity level from the initial water sample measured 1 part per thousand (ppt). Less than a week after the water from the well was sampled, a water quality monitoring station off Jamestown Island recorded a salinity measurement of 11 ppt, over ten times higher than that of the well water.⁴⁰ Thus, the salinity in the James River at the time of the well sample, only 80' from the well, did not drastically affect the salinity level of the well water. The pH level of the well water was 6.9, which was a normal reading.⁴¹ The coliform bacteria test in the sample came back positive for E. Coli, a bacteria caused by human or animal waste. Finally, the ICP scan showed that almost all chemical levels in the water were safe for humans to drink, according to the United States Environmental Protection Agency's list of drinking water contaminants. The only exception was the element thallium.⁴² The Maximum Contaminant Level (MCL) for thallium, or the highest level of contaminant allowed in drinking water, is .002 mg/l. In Well 27 the thallium level exceeded the MCL with a reading of .007 mg/l. Excessive levels of thallium in drinking water have the potential to harm one's nervous system, lungs, heart, liver, and kidneys.⁴³ While there are currently high levels of thallium in Well 27, this does not necessarily mean that thallium levels in the well water were high in the early 17th century; a modern contaminant could be responsible. Of note, one of the leading causes of higher than normal levels of Thallium in water is ore processing.⁴² Ore processing in the form of iron-working took place near the well at Structure 139 in the early 17th century, and

one of the byproducts of iron ore processing, clinker, found its way into the builder's trench of the well. Further scientific investigation should explore whether or not the smithing activities near the well almost four hundred years ago could have had an effect on the levels of thallium in the well water sampled in 2002. Additionally, it should examine the possible impact of the higher than normal levels of thallium on humans.

On 4 November 2002, several weeks after the initial water sample was tested, a second sample was tested for the presence or absence of E. Coli bacteria. Before taking the second water sample, however, the well water was shock-chlorinated with one gallon of household bleach and then pumped dry. The second sample was taken several hours after the well water had returned. This sample tested negative for E. Coli bacteria, suggesting that the archaeologist's shoes, or perhaps rodents, had contaminated the first well water sample with E. Coli. This allows the conclusion that at Jamestown today the water is drinkable.

In review, both the builder's trench and the well fill produced hundreds of artifacts, which provided valuable instruction for developing both a spatial and temporal framework for Well 27. Further analysis of these artifacts will undoubtedly produce new insights into understanding the well. Through conservation, the identities of some of the larger iron artifacts will be revealed, and this will continue to shed light on the feature.

(Endnotes)

- ¹ The cellar and postholes were discussed at length in the 1998 and 1999 "Interim Reports on the APVA Excavations at Jamestown, VA."
- ² Henry Best, *Rural Economy in Yorkshire in 1641: Being the Farming and Account Books* (London: published for the Society by George Andrews, 1857), 107.
- ³ Gervase Markham, *The English Housewife*, Michael Best, ed. (Montreal: McGill Queen's University Press), 184.
- ⁴ William Kelso, *Jamestown, The Buried Truth*, (Charlottesville: University of Virginia Press, 2006), 104-5.
- ⁵ *Ibid.*, 103-4.
- ⁶ *Ibid.*, 94.
- ⁷ The Ancient Planters of Virginia, "A Brief Declaration. . .," in Edward W. Haile, ed., *Jamestown Narratives: Eyewitness Accounts of the Virginia Colony* (Champlain, VA, Roundhouse, 1998), 894.
- ⁸ David Steven Cohen, *The Dutch-American Farm* (New York, NYU Press, 1992), 41.
- ⁹ Eric Deetz, "Architecture of Early Virginia: An Analysis of the Origins of Earthfast Tradition," M.A. thesis, University of Leicester, England, 2001.
- ¹⁰ Eric Mercer, *English Vernacular Houses* (London, UK, Her Majesties' Stationary Office, 1975), 125.
- ¹¹ "Lord De La Warre to Virginia Company of London, July 7, 1610," in Haile, ed., *Jamestown Narratives*, 466.
- ¹² David Givens, personal communication.
- ¹³ William Kelso and Beverly Straube, *Jamestown Rediscovery 1994-2004* (APVA, 2004), 164.
- ¹⁴ Francis Barnard, *Casting-Counters and the Counting-Board* (Oxford: The Clarendon Press, 1916), Plate XXXIV, #103.
- ¹⁵ Geoff Egan, personal communication.
- ¹⁶ Rick Berquist, Jack Kane, and Stephen Clement, personal communication, 2005.
- ¹⁷ William Strachey, "A True Reportory," in Edward W. Haile, ed., *Jamestown Narratives: Eyewitness Accounts of the Virginia Colony* (Champlain, VA, Roundhouse, 1998), 419.
- ¹⁸ D. Atkinson and A. Oswald, "London Clay Tobacco Pipes," *Journal of the British Archaeological Association*, 3rd ser. 32 (1969), 171-227.
- ¹⁹ David Higgins, personal communication.
- ²⁰ See report on Structure 176.
- ²¹ Ralph Hamor, "A True Discourse of the present estate of Virginia," in Haile, ed., *Jamestown Narratives*, 827.
- ²² *Ibid.*
- ²³ *Ibid.*
- ²⁴ *Ibid.*
- ²⁵ The Ancient Planters of Virginia, 907.
- ²⁶ John Smith, "The General History: The Third Book. . .," in Haile, ed., *Jamestown Narratives*, 319.
- ²⁷ Personal communication; Cary Carson, Willie Graham, Carl Loundsbury, and Ed Chappell.
- ²⁸ Beverly A. Straube, "This Little Piggy Went to Virginia," in Robert Hunter, ed., *Ceramics in America*, 2005 (Milwaukee, Wisconsin: Chipstone Foundation, 2005), 217-219.
- ²⁹ D. Atkinson and A. Oswald, "London Clay Tobacco Pipes," *Journal of the British Archaeological Association*, 3rd ser. 32 (1969), 171-227.
- ³⁰ Structure 183 was a large cellar along the east palisade near the northern corner of the fort; this feature will appear in a future report.
- ³¹ Douglas Owsley, personal communication, 2006.
- ³² Steve N. Archer, *Jamestown 1611 Well Archaeobotanical Analysis Report*, ms. On file APVA Jamestown Rediscovery Center, 2006.
- ³³ Beverly Straube, "A faire Well of fresh water. . .," in William Kelso and Beverly Straube, *Jamestown Rediscovery 1994-2004* (APVA, 2004), 132-134.
- ³⁴ William Kelso, *Jamestown, The Buried Truth*, 110-111.
- ³⁵ William Strachey (1610) "A True Reportory," in Louis B. Wright, ed., *A Voyage to Virginia in 1609* (Charlottesville: The University Press of Virginia, 1964), 79.
- ³⁶ A more detailed discussion of the artifacts from this well can be found in Beverly Straube, "A faire Well of freshwater. . .," in William Kelso and Beverly Straube, *Jamestown Rediscovery 1994-2004* (APVA, 2004), 131-154.
- ³⁷ Ivor Noël Hume, *The Archaeology of Martins Hundred, Part II: Artifact Catalog* (The Colonial Williamsburg Foundation, 2001), 331.; Beverly Straube, "European Ceramics in the New World: The Jamestown Example," in Robert Hunter, ed., *Ceramics in America*, 2001 (Milwaukee, Wisconsin: Chipstone Foundation, 2001), 64.
- ³⁸ Axe heads and hoe blades have been found in the bottoms of other local wells. Archaeologists excavating the Landing Ordinary well in Kingsmill retrieved an intact well bucket, with counterweights in the form of horseshoes attached to a chain. Another well in Kingsmill, the Harrop Well, produced several dozen hoe blades at the bottom of the shaft. William Kelso, *Kingsmill Plantations 1619-1800: Archaeology of Country Life in Colonial Virginia* (San Diego, CA, Academic Press, 1984), 154-155.
- ³⁹ Well 27 water samples were analyzed by James R. Reed & Associates: Environmental Testing & Consulting, a firm based in Newport News, Virginia. The results are on file with Jamestown Rediscovery, APVA.
- ⁴⁰ Chesapeake Bay Program. Chesapeake Bay Program Water Quality Database 1984-present. <http://www.chesapeakebay.net/wquality.htm>. Accessed August 20, 2004.
- ⁴¹ Environmental Protection Agency. List of Drinking Water Contaminants & MCLs. <http://www.epa.gov/safewater/mcl.html>. pg., 14. Accessed March 4, 2005.
- ⁴² *Ibid.*
- ⁴³ 'Toxicological Profile for Thallium', Agency for Toxic Substances and Disease Registry U.S. Public Health Service. July 1992, 3. This report is found online at <http://www.atsdr.cdc.gov/toxprofiles/tp54.pdf>
- ⁴⁴ *Ibid.*, 52.



Figure 139. Overview photograph of Structure 163 once excavations were completed.

Mid- to Late 17th-Century Expansion

Structure 163

Structure 163 consisted of a dry-laid stone foundation measuring 45'6" by 31'6", with the remains of two brick-on-stone chimney-stack foundations equally spaced along the west side. At first discovery, the footprint of Structure 163 measured 50' by



Figure 140. Profile view of abandoned builder's trench (left of center), Structure 163's foundation, and the corresponding robber's trench. JR100L, a stratum of coal and clinker in the robber's trench, is visible left of the archaeologist.

30'.¹ Further excavation revealed that the built dimensions were smaller than the initial excavations for the footings. The north wall of the structure was constructed 5' south of the original builder's trench; the builders first dug a foundation for a larger building. This was likely a construction error as the archaeological evidence indicated that this initial foundation was abandoned and backfilled during construction.

The foundation trenches of the building were typically 2'6" in width, with minor variations throughout. Several sections of the stonework foundation survived. One stone foundation section 6' long was found along the south side, and one 5' long section remained along the west side. The rest of the foundation stones had been robbed out. The artifacts from the different sections of robber's trench indicated that the removal of building materials took place at different times over a 120-year period. The south and west sides of the foundation were robbed out in the 17th century, while the north side foundation was removed sometime after the mid-18th century.

The section of robbed-out foundation trench at the southwest corner of the site (JR100B) contained artifacts typical of the mid-17th century—most of the ceramics and tobacco pipes were the same as those found in Midden 1 (1630-50) in 1996. This was not surprising because building both the footings and the robber's trench disturbed the surrounding midden strata.

A stratum of coal and clinker (JR100L) was in the backfill of the partially robbed footings in the center of the north wall. The base of a Westerwald chamber pot of a type that dates from 1740-60,² as



Figure 141. Section of surviving stone foundation along the south wall (facing east).

well as fragments of mallet-shaped wine bottles, suggested a second-half 18th-century deposition date from the robbing of this section of stone.³

The two exterior chimney bases on the west wall of the building suggested that the east and west walls supported a double-gable roof. The two chimneys were symmetrically positioned along the west wall. Significant portions of both brick chimney bases remained. Both fireplaces measured 8'6" from cheek-to-cheek, with fireboxes measuring 8'6" by 4'. The cheeks were one-and-one-half courses wide, while the firebacks were one course with one row of cobbles or brickbats continuing behind the course of complete bricks. In addition to the chimney foundations, the northern chimney stack fell into the interior of the building footing, and 20' of mortared brick was found *in situ*. An 8' section of the collapsed southern chimney also remained with mortared bricks.

There was a significant number of dense yellow and red Dutch bricks found among the chimney rubble, although none were found *in situ*. The bricks were all located in or around the fireboxes of



Figure 142. Dutch bricks found in the building's rubble.

the two hearths suggesting that they may have been used to line the fireboxes as part of the hearth construction. It is also possible that the pile of Dutch bricks originated from a first floor firebox or hearth that fell to the basement as the flooring supporting the bricks burned and collapsed. These small durable clay bricks measured 7" by 3" by 1½".⁴

Dutch brick has been found in Dutch settlements in New York and Delaware, commonly in association with hearths, fireboxes, and ovens, as well as in small quantities among the ruins of second quarter 17th-century buildings at Jamestown.⁵ In Structure 17 Dutch bricks were found *in situ*, turned on end and used as paving. This structure is



Figure 143. Possible stone pier in the center of Structure 163.



Figure 144. Charred remains of floor joists located on the eastern end of Structure 163.

thought to have been built ca. 1662 by wealthy Jamestown resident Thomas Woodhouse.⁶ There is some evidence that the use of Dutch bricks indicated high status. The 1663 will of Richard Cole in Westmoreland County, Virginia stipulated, among many other things, that his gravestone was to be “raised with Dutch bricks above three foot from the ground.” This gentleman wanted a black walnut coffin, and a black marble tombstone containing a brass coat of arms.⁷ That he also wanted Dutch bricks was a good indication that they were to him a status item.

Test excavations were made along the centerline of the E/W axis of the building to determine if it was the remnants of a two-unit row house. No full-length foundation wall for a partition between the

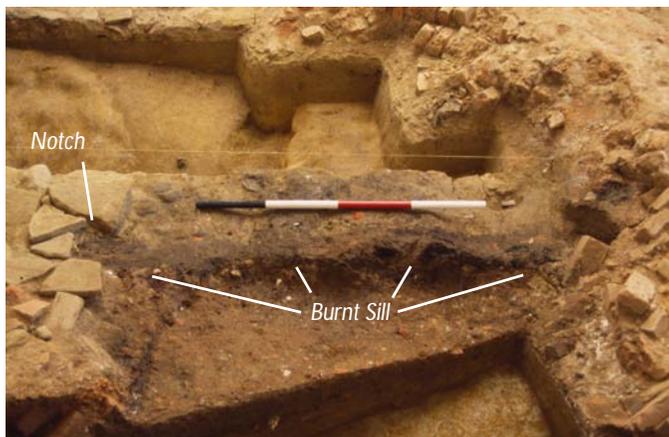


Figure 145. Burnt doorsill along the south façade of the building; the western end of the sill (left) is seen set into a notch in the stone foundation (facing east).

two units was found. There were, however, the remains of a possible stone pier, JR791, as well as the burned remnants of a major timber oriented E/W and located on the centerline of the building’s E/W axis. The stone pier may have supported this timber, as it was located in the center of the building along the same axis as the timber. The burnt timber was 5” wide and only survived on the east end of the building. This timber likely continued across the building as a ground sill for a partition wall between the two units. Later features destroyed remaining traces of the timber and prevented further analysis.

The test excavations along the centerline of the builders footing also revealed evidence of a wooden floor. A test (JR798) uncovered floorboards 5” wide and oriented N/S. Plaster was found in places on top of the flooring (JR798E) suggesting that the walls or ceiling of the structure may have been plastered.

Midway along the south façade there were the charred remains of a wide doorsill. This sill was likely once 10’ in length, but only 7’ survived. The west end of the sill was notched into an interruption of the stone footings at 10’ from the southwest corner of the building. The original east end of the sill was lost to later disturbances but was probably situated at 10’ from the southeast corner. Because a 10’ sill in this position would suggest an entryway in the exact center of the south wall, the architectural ground floor remains of Structure 163 showed every indication that it was built as a storehouse. Unheated east rooms (hearths only on the west end), the open floor plan, and a large riverside door (10’ wide sill) could be architectural features typical of a store or warehouse, similar to structures found along the waterfronts of port towns throughout the south-east of England.

Documentary and archaeological evidence determined that this structure was constructed in the latter part of the second quarter of the 17th century, and archaeological evidence alone showed clear evidence the building was destroyed by fire. Structure 163 could not have been built until after 1634 because of the English silver penny of Charles I minted ca. 1634-35 (3000-JR) found in the floor, and because its construction disturbed a (ca. 1640) midden⁸. The shoreline may have been built up and leveled expressly for the construction of the building. The merchant John White received a patent on a parcel of land in 1644 and was required to build upon it within six months or lose title to the

land.⁹ It is almost certain that the lot described in his patent pertains to the Structure 163 site:

*one Acre of Land lyeing in James Citty bounded west upon the Church Yard East upon the Land apprtaining to the State house North towards the Land of mr Thomas Hampton, and south upon the James river the Length being Twenty three poles and breadth seven poles almost.*¹⁰

On the eastern end, roughly a quarter of the structure was found on National Park Service property. Limited excavation of the eastern side of the structure was conducted under ARPA permit #PSO 98-05. The artifacts recovered from the National Park property are on long-term loan to the APVA in order to keep the structure's collection together. However, to keep the material separate from an archival standpoint, all artifacts from the National Park assemblage were labeled with the prefix "NPS" rather than the usual "JR" for Jamestown Rediscovery.

Structure 173 (JR1377, JR1477, JR1478, JR1479, & JR1499)

Excavation expanding the site to further expose the eastern course of the 1607 fort's western palisade wall located a large brick-filled feature (JR1377) approximately 9'7" south of the palisade line. This proved to be a cellar that disturbed, and therefore postdated, a chimney base of Structure 172. The limits were defined as a 22' by 8' rectangle oriented roughly E/W. A 2' by 6' test trench (JR1415) was excavated at the feature's west end. The test revealed an intact brick lining and the back-filled cellar (Structure 173).

Seven courses of brick in an English bond remained of a cellar's walls. The brick were dry-laid; no traces of mortar were found. The floor was dirt, and there was no evidence of an entryway. Over time, the cellar's north wall had weakened and bowed inward near where it cut the chimney base of Structure 172. Postholes were found along the cellar's south wall in the southwest (JR1510) and southeast (JR1512) corners. JR1511, an identical posthole in appearance, was located adjacent to the cellar wall approximately 7' east of JR1510 and 7' 8" west of JR1512. The three postholes were circular in shape with diameters measuring between 2'5"



Figure 146. Partially excavated brick-lined cellar of Structure 173 (facing east).

to 2'6". These were clearly postholes that once supported the building that stood over the cellar and extended to the east.

The cellar was completely excavated by dividing it into 4 equal quadrants, each measuring 10'6" by 4', with each quadrant given a separate context number. All cellar fill was dry-screened through ¼" mesh, and the occupation layer on the cellar floor was water screened through 1/8" mesh. The heavy quantity of brickbats and cobbles on the feature's surface (JR1377A, JR1477A, JR1478A, JR1479A) was removed as an arbitrary 1' layer. The removal of the brick rubble cleared off the top course of the brick that formed the cellar's lining. Complete bricks and cobbles were curated, but brickbats and smaller fragments were not quantified.

Fill in the cellar was as follows: layer A (same in JR1377, JR1477, JR1478, and JR1479) was composed of sandy, dark brown loam, and contained many datable artifacts, such as fragments of locally

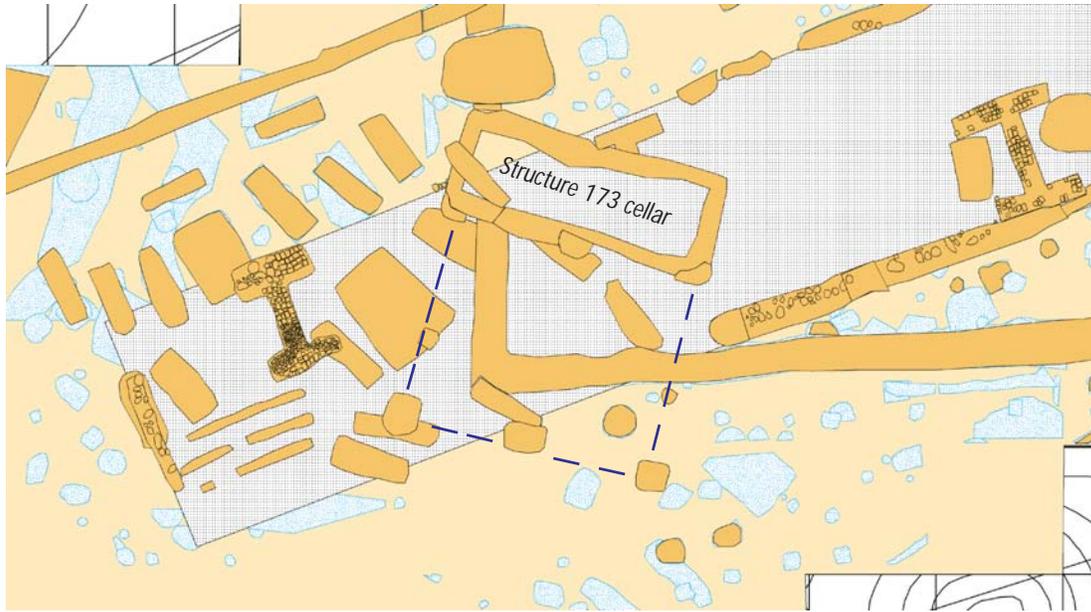


Figure 147. Site plan showing the location of Structure 173.

produced Challis, and Green Spring pottery and Morgan Jones pottery from Westmoreland County, Virginia. A European pipe bowl (ca. 1700-40), an English delftware handle-less cup (ca. 1670-1710), a wine glass stem (ca. 1680-90), and a piece of window lead marked "W.M. 1683 R.D." confirmed that Structure 173 was a late 17th-century building.

Below the A layers of JR1377, JR1477, JR1478, and JR1479, the B layers of JR1377, JR1477, JR1478, and JR1479 differed in that they were a clay/loam mix, were more compact, and contained much less brick. Locally made tobacco pipes and locally made Challis and Green Spring pottery were

found, as were sherds of Dutch majolica and portions of a late 17th-century Westerwald mug that crossmended into complete form between the B and C layers. A silver English sixpence, dated 1591, and an additional clipped one dating to ca. 1561-1603 came from the cellar fill, along with a large quantity of wine bottle glass. This included a complete wine bottle neck that is the type produced ca. 1680-1700. Excavation of JR1377, JR1477, JR1478, and JR1479 B layers revealed depths between 5" and 7".

A light brown sandy loam deposit (JR1377C, JR1477C, JR1478C, JR1479C) was very similar in composition and artifact content to the preceding contexts, again pointing to a late 17th-century deposition. Except in the northeast corner, the layer



Figure 148. Late 17th-century Westerwald mug found in cellar fill (height 87mm).



Figure 149. A cache of late 17th-century wine bottles found on the floor of the Structure 173 cellar (facing north).



Figure 150. Opened piece of window lead revealing the date 1693 (length 90mm).

was shallow and rested directly on the cellar's occupation layer (JR1499). A new layer, JR1479D, appeared here as a thin lens of burnt soil and charcoal, devoid of artifacts.

The top of this surface was exposed across the entire cellar, leaving artifacts *in situ* for recording by photography and piece plotting. The occupation layer consisted of yellow/brown loam, which was screened through 1/8" mesh. Ten intact ca. 1680-1700 glass wine bottles were recovered, with one bearing the seal "FN". Six ca. 1680-1710 European tobacco pipe bowls, 2 iron stirrups, an iron spit, hoe blade, and gun barrel were in the fill, along with 17 pieces of window lead ranging in size from 1 1/2" to 28" in length. When opened, one piece of window lead had "E.W*1693*W.C*" stamped in the groove. This particular find established, with an unusual degree of certainty, the TPQ for the cellar. The presence of the wine bottle with the "FN" seal also could confirm the late date; the initials may have been those of Sir Francis Nicholson who served as Virginia's lieutenant governor from 1690-92, and then as the governor from 1698-1705. Nicholson was living in rental property while at Jamestown, as the governor's residence promised by the English crown had not yet been built. It is very possible that he was the late 17th-century occupant of Structure 173.

While the excavations could not extend far enough to the east of the cellar to determine if there were more structural postholes in that direction, it was clear from the way the bricks extended to the three postholes that the cellar was an addition to an existing post-in-ground building. The cellar bricks were laid from the SW corner continuously to the NW, NE, then SE. The masons had to use spacing closers at the corners, and the bricks were laid against one or two sides of each earth-seated timber in the three postholes (JR1510, JR1511, JR1512).

Other features that may have been associated with Structure 173 had either vanished or were not yet recognized as having been related to the struc-

ture. Temporally, the artifacts recovered from the cellar fill, and the subsequent cutting of other earlier features around it, date it to the last decade of the 17th century. Features disturbed by the cellar included three burial shafts (JR1878, JR1369, JR1385), and Ditch 24.

Structure 180: Late 17th-century Cellar (JR1971, JR2060, & JR2164)

Excavations near the geographic center of James Fort in the summer of 2005 uncovered the west end of a back-filled cellar (JR 2060). Test trenches were dug into the cellar fill (JR1971, JR2164) in order to determine its nature, extent, and date.

Test layer JR1971A had the same strata as the covering plowzone, characterized by pulverized brick and mortar inclusions intermixed in the medium brown sandy loam. This was probably a "plowzone slump" about 1' deep, gradually sloping upwards to a depth of less than 4" on the test's north side. A glass button, delftware wall tile fragments, a brass drawer pull handle dating to the late 17th century, and several European tobacco pipestems were recovered from this context. The most dateable object from JR1971A was a four-part lead cloth seal of William III, ca. 1694-1702. It is stamped with



Figure 151. Four-part lead cloth seal of William III, ca. 1694-1702 (length 31mm).

34 ¼, indicating the yard length of the fabric, and 1 ½ indicating the subsidy in pence paid on the textile.

Below JR1971A, a 1'9" wide by 2' deep robber's trench was discovered. It consisted of layers JR1971C, D, E, G, H, and I, and was composed of dark brown loam, yellow sand, and heavy brick and mortar. Although these layers were split during excavation, the robber's trench was likely a single episode. The lack of dateable artifacts in the fill, however, left the time of the wall destruction unknown. It appeared that between six and eight courses of brick making up the cellar's north wall were removed, revealing remnants of a builder's trench, and possibly the initial course of the wall. Excavation of the orange clay builder's trench (JR1971H) indicated that a row of cobbles was placed behind the last course of brick, but no artifacts were found.

The cellar fill (JR1971B) below JR1971A was untouched by the robber's trench and was a brown loam containing brickbats, mortar, and charcoal. Approximately 1'4" thick, JR1971B rested on a layer of charred wood (JR1971F), which was the debris from the burning of the building's superstructure. Sealed by JR1971F was an occupation level (JR1971I) resting on a brick floor (JR1971L). The bottom of a charred wooden bucket was found on the floor.

Twenty-two feet south of JR1971, an 'L'-shaped test (JR2164) measuring 4' by 2' was placed in the southwestern corner of JR2060. Layer JR2164A mirrored JR1971A in composition and appearance, and it revealed that the south corner of the cellar

wall had survived. It contained sherds of North Devon sgraffito slipware and Portuguese blue and manganese faience, both ware types dating after ca. 1660.

Though a significant portion of Structure 180 is still under unexcavated Confederate earthworks, the known wall line (JR2060) indicated that the cellar was likely 18' by 20'.¹¹ Based on bore diameters of recovered pipe stem fragments, it was surmised that Structure 123 was a one-story structure dated ca. 1680-1710. By virtue of Structure 180 cutting earlier features, and its location and orientation with the church tower, it probably was built, used, and destroyed in the fourth quarter of the 17th century. Since this cellar clearly post-dated James Fort—the focus of the Rediscovery excavations—no future excavation beyond the cellar tests was warranted.

Structure 167 (Well 26)

In the summer of 2001, archaeologists test-excavated an 8' diameter circular feature that proved to be a backfilled well (Well 26; 10055N/9684E).

The first test was an E/W bisection removing the southern half of the circle to a depth of 3'3". The top 1' layer of fill consisted of slumped-in plowzone, which had settled over time. Below the plowzone, the excavation revealed the last layer of fill to go into the shaft when it was abandoned (JR392B). Removal of this sandy dark brown loam layer left a conical-shaped hole 2' deep. Heavy cobble and brick inclusions were prevalent in the fill; the cobbles were large with weights ranging from three to ten pounds. There were nearly a dozen limestone cobbles, one black limestone cobble, ten large andesite (volcanic) cobbles from the Caribbean, a phyllite cobble, and a dacite cobble, also from the



Figure 152. This test into the cellar of Structure 180 revealed brick lining, cobblestones in the builder's trench, a brick floor, and charred wood from the burning of the building's superstructure, including the bottom of a wooden bucket (blue arrow).



Figure 153. Profile view of Well 26 partially excavated and bisected.

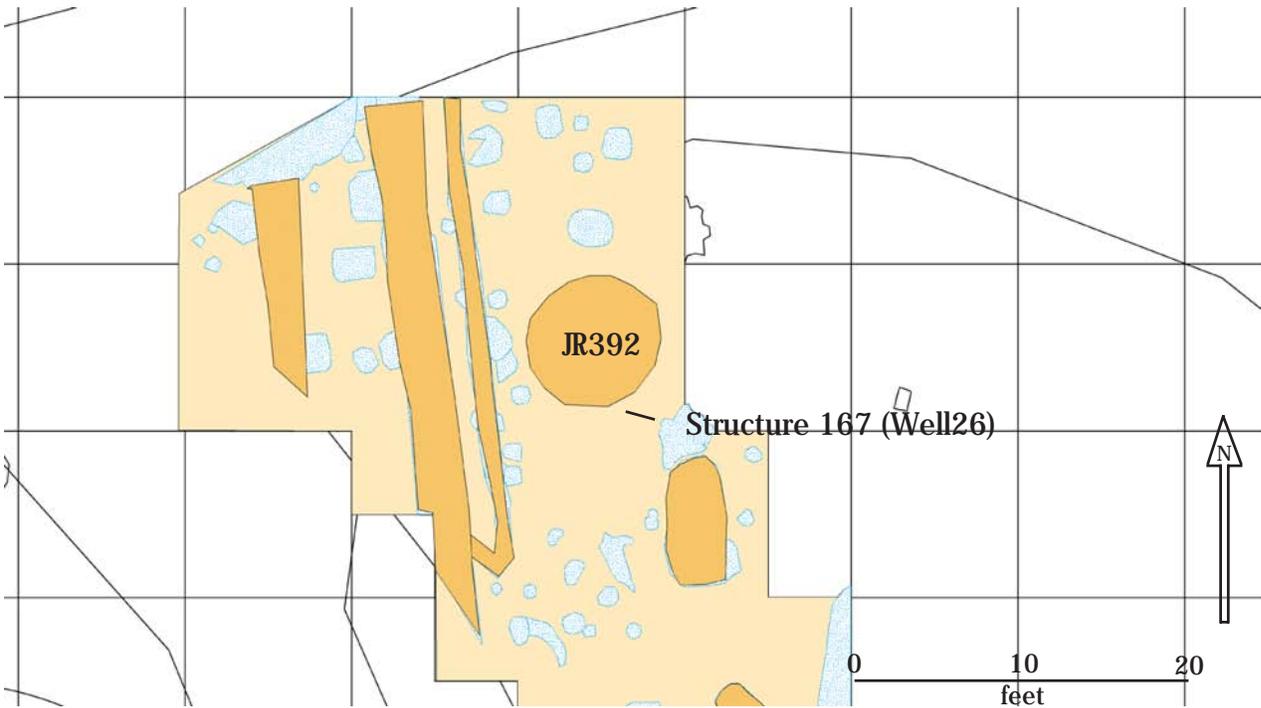


Figure 154. Site plan of Well 26.

Caribbean. In addition to the above stones, there was a four pound coral cobble from the West Indies.¹² Several trapezoidal compass bricks, often used in brick-lined wells in the 18th century, were found in this fill layer. Other artifacts of note included ceramic fragments of Colonoware, Challis pottery, and Staffordshire slipware (all post-dating 1680), a complete late 17th-century wine bottle (ca. 1680-1700), and one domed-face copper-alloy button (ca. 1690-1720). English tobacco pipe bore di-

ameters from JR392B also demonstrated a late 17th- to early 18th-century date of manufacture, and therefore the time when the well was last filled. One English white ball clay tobacco bowl was complete enough to date to ca. 1680-1710.

The remaining well fill layers JR392C-E all included some clay and mixed fill. One copper-alloy doublet button with floral decoration was found in JR392D; it paralleled one uncovered at Bourtange in the Netherlands dating to the first half of the 17th century. More volcanic and limestone cobbles similar to those found in JR392B were also present in these layers.



Figure 155. Nearly complete late 17th-century wine bottle (ca. 1680-1700) found in well fill (height 126mm).



Figure 156. Copper-alloy doublet button with floral decoration, found in well (diam. 13mm).

A possible rodent burrow intrusion, JR392F, formed a vertical hole 4 inches wide and 2'6" deep. This hole ran along the western edge of the well shaft and was included in the profile map. The fill, a mix of clay and loam with some oyster shell inclusions, was excavated with a trowel and screened through ¼" mesh.

While no well lining was found during the partial excavation, a possible builder's trench (JR392G) became apparent at 3' below the starting elevation. It was not clear if JR392G was an *in situ* builder's trench, or if the fill layer had partially eroded over time.

After testing the southern half of well shaft JR392 to a depth of 3' feet below the ground elevation, a profile map was drawn, but the northern half of the feature remained unexcavated. It was later found that the well was outside the limits of James Fort just to the northeast of the northern bulwark. Taking into account the late 17th- to early 18th-century date of the fill in the top layers of this feature, and the well's lack of association with James Fort, excavations did not continue below the 3' level. Well JR392 was backfilled in the spring of 2005.

Structure 181, Well (JR1474)

Beneath Structure 145 (Confederate earthwork) and plowzone units JR1435A, JR1436A, JR1458A, and JR1460A, a large teardrop-shaped feature (JR1474) measuring approximately 12' by 6' at the



Figure 158. Oval shaped dark loam stain of Structure 181.

subsoil surface was found in the summer of 2004. The surface fill of JR1474 consisted of dark brown loam with heavy ash, significant charcoal, and brick-bats. Artifacts apparent at this stage included domesticated animal bone (cow, pig), as well as local pipe bowls and stems dating from the mid to late 17th century. Intruding into JR1474 was a pair of square 1' by 1' postholes (JR1438, JR1457) part of the support post construction of the Confederate earthwork gun platform. Sealed below JR1474 was a mottled circular feature (JR1957) measuring 5' by 7'. To gain more insight into the chronology and original function of JR1474, the western third of the feature was sectioned and excavated during the 2005 summer season. What followed was the discovery of a backfilled well shaft (Structure 181),

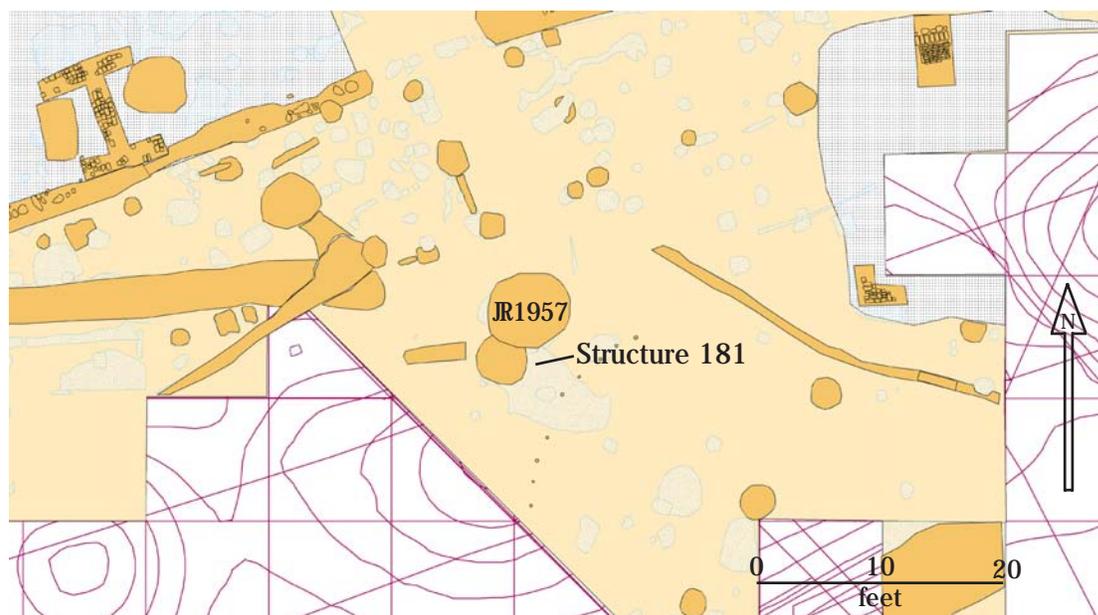
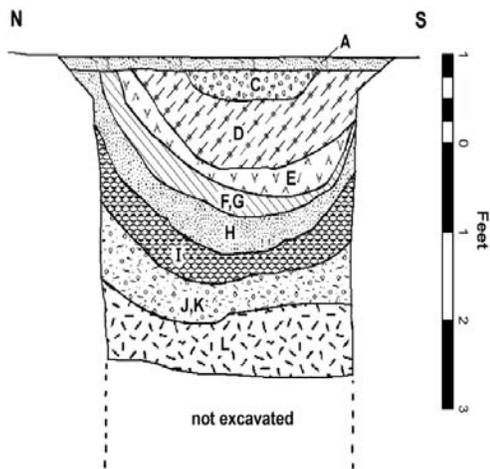


Figure 157. Site plan of Structure 181 (JR1474).



A: Clay/loam with charcoal.
 D: Loose pink ash, granular consistency.
 C: Loose sandy loam with grey-brown ash.
 E: Loose redish-brown ashy loam.
 F/G: Sandy brown ashy loam.
 H: Compact light brown sandy loam.
 I: Compact grey sandy loam.
 J/K: Light brown sand mixed with brown loam.
 L: Medium brown sandy loam.

Figure 159. Profile of well (Structure 181).

and a pocket of surface slumping and erosion to the east. JR1474 was tested to a depth of 5' to determine if it was used during the 1607-24 fort period.

The JR1474 investigations commenced by cleaning the surface of the entire feature to remove any residual plowzone (JR1474A). An English pipe-



Figure 160. A glass linen smoother from the well (length 69mm).



Figure 161. Section of an English goblet found in well fill (height 44mm).

bowl heel marked with relief "MB" and dating ca. 1680 was found in this layer.¹³ A test section dug into the western third of JR1474 first encountered and removed a layer of surface slumping (JR1474B) that consisted of brown sandy loam with brick, charcoal, and oyster shell. Below JR1474B, layers of pink ash (JR1474C) and grey ash with charcoal (JR1474D) were encountered and found to slope inwards from the north, suggesting that the fill was deposited from that direction. Diagnostic artifacts recovered from these upper contexts included locally-made faceted, rouletted, and punctuated pipe stems and bowls (JR1474B), and a lead cloth seal bearing the Haarlem coat of arms (JR1474D); one of five Haarlem cloth seals found during excavations. The others were from either plowzone or Structure 145 contexts. Similar seals have been found at St Mary's City, Maryland in contexts dated to the mid-17th century.¹⁴

With the removal of JR1474C and D, the overall shape of JR1474 was found to narrow into a circle measuring 3'5" in diameter. The shaft had vertical sidewalls revealing that JR1474 was a back-filled well. To test shaft JR1474 (Structure 181), a section line was established along a N/S axis, and excavations continued in the western half of JR1474.



Figure 162. Profile view of the well partially excavated.

Within the well shaft, sealed by ash layer JR1474D, an additional four layers of fill with a heavy ash content were found (JR1474E, F, G, and H). Although different colors, the ashy/sand consistency of each of these contexts was found to be similar, and thus may represent contemporaneous episodes of well deposition. Layers JR1474E-H contained a major artifact deposit including wine bottle glass and domestic animal bone. Two artifacts associated with tailoring were found in these mid-17th century layers: a pair of scissors with rectangular sectioned off-set hafts (JR1474E), and a glass linen smoother (JR1474H). It is interesting that this object used to iron linen was found in the same context as the Haarlem cloth seal, which once marked 21 ells of linen cloth.

In contrast to the above ash layers, well contexts JR1474I, J, K, and L were distinguishable by their high content of compact sand and lack of ash. Layer JR1474I was composed of a homogenous layer of gray organic loam and sand with minor shell inclusions. Below, JR1474J and K were comparable in composition; these layers contained loose light brown sand with minor loam and significant brick flecks and bats. Sealed below JR1474K, layer JR1474L consisted of homogenous medium brown sandy loam with orange clay pockets and brickbats. As in the ash layers (JR1474D-H), a large quantity of faunal remains was recovered from sand layers JR1474I-L. Also of note was a pair of soda or mixed alkali-glass knopped-stem goblets, each with inverted balusters (JR1474I). These English goblets were made from the late 16th to the mid-17th centu-



Figure 163. Bottle neck dated ca. 1640-60, which helped to establish a TPQ for the well.

ries. The size and workmanship on the examples from Structure 181 indicated an early 17th-century date, which was at odds with the globe and shaft bottleneck dated ca. 1640-60 found in JR1474J.¹⁵

After testing the western half of well shaft JR1474 to a depth of 4' below the subsoil surface, a profile map was drawn, and the eastern half of the feature was then excavated to the same depth. Taking into account the mid-17th century date of this feature, and its lack of association to James Fort, excavations did not continue and well JR1474 was back-filled in the fall of 2005.

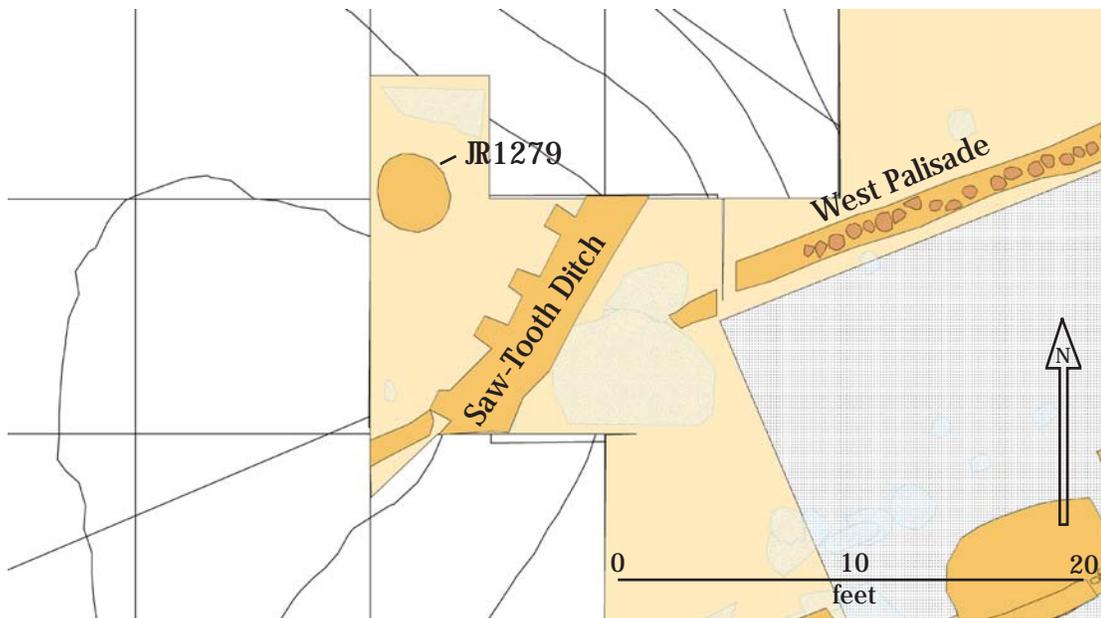


Figure 164. Site plan of JR1279.

Possible Well (JR1279)

When testing for the west palisade in archaeological test units JR1246 and JR1278, a 3'2" diameter circular feature (JR1279) was uncovered. Thought to be a well, a 1' deep test-section excavation was made on a N/S axis, with the eastern side excavated. No builder's trench was found beyond the circular stain, and probing with a 4' metal rod suggested the circle was at least 4' deep and likely was a back-filled, barrel-lined well. The fill was a dark brown sandy loam with charcoal inclusions. Artifacts from JR1279 included the rim section of a Donyatt-type slipware porringer, a couple of delftware dish rims dating ca. 1640-50, and a Frechen stoneware jug that crossmended with JR2300C and JR145A. Two mended sherds of Green Spring pottery provided the TPQ of 1650. Its location was determined to be outside the west wall of James Fort. Therefore, no more excavation was warranted.

Statehouse Well (JR5070)

With some question about the age of the nearby Statehouse foundation on the west end of the APVA property surfacing from recent studies as part of the National Park Service's Jamestown Archaeological Assessment, the decision was made to excavate the "Statehouse" well hoping for a date of its use.

An above surface wellhead marked the existence of a the brick-lined well east of the Ludwell State-

house Group and southwest of the Jamestown Rediscovery Center, formerly known as the Yeardley House. The wellhead consisted of twelve rows of rectangular bricks mortared together and capped with curved bricks. It sat 2'4" above modern grade and continued at least another 1' underground. The structure was an oval ring 8' NE/SW by 7'4" NW/SE on its outer perimeter and 5' NE/SW by 4'11" NW/SE on its inner edge; it completely encircled the brick-lined well. The inner ring of the well's brick lining also formed an oval and measured 4'11" NE/SW by 4' NW/SE. On the northern side of the well, well bricks were found at 1' below modern grade, but were flush with modern grade on the southern side. Likewise, they were even with modern grade on the western side of the well, but 5" below it on the eastern side.

Once fully excavated, the well reached a maximum depth of 10'4". The brick lining consisted entirely of rectangular bricks; no compass or well bricks typically used in the construction of 18th-century wells were found. Three sheets of wood, 1" in width, formed a curb that sat at the base of the well's forty-six brick courses. Almost all of the bricks were placed with the header running along the perimeter of the well shaft, although between three to six rows on each side contained stretchers that sat long-side perpendicular to the shaft edge. The western side of the brick lining had a large hole where eight brick courses had fallen out of the wall. The



Figure 165. The wooden curb found below the terminus of fill layers in the well.

stein was an irregular septagon; its sides ranged from 1'4"-2'1" in length, and its interior angles varied from 115-150°. The well bricks were not mortared in place originally, but mortar patching—mortar wedged between free-standing bricks—stretched from the top course down to 7'1" below modern grade. At 8' below modern grade, the diameter of the well began to narrow, reducing in size from an average of 4'6" at the top, and 3'6" at the bottom.

The well contained six layers of fill. The first layer, JR5070A, began at 4'2" below modern grade. It consisted of mixed gravel and modern garbage, including a plastic toy Lego, a Skittles candy wrapper, and dozens of U.S. pennies ranging in date from 1915 to 2000. Layer JR5070B picked up where JR5070A left off and continued to a maximum depth of 5'8". Made up of mixed brown clay/loam with much brick and mortar, this second layer contained no artifacts. The base of layer JR5070B coincided with the top of the water table at high tide—5'8". Distinguishable from JR5070B only by nu-



Figure 166. A view of the interior of the well. Outer ring of bricks added prior to 1957.

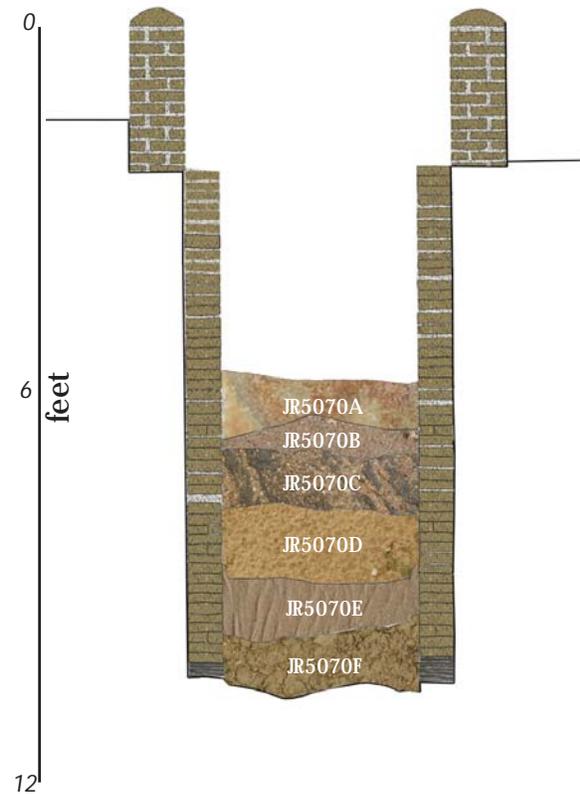


Figure 167. Profile map of Statehouse well (JR5070).

merous charcoal deposits, layer JR5070C also produced no other artifacts. It bottomed out at 6'10" below modern grade. Layer JR5070D included a variety of artifacts from the 17th, 18th, and 19th centuries, including much building debris, cut nails, and window lead. Ceramics from the late 17th century included both English wares (North Devon and Staffordshire mottled glaze ware) and local wares (Morgan Jones and Challis). The difference between layers JR5070D and E concerned texture; the latter was more sandy loam than mixed clay/loam. Layer JR5070E ended at 8'2" below modern grade, and all of the artifacts, most of which were of the same form and time as those from JR5070D, had been burned. The last layer in the well, the first to be deposited, was JR5070F. It consisted of a pungent grey clay seen often at the bottoms of wells. This fill contained many large iron objects, likely used to weigh down a well bucket, one of which was uncovered from this layer in many pieces. Layer JR5070F included a brown glass beer bottle embossed with "Consumers Brewing Company, Norfolk, Virginia." This company was established in 1895 and by 1917 had become the Virginia Fruit Juice Company.¹⁶

Overall, the well consisted of three general fill episodes; the earliest dated to the turn of the 20th century indicating that it had probably been investigated during Colonel Samuel Yonge's excavation of the Statehouse in 1903. The middle fill likely consisted of Ludwell Statehouse Group fill that had been removed during those excavations. The top fill accumulated during years of tourists visiting and making wishes at this well.

James Reed and Associates performed a series of tests on a sample of water from the base of the well in an attempt to discern possible contaminants. Scans for pH, salinity, total coliform, and ICP (inductively coupled plasma) suggested that the water was largely free of impurities. The pH was a bit lower than expected; it was 6.3 and fell outside of the normal 6.5-8.5 range. Considering the context of the well, the salinity was remarkably low at <1 ppt. The water sample was taken from a well relatively close to a tidal river (<200' away) at high tide on a day (8 November 2000, at 7:30 AM EST) following a month without rain. The tests revealed the presence of coliform in the water, indicating that the water would not pass current purity standards. The 50/100 ml reading, however, was not significantly high for an abandoned well. High elemental readings for aluminum, calcium, and iron were anomalous, but possibly natural. The well water passed modern purity standards for many elements, including antimony, arsenic, cadmium, copper, nickel, selenium, thallium, and zinc.

(Endnotes)

¹ Seth Mallios and Beverly Straube, "1999 Interim Report on the APVA Excavations at Jamestown, Virginia," (Richmond, VA, Association for the Preservation of Virginia Antiquities, 2000), 3.

² John G. Hurst, David S. Neal, H.J. E. van Beuningen, *Pottery produced and traded in north-west Europe 1350-1650*. Rotterdam Papers VI. (Rotterdam: Museum Boymans-van Beuningen, 1986), 224-225.

³ Ivor Noël Hume, *A Guide to Artifacts of Colonial America*. (New York: Vintage Books, 1991), 65-66.

⁴ Produced by clays with high lime content from the River IJ in the Netherlands, they are non-absorbent, making them suitable ballast. Ballasted brick is indicated in Dutch shipping records for New York in the mid 17th century and Dutch brick is commonly found on 17th-century Dutch shipwrecks. See Joseph S. Sopko, *An Analysis of Dutch Bricks From a 17th-Century Structure Within the Site of Fort Oragne at Albany, New York*. (New York: New York State parks, Recreation and Historic Preservation Bureau of Historic Sites, 1982), 46-50.

⁵ John P. Cotter, *Archeological Excavations at Jamestown, Virginia*. Archeological Research Series No. 4. (Washington, D.C.: National Park Service, Department of Interior, 1958).

⁶ Cary Carson et al., *Jamestown Archaeological Assessment 1992-1996: Evaluation of Previous Archaeology*. Prepared for Colonial National Historical Park, National Park Service, U.S. Department of Interior, Cooperative Agreement CA-4000-2-1017, 2003, pp. 16-23.

⁷ John Frederick Dorman, "Westmoreland County, Virginia, Deeds, Patents, etc. 1665-1677, Part One," (Washington, D.C., 1973), 85.

⁸ Nicholas Lucchetti and Beverly Straube, "1997 Interim Report on the APVA Excavations at Jamestown, Virginia," (Richmond, VA, Association for the Preservation of Virginia Antiquities, 1998), 12.

⁹ William M. Kelso, Nicholas M. Lucchetti, and Beverly A. Straube, *Jamestown Rediscovery V*. (Richmond, Virginia: Association for the Preservation of Virginia Antiquities, 1999), 18-19.

¹⁰ Jamestown Land Patents, Book 2, 10-11, Virginia State Land Office, Richmond, VA.

¹¹ A New Towne parallel, Structure 123, had a similar cellar measuring 18' by 28'. It was six brick courses deep in English bond. See John L. Cotter, *Archeological Excavations at Jamestown, Virginia*, Special Publication No. 32, Second Edition (Courtland, VA, Archaeological Society of Virginia, 1994), 137.

¹² Personal communication 2002, Walter Adey of the Smithsonian Institute.

¹³ Atkinson, David and Adrian Oswald, "London Clay Pipes," in *Journal of the British Archaeological Association* XXXII. 1969: 181-183.

¹⁴ Geoff Egan, "Lead Cloth Seals and Related Items in the British Museum," in *Occasional Paper 93*, The British Museum, 1994: 110.

¹⁵ Hugh Willmott, "Early post-medieval vessel glass in England c. 1500-1670," in *CBA Research Report 132*, Council for British Archaeology, 2002: 58-9.

¹⁶ *Washingtonpost.com*, Archive Search, December 16, 1906; Annual Report of the Secretary of the Commonwealth to the Governor and General Assembly of Virginia for the Year Ending September 30, 1917, (Richmond, 1918), 362.

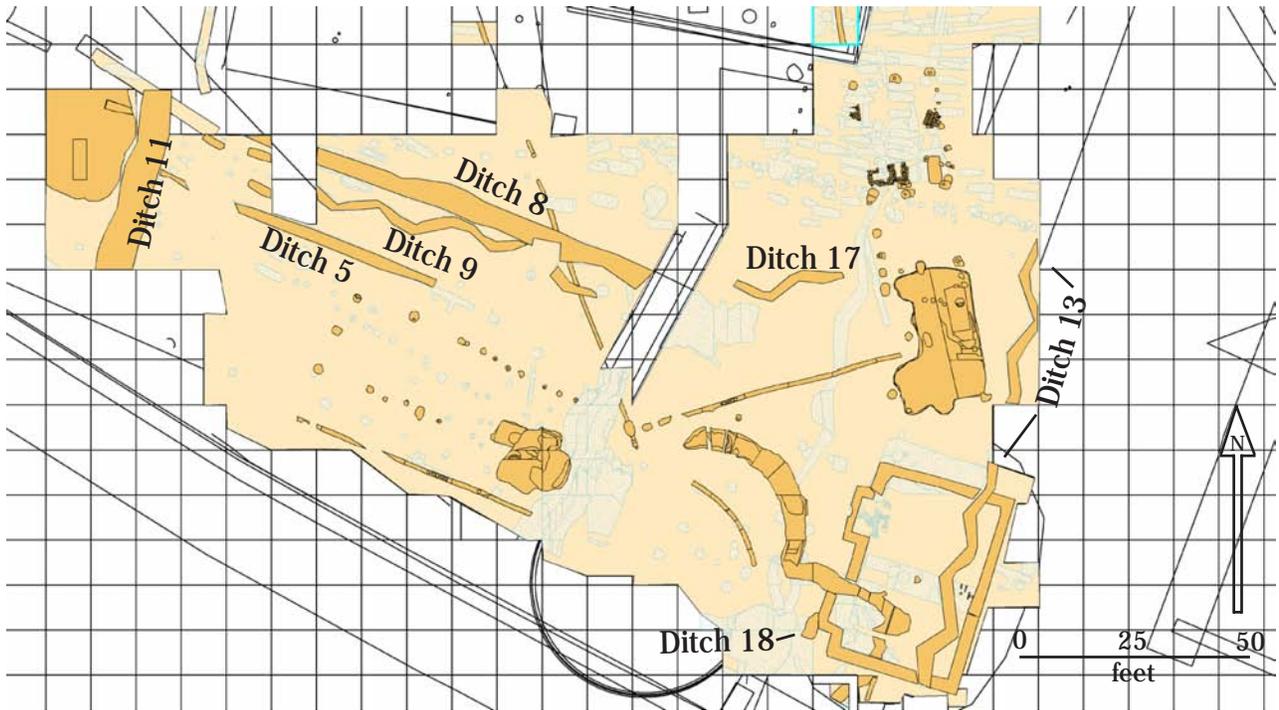


Figure 168. Site plan with major ditch features.

Ditches 5, 8, & 11 (JR427, JR429, JR493, JR558, JR570, & JR662)

Three ditches were uncovered in the area just east of the John Smith monument. Ditch 8 (JR427, JR429) was 4'6" wide by 75' long and appeared below plowzone in the northeastern corner of the monument-area excavations. The newly uncovered 7' section (JR493) was oriented 22° north of west and in line with the other exposed sections of Ditch 8.

Ditch 11 (JR429) ranged in width from 7'6" to 8'7" and contained significant amounts of brick in its fill. Oriented 15° east of north, Ditch 11 was test-sectioned at two points. A 3' E/W section (JR558) produced a wealth of artifacts, including two brass trade weights from the reign of James II. These one-ounce and half-ounce weights were produced ca. 1685-88, which provided the feature with a late 17th-century *terminus post quem*. A second test section (JR570) at the intersection between Ditch 11 and the west road ditch revealed that the road ditch cut through, and thus postdated, Ditch 11.¹

Ditch 5 (JR662) continued on its west by north-west trajectory through the John Smith monument area. Nearly 40' of this 3'-wide ditch had been uncovered previously just north of Structure 160. Oriented 68° west of north, Ditch 5 was cut by the road and Ditch 11 in two places in the monument

excavation area. Ditch 5 narrowed from 3' to 1'1" in width near its western terminus. It did not continue west of Ditch 11.



Figure 169. Brass trade weights from the reign of James II found in Ditch 11 (top weight 35mm, bottom weight 29mm).



Figure 170. Pattern of brickbats found in Ditch 13.

Ditch 13: Zigzag Boundary Ditch (JR686A-E, JR687A-E, JR818A, & JR820A)

A 50' section of Ditch 13 (N/S zigzag ditch) to the south of the previously known section of ditch was uncovered during the 2000 field season.² This 50' section disturbed Midden 1, as well as the destruction rubble and robber's trenches of Structure 163 (ca. 1640). Because of the above relationships, it was certain that Ditch 13 was not dug until the second half of the 17th century. To date, a 103' foot section of the ditch has been identified, with an average width of 2'6". As mentioned in the previous report, this ditch was very similar and parallel to nearby Ditch 6 (ca. 1630-50), which was located 35' to the west.

Five test sections JR686, JR687A&B, JR687C-E, JR818A, and JR820A were dug into Ditch 13. JR686 was an 8'6" section of ditch that had a curi-



Figure 171. Profile view of test into Ditch 13 (JR687A & JR687B) (facing south).

ous pattern of brickbats. The "B" layer, found 1'6" above the ditch bottom, sealed the fill and consisted of over fifty brickbats along with several stones laid side-by-side on top of the ditch fill; it was not clear why these bricks were originally positioned in this manner. The remaining ditch fill was bisected on a N/S axis, and the western half of the ditch was excavated to subsoil. Wine bottle glass was found in this test, which substantiated that this ditch was not filled until sometime in the second half of the 17th century. Another test, JR687A-B, was dug into the ditch where it disturbed the fill of Midden 1. The bottom elevation of this section of the ditch was 6" below the bottom elevation of test JR686A, located 15' to the north, which suggested the ditch made a natural slope towards the James River. A test excavation, JR687C-E, was placed in the ditch next to the north wall of Structure 163. Jamestown coarseware, ca. 1630-50, was found in this test. The fill contained many cobbles, possibly part of Structure 163's foundation. This ditch was likely part of a 17th-century field boundary bordering a zigzag split rail fence. The earth removed from its construction was probably piled on one side to raise the fence on the earthen berm.

Ditch 17: Boundary Ditch (JR601)

Just to the west of Structure 165, several boundary ditches were unearthed and tested to establish temporality. Ditch 17 was a 23'5" long, 2'6" wide zigzag ditch, oriented E/W. A 4' test section (JR601) was removed 5' west of the ditch's eastern terminus.

The fill from Ditch 17 was fairly uniform in composition to a total depth of 1'1". This sandy brown loam deposit returned thirty-seven sherds of native pottery, four fragments of European tobacco pipestems and bowls, one locally made pipe bowl, a copper rivet, case bottle glass, and a fragment of undecorated white delftware. Ditch contours revealed gradual, inward-sloping sidewalls and a flat bottom.

Given the few finds from the ditch fill, and no apparent boundary delineations, the use and date range of Ditch 17 remained unknown, although there is no reason to believe that the context is not 17th century.

Ditch 18: Boundary Ditch (JR826)

Work conducted near the foundation of Structure 163 came upon the remnants of a 5'7" long by 2'6" wide ditch-like feature (JR826) cut by one of the structure's two chimney bases. A 4' test section was excavated to expose a feature profile, and to determine a date.

Brown, sandy loam with clay inclusions characterized JR826A. Fragments of a Border ware pipkin, native pottery, and lithic debitage were recovered in the ¼" screen. Iron artifacts included a spade nosing, a jack plate, a scabbard chape, and part of an early 17th-century iron chest lock. Sealed by the "A" layer, JR826B had the same composition but lacked the clay inclusions. There were only three artifacts found in this deposit, none of which was diagnostic. A thin layer of gray/brown sand sealed subsoil and was devoid of finds.

It was not possible to determine a clear occupation range for this shallow (8" deep), "U"-bottomed ditch, but it pre-dated Structure 163 (ca. 1644).



Figure 172. Section of east-west ditch (JR652), Ditch 19. Bricks in fill are thought to date to the construction of the adjacent church tower.

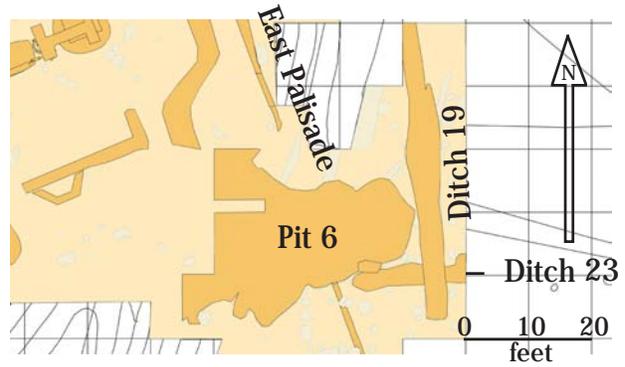


Figure 173. Site plan of Ditch 19.

Additional evidence was not available as part of the ditch likely was obliterated by the construction of one of the chimneys.

Ditch 19 (JR652, JR771, JR779, JR1137, JR1193, & JR1201) and Ditch 23 (JR653, JR763, & JR774)

Two ditches criss-crossed the immediate excavation area and formed a right angle. Thirteen feet of a 3' wide E/W ditch cut through a 4' wide N/S ditch that ran 28' from north to south. The amount of brick and clay in the fill of these two ditches enabled them to be distinguished from one another; the E/W ditch (Ditch 23) contained significantly more brick and less clay than the N/S ditch (Ditch 19). That the ditches were oriented exactly with the cardinal directions suggested that they post-dated the fort period and likely corresponded temporally with the later church tower. Both ditches contained sherds of Jamestown coarseware (ca. 1630-50) and wine bottle glass, which suggested that the ditches were filled in the second half of the 17th century. Both contexts also contained pieces of clay flooring



Figure 174. Ditch 24 at the 90° elbow (facing south).



Figure 175. Profile view of test JR1484 into Ditch 24 (facing east).

and flat roofing tiles that probably related to the church. Nine-inch-square flooring tiles were used in the church's chancel.

Ditch 24: Probable Boundary Ditch (JR1378, JR1384, JR1396, & JR1484)

In sum, the 2003-05 work on Ditch 24 led to the conclusion that as it ran along an E/W line, it disturbed and therefore postdated a fort-period burial (JR1850) and the cobblestone footing of Structure 172. The length of Ditch 24 from its 90° turn to the east was approximately 60'. The N/S portion of the ditch was about 37' from the 90° elbow to the current excavation limits. It also disturbed Pit 8 (JR1795), the west palisade trench,

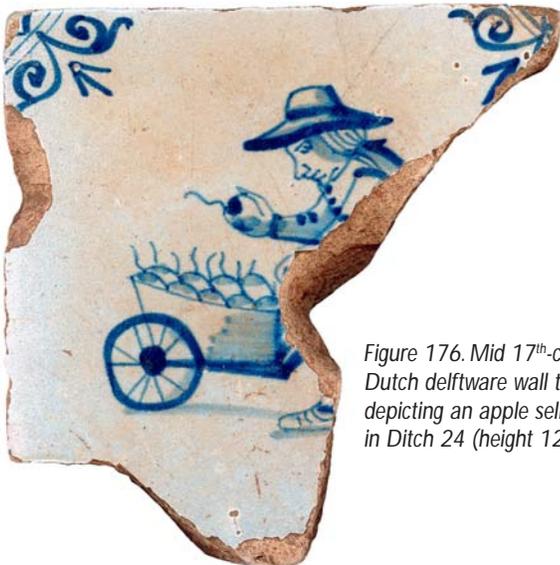


Figure 176. Mid 17th-century Dutch delftware wall tile depicting an apple seller, found in Ditch 24 (height 126mm).

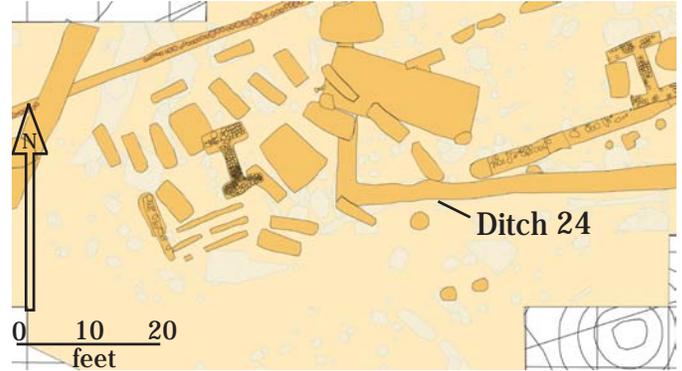


Figure 177. Plan of Ditch 24 (JR1384).

and posthole JR1798. Ditch 24 was consistently 3' wide and was disturbed on its eastern end by a later ditch (JR2058).

During 2003-05, three tests were made into Ditch 24—JR1396 in 2003, JR1484 in 2004-05, and JR1384 in 2005. The first test (JR1396) revealed that the modern gravel path through the Confederate earthwork had significantly disturbed much of the upper layers of the ditch; brick and other historic artifacts frequently had been found at the surface. A 2' section of ditch was removed and revealed a rounded bottom and very shallow depth, with the fill primarily composed of brick-bats and silt. Interestingly, one of the locally made bricks was impressed with a dog paw print.

The following summer, an additional investigation (JR1484) into Ditch 24 was made in the 90° eastward bend, with the test limits set at 10' to the east and 6' to the north. During the 2004 investigation, a top layer consisting of heavy brick and mortar was removed and indicated a probable destruction layer. The remaining fill layers in the test were removed in the spring of 2005; the ditch had a terminal depth of 2' below the excavation surface and a rounded bottom. This test afforded the opportunity to examine the footing of Structure 172 in cross-section. It also revealed the eastern portion of an early E/W extended burial (JR1850) that Ditch 24 disturbed. Artifacts from JR1484 spanned the 17th century from ca. 1630s Jamestown coarseware to ca. 1690s, locally produced Challis pottery.

In the spring of 2005, the northern 16' section of Ditch 24 (JR1384) was excavated. This test incorporated a test into Structure 173's fill (JR1396), and its upper layer contained heavy brick and mortar. The ditch gradually got deeper from north to south (likely because of the presence of the gravel path), and it had a rounded bottom with a maxi-

mum depth of slightly over 1'. The northern terminus of the ditch was not located due to the current excavation limits; it possibly was destroyed by the construction of the gravel path.

In all of the "A" layers of JR1396, JR1484, and JR1384, mid 17th-century Dutch delftware wall tiles were recovered, with a complete tile depicting an apple seller found in JR1484A. Test JR1384 produced the highest return of artifacts of all the Ditch 24 tests, including "Robert Cotton" pipes, two nearly complete delftware tiles, a Richmond Round farthing (ca. 1625-34), an English white ball clay tobacco pipe (ca. 1640-60), and the articulated remains of a longnose gar. The N/S, E/W orientation of this ditch suggested it might have been a property boundary associated with the cellar of Structure 180 and a well (JR1474). Based on its location and the associated artifacts, Ditch 24 appeared to represent a 1630s to 1650s land use.

Ditch 27: Zigzag Ditch (JR2290, JR2291, & JR2301)

While uncovering the interior of the east curtain wall near its juncture with the north bulwark of James Fort, a 43' section of a N/S oriented ditch (Ditch 27, JR2290) with four angular "zigzags" was exposed. Diagnostic artifacts in JR2290 included late 17th-century materials including: a Colonoware bowl (post 1680), New England coarseware, Challis pottery, and an English white ball clay tobacco pipe dating ca. 1660-80. Two tests were excavated into the ditch to determine its depth and temporal relationship to the palisade, as well as to explore an early 17th-century pit (JR2361) that JR2290 disturbed.

Test JR2291 measured 6'3" long by 3' wide and was placed approximately 11'4" north of feature JR2361 in one of the zigzag bends. The ditch was filled with plowzone and yielded sherds of late 17th-century Green Spring pottery and early 18th-century William Rogers earthenware. The test also exposed the bottom of the ditch at a depth of 1', revealing a "U"-shaped contour in subsoil. Three feet to the south, another test (JR2301) 2' long by 3' wide was dug. The results of this test were essentially the same as JR2291 except that the bottom of the ditch rested on an earlier feature (JR2361). JR2301 contained both late 17th-century earthenware (Challis) and an English silver threepence ca. 1561-82.

Two parallel zigzag ditches, Ditch 6 and Ditch 13,

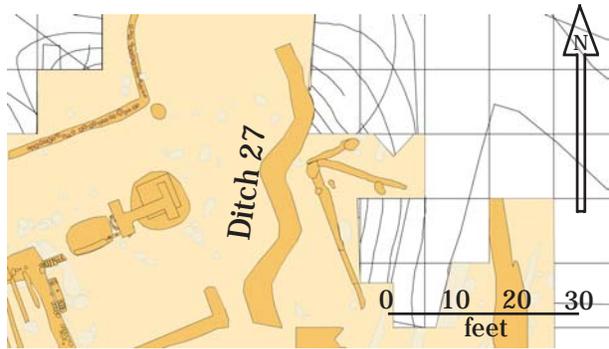


Figure 178. Plan of Ditch 27 (JR2290, JR2291, & JR2301).

found in the south church excavation area during previous field seasons were determined to be mid-17th century boundary markers. They shared similar physical characteristics to Ditch 27, such as profiles and widths, but limited testing made comparisons difficult. Ditch 27 probably marked a post-1700 field boundary, and its N/S orientation might have marked the boundary of church property.

(Endnotes)



Figure 179. Ditch 27 (looking south).

¹ In the 1999 Interim Report, Ditch 13 was erroneously labeled Ditch 11, pg. 8-9.

² See endnote 1.

Burials (JR430, JR490, JR492, & JR561)

In 2000 excavations to the east of the John Smith statue uncovered four burials. Each of the four human graves delineated through topsoil and plowzone excavation likely contained adult skeletal remains that were individually buried lengthwise along an E/W extended position. The graves did not cut any other features but were truncated by later contexts. Their orientation ranged from 62° west of north, like nearby JR102, to 79° west of north, like the many Jamestown Church-era graves.¹

A 20' section of the 1937-38 utility trench (JR423, JR470, JR471) cut both burials JR490 and JR561. The trench ranged in width from 2' to 2'6" and was oriented 40° west of north. In the grave to the northwest (JR490), the original digging of the utility trench had disturbed the interred individual's tibias and fibulae. These lower long bones were discovered parallel to the long side of the burial at the interface between the truncated top of the grave shaft at the bottom of the trench, suggesting that whoever had impacted the bones had attempted to put them back in place. The utility trench did not impact the grave to the southeast. The base of the trench ramped up and only grazed the coffin wood above the interred individual. If the diggers of the utility trench worked from northwest to southeast, perhaps they intentionally dug a shallower trench in an effort to avoid disturbing additional skeletal remains. Two later features also impacted another adult grave (JR561)—a large crater-like hole (JR431) excavated in the 1860s for dirt to be used to construct the Confederate earthworks, and a posthole (JR563), both truncated the hole in which the deceased adult was placed.

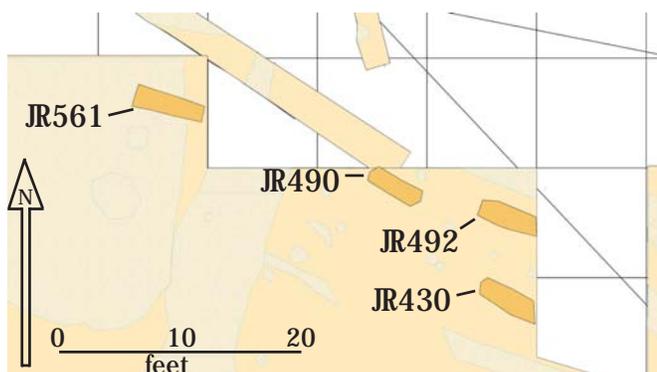


Figure 180. Site plan of Burials JR430, JR490, JR492, & JR561.

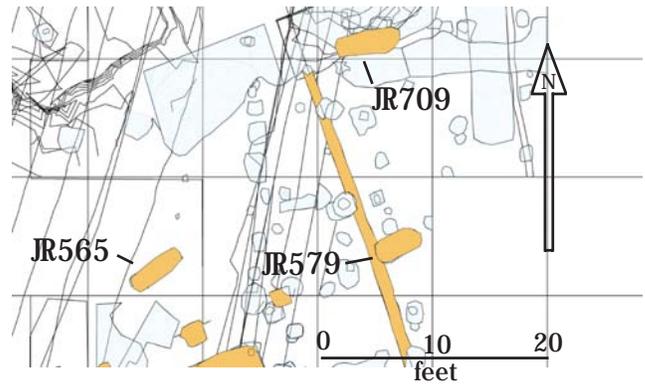


Figure 181. Site plan of Burials JR565, JR579 & JR709.

Burials (JR579, JR709, & JR565)

By the end of the 2000 digging season, three burials had been uncovered in the North Churchyard area of excavation. Two were juveniles (JR579, JR709), a designation based on the small size of the grave shaft; each was approximately 4' by 2' and full of yellow/orange subsoil-like clay. The remains were not excavated. A third burial (JR565) was uncovered under the roadbed. It apparently had been truncated by the construction of the road; only the pelvis, lower limbs, and foot bones remained. All three burials were oriented E/W, ranging in orientation from 52-78° east of north. The presence of plowzone and plowscars (JR753, JR635, JR638) in the immediate area disputed notions that the North Church had not been plowed out of respect for the interred individuals. The north side of the church had remarkably few burials; particularly adult graves.

Unexcavated burials in the North Church area (JR1019, JR1072, JR1073, and JR1249)

In the summers of 2002 and 2003, what are almost certainly four extended adult burial shafts were identified in the North Church section of the site. These burials were in the area to the south of Well 26 and were located outside the bounds of the 1607 fort. Two of the burials (JR1072 and JR1073) were only 1' apart and parallel to one another. These burials were oriented on a NW/SE axis and remain unexcavated. JR1072 was 7' long and 1'9" wide. JR1073 was 5'10" long, 1'1" wide on the east side, and 2' wide on the west side.

Five feet due north of the two side-by-side burials was burial JR1019. This burial was oriented N/S. Evidence of a brick and stone tabletop tomb once

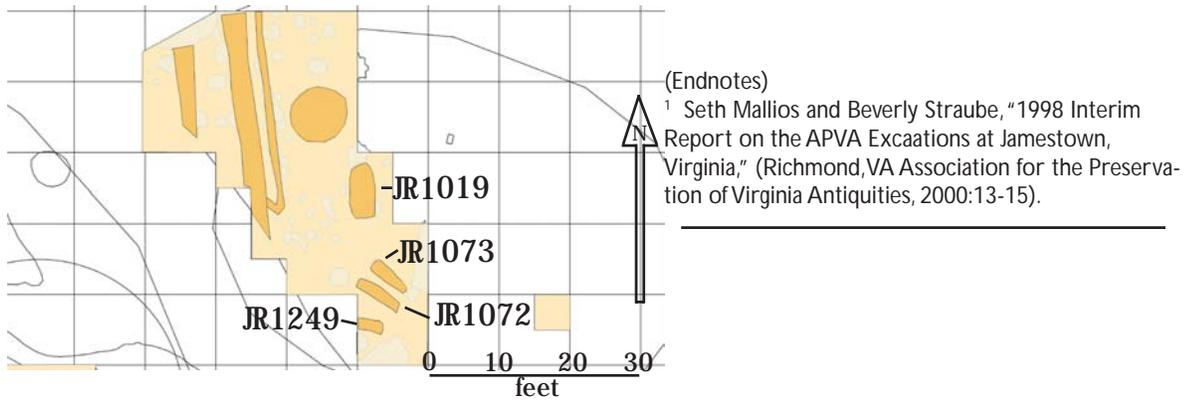


Figure 182. Unexcavated burials in North Church area.

marking this grave shaft was found resting on probable grave shaft fill. Some of the bricks encountered above the grave shaft lined up header to header and were oriented N/S with the grave shaft. The dimensions of the burial shaft were 7' in length and 2'6" in width. The grave itself was not excavated, but the area around the bricks was partially excavated and produced a number of small finds. These included a crucible fragment, a piece of Frechen stoneware, window glass, and a copper rivet, among other artifacts.

Another possible burial (JR1249) was found 2' to the south of JR1072. Only the east end of this feature has been exposed, and the west end remains beneath an unexcavated 10' by 10' unit. This burial is on an E/W axis.

Possible Burial (JR1443)

In the summer of 2004, archaeologists identified a possible burial (JR1443) near the center of James Fort and underneath the Civil War earthworks and plowzone. The feature was rectangular in shape and oriented on an E/W axis. The dimensions were 5'2" by 1'4". A fine sand fill layer uniquely marked the feature. JR1443 was not tested or further investigated.

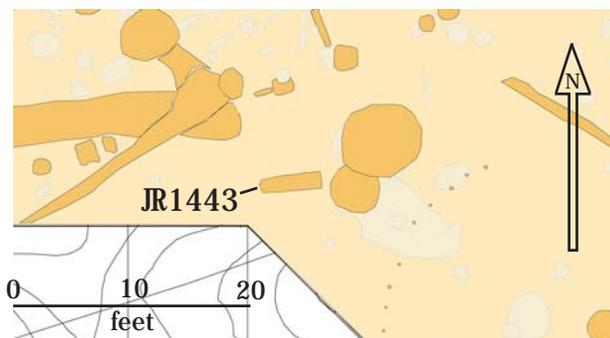


Figure 183. Possible burial JR1443



Figure 184. Profile view showing fill from Midden 1 beneath the stone foundation of Structure 163.

Midden 1 (JR83, JR93, JR94, JR97, JR124A, JR124B, JR124S, JR153, JR188, JR526, JR829, & JR851)

Midden 1 was a second quarter 17th-century fill deposit located near the eastern end of the 1907 section of the Jamestown seawall. Although the complete dimensions were not determined, the midden stretched for at least 45' along the riverbank and was 15' wide in some locations. Removal of plowzone and utility lines in 10' by 10' squares uncovered the midden, which covered fort-period features (Pit 3 and the eastern bulwark trench) and was disturbed by the construction of Structure 163 (ca. 1640s). The midden was rich in artifacts (n=31,000), some of which provided a precise date range for the deposit. The presence of numerous sherds of Jamestown coarseware (1630-1650), a Charles I rose farthing (ca. 1636-44), English white ball clay pipe bowls with maker's marks from ca.

1640-60 (RC WC EL), and the absence of wine bottle glass in the more than 7000 glass fragments combined to establish a fill date of late in the second quarter of the 17th century. A large number of locally-made tobacco pipes of the type that started appearing in the Chesapeake in the 2nd quarter of the 17th century also substantiated this date. Of note was a local pipe bowl with a maker's mark "I D" on the heel (JR124B). This may indicate a relative of Emmanuel Drue, a pipemaker whose ca. 1660-1669 kiln was recently found in Maryland.¹

Also particularly noteworthy in this context was the copper alloy signet ring (424-JR) found in the JR93Q layer that depicts a splayed eagle. This is the family crest of William Strachey, survivor of the 1609 *Sea Venture* shipwreck in Bermuda and a resident of Jamestown from 1610-1611. While Strachey was in Virginia, he served as the colony's secretary, an assignment that probably required frequent use of his ring to seal envelopes and authenticate documents.



Figure 185. Copper alloy signet ring from Midden 1 depicting a splayed eagle, which was the family crest of colonist William Strachey (total width 22mm).

Because the horizontal layers of Midden 1 covered natural subsoil that sloped toward the river, the midden appeared to be an intentional buildup of fill along the natural slope to the river in order to reclaim land and mitigate shoreline erosion. A revetment or bulkhead along the water would have allowed the fill and trash layers to build up horizontally even though they were deposited on sloping subsoil. This type of shoreline expansion would have been advantageous for the use of Structure 163, a large shoreline warehouse constructed when Jamestown was evolving as the capital and port town. Additionally, the midden would have helped the colonists to alleviate any problems with trash buildup at Jamestown by providing a dumping ground for waste. Between these strata and the plowzone above, there was a layer of loose sandy fill that varied in thickness from 1" to 8" (JR93F, JR153C). This sand was believed to have been river-borne sand deposited during a flood sequence. The layer of loose sand also sealed the robber's trenches for the footings of Structure 163, so it was clear that the structure was no longer standing at the time the flood took place. Considering the date ranges for the artifacts above and below the sand layer, it may have been residue from the "great frechet," or hurricane, of 1667. In a letter to William Berkeley from Thomas Ludwell it was described as follows:



Figure 186. Local pipe bowl with a maker's mark "I D" on the heel, found in Midden 1.

Jamestown Colony - this poore country is now reduced to a very miserable condition by a continental course of misfortune. On the 27th of August followed the most dreadful Hurry Cane that ever the Colony (Jamestown) groaned under. It lasted 24 hours, began at North East and went around northerly till it came to west and so it came to Southeast where it ceased. It was accompanied with a most violent rain but no thunder. The night of it was the most dismal time I ever knew or heard of, for the wind and rain raised so confused a noise, mixed with the continued cracks of failing houses....The waves were impetuously beaten against the shores and by that violence forced and as it were crowded into all creeks, rivers and bays to that prodigious height that it hazarded the drowning of many people who lived not in sight of the rivers, yet were then forced to climb to the top of their houses to keep themselves above water. The waves carried all the foundations of the Fort at Point Comfort into the river and most of furnished and garrison with it....but then morning came and the sun risen it would have comforted us after

*such a night, had it not lighted to us the ruins of our plantations, of which I think not one escaped. The nearest computation is at least 10,000 houses blown down, all the Indian grain laid flat on the ground, all the tobacco in the fields torn to pieces and most of that which was in the houses perished with them. The fences about the corn fields were either blown down or beaten to the ground by trees which fell upon them.*²

If this sand was from that storm, it could give a clue to the date of the demise of John White's waterfront building.³

Pit 6 (JR532)

A large angular feature measuring more than 28' E/W by 16' N/S, and aligned 20° west of north—nearly identical to the orientation of the original eastern wall—dominated the subsurface landscape of the area to the east of the east palisade. Its top layer consisted of rich organic fill with numerous pieces of copper and lead shot protruding through the top. A thick charcoal layer, tested and carbon dated to 1560-1630 in 1996, was part of this large

feature and likely was its second or third strata. The feature appeared to cut the palisade, although the exact interface between the two was complicated by two factors. First, a modern post sliced through the area where the two would have overlapped. Second, following the gradual slope of the landscape, the palisade would have bottomed out just as the large feature began. Nevertheless, there was no sign of the palisade cutting through the big feature, and the edges of this modern post hinted that the palisade pre-dated the other context. If the carbon date of the charcoal layer was accurate, and if the large feature did cut through the palisade, the likely deposition for this feature would have been in the mid-to late 1620s, post-dating the destruction of James Fort, but pre-dating the 1630 endpoint of the carbon date range.

Two tests (JR703, JR712) were put into the southern end of the pit in 2001. A small unexcavated 1'6"-wide balk was left in between the two tests. JR703 was the easternmost test and measured roughly 15'6" by 5'. Multiple fill layers (JR703A-P) were defined and contained numerous artifacts common to early 17th-century James Fort contexts. These included "Robert Cotton" clay tobacco pipes,



Figure 187. Overall photograph of Pit 6 showing the two excavated test units JR703 & JR712 (facing north).



Figure 188. Zhangzhou (Swatow) porcelain bowl rim depicting a lotus flower.

Hessian crucible, Frechen stoneware, Border ware, delftware drug jars, and London redwares including distilling jar fragments. An early 17th-century Zhangzhou (Swatow) porcelain bowl rim depicting a lotus flower was probably part of a bowl found in Structure 183, although it has not crossmended at the time of this writing. Two 1590 Dutch tokens were the only dated artifacts in this context. Worth three stivers, these token coins were issued for use in Groningen, located in the northern Netherlands. JR703 also contained numerous andesite tuffs and coral from the West Indies, reflecting the colonists' early route of sail to Jamestown, as well as Bermuda limestone, which first ballasted English ships in 1610. Charred wood was often prevalent in the majority of these layers. The bottom contours of the feature were irregular and undulated dramatically. The depth of the feature varied from 1'6" to as much as 4'.

Test JR712 measured roughly 11' by 6', and layers JR712A-L were removed to reach subsoil. This context contained early 17th-century material, as in the previous test, but only in layers below JR712D. One Frechen stoneware Bartmann medallion, imprinted with "-60-" as an apparent date, was part of a jug located in Structure 165. JR712D may have been an intrusive posthole with no visible mold. Many fragments of post-1650 wine bottle glass were found in JR712D, and Jamestown coarseware ca. 1630-50 was located in the A and C layers of the feature. The bottom contours of this test were also



Figure 189. Overall photo of Pit 15, with test section JR2173 removed from the center of the pit.

irregular. The initial purpose of Pit 6 was not understood, but due to its irregular shape and contours, the pit once may have served as a borrow pit for clay.

Pit 15 (JR2174) & Test JR2173

An arbitrary test excavation (JR2173) into disturbed fill due west of Structure 172 chimney base (JR1412) revealed a small rectangular pit (JR2174). Test JR2173 was placed through the center of the pit. In plan the pit measured 2'7" E/W by 4'8" N/S with a depth of 4'. The pit was not oriented with the west palisade wall, but its rectilinear shape suggested an architectural use. The fill from the test section consisted of brown sandy loam with numerous brick flakes. Based on the presence of two sherds of William Roger pottery, the feature was likely filled in the first quarter of the 18th century.

Nearly half of the feature was found inside the western firebox for chimney base JR1412. Consequently, the pit would have post-dated Structure 172 (ca. 1611) and would not have been open while the structure was standing (see main map).

Mid-century Paling Line (JR2050 & JR2145)

Expansion of the excavation limits beneath the Confederate fort west of the Jamestown Memorial Church tower uncovered a 1' wide by 30'5" long section of a palisade trench (JR2050). Oriented roughly NE/SE, the trench contained dark brown loam, with brickbats and mortar on the surface. A



Figure 190. Location of mid 17th-century palisade line.

3' test section of the trench fill (JR2145) was removed and indicated that the trench was 6" deep with straight sidewalls and a flat bottom, typical of palisade lines at James Fort.

No postmolds were detected within the fill, nor was there any indication of postmolds on the bottom of the trench. Sherds of Jamestown coarseware (ca. 1630-50) and Green Spring coarseware (ca. 1650) Jamestown pottery suggested this was not a fort-period feature. JR2050 was dateable only through its location and the few artifacts found, none of which appeared to correspond to any of the late century or fort-period features nearby.



Figure 191. Test section JR2145 into the slot trench.

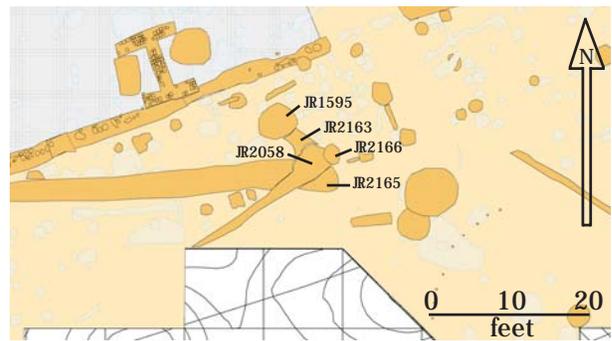


Figure 192. Plan of mid 17th-century features.

Mid/Late 17th-century Features Near James Fort Center (JR1595, JR2058, JR2163, JR2165, & JR2166)

Excavations near the geographic center of the 1607 James Fort located several mid-to-late 17th-century features. Partially testing three of these features revealed they were contemporaneous and may have been related in function.

The eastern terminus of Ditch 24 (JR2165) was the first to be excavated and was found to be cut by, and therefore pre-date, a narrow trench (JR2058) about 1'5" wide, oriented slightly N/S. At its intersection point with Ditch 24, it formed a rough, 3'9" diameter circle and marked the termination of the trench. The decision was made to bisect JR2058 and the end of Ditch 24 on a N/S axis extending approximately 5'5" east to determine the exact nature of the intersection of the two features. JR2058A was characterized as a dark brown sandy loam with many brickbats, 4" deep.



Figure 193. Pipe bowl reflecting the handiwork of the pipemaker who has been dubbed the "Star Maker," and who was working in Charles City County, Virginia ca. 1635-60 (height 37mm).



Figure 194. Pipe fragment with a nine-spoked wheel stamp. This same mark has been seen on pipes made by Emmanuel Drue, who worked in Maryland through the 1650s and 1660s (stamp diam. 4mm).

Sherds of Portuguese faience, Jamestown coarseware (2nd quarter, 17th century), Midlands Purpleware, Frechen stoneware, wine bottle glass, and many nails were recovered from the JR2058A layer. A variety of terracotta pipes made in the Chesapeake and dating ca. 1635-80 also were found in this context. Several were made in molds of the



Figure 195. Portuguese faience dish fragment from the second half of the 17th century.

type used in England ca. 1660-80. One pipe bowl reflected the handiwork of the pipemaker who has been dubbed the “Star Maker,” and who was working in Charles City County, Virginia in the years between 1635 and 1660.⁴ The pipe had a rouletted eight-pointed star on the back, and a rouletted square on the front containing the initials “EL.” These pipes have been found with a variety of initials, although this is the first “EL” that has been documented. The initials appeared to indicate the intended owner of the pipes; one Star Maker pipe marked “WA” was found on the site occupied by Walter Aston, and another marked “DK” was located at the site occupied by Sir David Kirke in



Figure 196. Over-fired delft tile with a male figure holding a staff (height 124mm).

Ferryland, Newfoundland. Both of these individuals were very prominent figures in colonial society, suggesting that personalized pipes were a mark of status, even if the pipes were made of local clays.

Another pipe fragment was impressed on the heel and bowl with a nine-spoked wheel stamp. This same mark has been seen on pipes made by Emmanuel Drue who worked in Maryland through the 1650s and 1660s.⁵ Finally, there was a long slender pipe bowl with bands of rouletting associated with a Native American pipemaker working in Westmoreland County, Virginia in the 1660s and 1670s.⁶

Layer JR2058B was very similar in composition to JR2058A but contained much more charcoal and ash. More local and European pipes were found in

JR2058B, including a diagnostic European bowl in a 1660-80 style. A Portuguese faience dish reflecting a Chinese-inspired design painted in blue and outlined with manganese dated to the second half of the 17th century. Two sherds of William Rogers pottery pushed the TPQ into the first quarter of the 18th century. This layer was 5" deep, giving feature JR2058 a total depth of 9", with a "U"-shaped profile.

Following JR2058's excavation, 2'7" of Ditch 24 (JR2165) fill was excavated south of JR2058. JR2165A consisted of light brown sandy loam with clay inclusions, yielding a sherd of Jamestown pottery, Midlands Purpleware, case bottle glass, and faunal remains. JR2165 sloped to the west and was 1'6" deep.

In the course of excavating JR2058, a small ditch-like feature (JR2163) appeared extending to the south of JR2058. It was 3'1" wide, extending for approximately 3'5" to the south, where it intersected with a 4'2" diameter pit feature (JR1595). JR2163 was excavated as a single context and was composed of medium brown sandy loam with brick inclusions. European pipe fragments, a copper alloy seal-top spoon handle, remnants of a pewter tobacco box, and faunal material comparable to that found in JR2058B were found in the fill of JR2163A. JR2163A rested on a prehistoric topsoil/occupation layer and sloped to the south towards JR1595. Two rectangular pavers spanned the width of JR2163 before the slope into JR1595.

With the revelation that JR2163 likely was in some way related to JR1595, JR1595 was excavated on an E/W axis. The south half of JR1595A mirrored JR2163A in composition and may represent the same deposition. JR2163 was comprised of medium brown sandy loam. It was screened through 1/8" mesh and yielded local and European tobacco pipe fragments, Midlands Purple, Martincamp, crucible, Chinese export porcelain, and a complete delft tile depicting a male figure wearing a hat and carrying a staff. Dating to the mid-17th century, the tile had been over-fired during production causing its glaze to flow and making it a potter's second.⁷ An identical tile, also complete, was excavated by the National Park Service in 1934 from Structure 1, a rowhouse located near the present Visitors' Center.⁸ This structure may have been constructed by the orders of Sir George Yeardley ca. 1620. It subsequently passed to Governor George Harvey in the late 1620s, and to gentleman and merchant Richard Jones after 1657. It may have been one of the

buildings burned during Bacon's Rebellion in 1675.⁹ Three glass beads, several pieces of lead shot, sturgeon scutes, and a Caribbean andesite cobble covered with oyster shell mortar were discovered in the fill. Below this was a medium brown sandy loam layer with charcoal inclusions (JR1595B).

JR1595B was 7" deep, containing mostly faunal remains. The removal of it revealed that the bottom of the pit had a smooth "U"-shaped contour, with a total feature depth of 2'6".

Following the excavations of the tests, archaeologists determined that JR2163 and JR1595 possibly were related; the features resembled some sort of drainage system. The presence of both locally made and European pipe bowls (ca. 1660-80), as well as wine bottle glass and William Rogers pottery (1st quarter, 18th century) in JR2058, coupled with the relationships thought to exist with JR2163 and JR1595, likely date these features to the late 17th or early 18th century.

Pit (JR1725)

Along the interior of the western palisade wall of James Fort, several small pit or posthole-like features were found disturbing the palisade. One of these features, a 4'6" diameter pit (JR1725), was tested by bisecting a portion of its fill.

Consisting of a compact, clay/loam mix, 1725A was excavated to the subsoil level (6"). Two brick-bats were found in the fill of the rounded, bowl-shaped feature. There was a thin second level (JR1725B) that formed a "halo" around JR1725A, but it was not excavated. The pit contained no artifacts, but it clearly post-dated James Fort as it cut the west palisade. Further testing of this feature is necessary to ascertain its date and purpose.

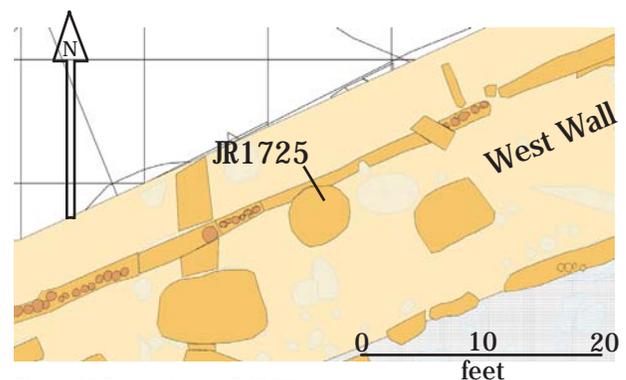


Figure 197. Location of JR1725.



Figure 198. Photo of JR1725 with thin "halo" layer along the rim.

Machine Trenching (JR1050, JR1055, JR1059, JR1063, JR1064, JR1067, & JR1116)

The land directly north of James Fort, an open field that slopes gently into Pitch and Tar swamp, is bisected by an access road for National Park Service property. Open area excavations south of the road in 1999 uncovered a slot trench (JR299) that appeared to be oriented on a N/S axis. To trace it further north, two E/W trenches, approximately 5' (JR324) and 37' (JR333) long were excavated north of the road by a monitored backhoe. Traces of the slot trench (JR332, JR334) were found below plowzone in both machine tests.

To clarify the relationship between features encountered in these two test trenches, seven more trenches were mechanically excavated on grid and shovel cleaned in a 70' by 60' area. All of the trenches encountered features immediately below the plowzone except for the northernmost unit (JR1063). Ditch features in the trenches were found in such close proximity to each other that it was

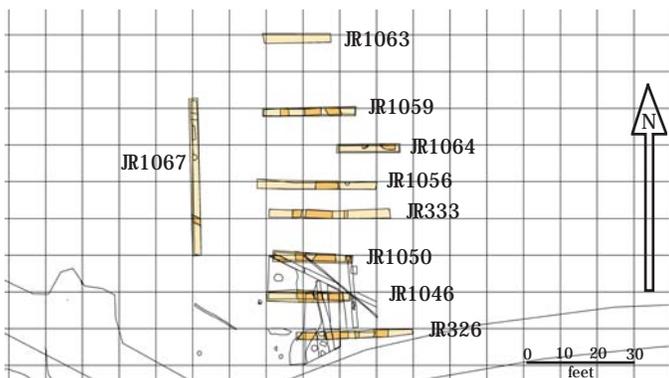


Figure 199. Trenches north of James Fort.

difficult to determine the exact bounds of each feature.

However, the original slot trench identified in the first two trenches was found to extend approximately 81' towards the north, paralleled to the west by the three ditch features. It has been speculated for years that the "flagpole" feature depicted on the 1608 Zúñiga map, the only known 17th-century illustration of James Fort, may represent a palisade extension to the north of the fort. It is possible that slot trenches JR229 and JR332 may represent that very feature.

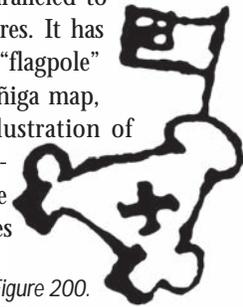


Figure 200. Zúñiga map.

Features Found North of James Fort

In search of James Fort's north bulwark in 2002, test excavations and machine trenching were concentrated to the north of a modern gravel road and to the east of a fork in that road. Further excavations to the south in subsequent years revealed that these 2002 excavations had overshot the actual north bulwark location. Nonetheless, the excavations revealed dozens of postholes, at least four ditches, and a slot trench. Several burials and a well also were found in this area.

The postholes were scattered throughout the excavation area in no discernable patterns. They were left unexcavated. All but one of the ditches found were oriented from north to south. It was not possible to be certain how many separate ditches were found; the excavation areas were not continuous and were separated by the unexcavated gravel road.

In the excavation south of the road, ditches JR300 and JR145B were oriented in a N/S direction. JR145B may have been a continuation of Ditch 19 to the south because they were more or less aligned. JR145B was 3' wide, and a section over 30' in length was defined. A small 2' test into JR145B revealed several prehistoric artifacts, as well as a case bottle fragment, an English white ball clay pipestem, an iron spade nosing, and seven pieces of scrap copper. JR300 was 2'4" wide, and a 12' long section was uncovered. A small test section, JR1032, was placed into the north end of JR300; the ditch was 7" deep and only contained one soil layer. Artifacts found included ten fragments of Native American pottery, a complete English white ball clay

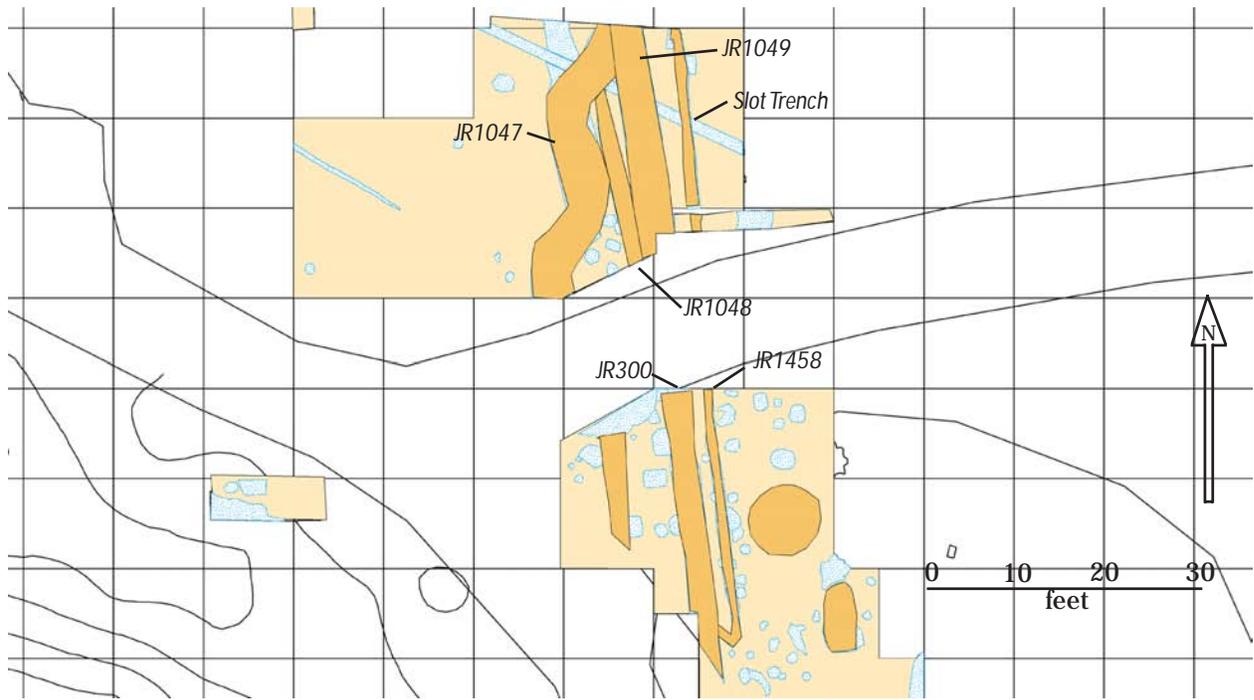


Figure 201. Site plan of features found north of James Fort.

pipe bowl (ca. 1610-40), and one piece of molten copper scrap, which may be evidence of early metallurgy on the site.¹⁰

Three ditches oriented N/S—JR1047, JR1048, and J1049—were found north of the gravel road. JR1049 and JR145B may have been parts of the



Figure 202. Overall photo of site showing ditches, slot trench, and well north of James Fort.

same ditch because of their corresponding orientation. Verification of this possibility required removal of the gravel road. JR1048, due west of JR1049, seemed to be a zigzag fence ditch; it was a narrow 2' wide and 19' long, and it disturbed fill in JR1047. The ditches were not excavated, but some surface finds were collected. None of these three ditches appeared to align with, and therefore be a continuation of, JR300 to the south. The ditches continued to the north, as machine tests 40' in that direction determined.

These N/S oriented ditches extended downhill towards marshland north of James Fort suggesting that some, if not all, functioned as drainage ditches. Further excavation is required to date the ditches, understand their limits, and determine how many ditches exist.

A curious N/S slot trench for a probable palisade line was found to the east of three ditches and on both sides of the gravel road. The slot trench was at a minimum 80' long and was 1' wide. The northern terminus was not identified. At its southern end, the slot trench "hooked" to the west and then was disturbed by ditch JR145B. Postmolds were clearly visible in some sections of this trench, and two small test sections (JR1037, JR1038) were excavated. The fill in JR1037 extended 6" deep to a flat bottom; it contained no artifacts. Test JR1038 was made at the point where the trench formed the "hook." It revealed a depth of 4" and also contained no artifacts. This appeared to be a palisade trench and possibly the Zúñiga "flagpole."

The density of postholes and ditches found demonstrated that the area to the north of James Fort was rich in 17th-century cultural activity. Since no evidence was found of the north bulwark, no further excavations were conducted in this area.

(Endnotes)

¹ Al Luckenbach and Taft Kiser, "Seventeenth-Century Tobacco Pipe Manufacturing in the Chesapeake Region: a Preliminary Delineation of Makers and Their Styles," Robert Hunter (ed.) *Ceramics in America* 2006 (Milwaukee: Chipstone Foundation, 2006), 161-177.

² National Oceanic and Atmospheric Administration, "Seventeenth Century Virginia Hurricanes." <http://www.hpc.ncep.noaa.gov/research/roth/va17hur.htm> (accessed 2/8/2008).

³ When Hurricane Isabel hit Virginia in September 2003, the tidal surge from the storm covered much of Jamestown Island but did not deposit appreciable layers of sand.

⁴ Al Luckenbach and Taft Kiser "Seventeenth-Century Tobacco Pipe Manufacturing in the Chesapeake Region: a Preliminary Delineation of Makers and Their Styles in Robert Hunter (ed) *Ceramics in America* 2006. Milwaukee, Wisconsin: The Chipstone Foundation, pp. 168-170.

⁵ Al Luckenbach and C. Jane Cox (2002) "Tobacco-Pipe Manufacturing in Early Maryland: The Swan Cove Site (ca. 1660-1669)" in Al Luckenbach, C. Jane Cox, and John Kille (eds.) *The Clay Tobacco-Pipe in Anne Arundel county, Maryland (1650-1730)*. Annapolis, Maryland: Anne Arundel Trust for Preservation, Inc., pp.56-58.

⁶ Luckenbach and Kiser, 171-173.

⁷ Beverly A. Straube (2006) "A 'Wretched Tile' from Jamestown," in Robert Hunter (ed) *Ceramics in America* 2006. Milwaukee, Wisconsin: The Chipstone Foundation, pp. 252-253.

⁸ John L. Cotter (1958) *Archeological Excavations at Jamestown, Virginia*. Washington, D.C.: U.S. Department of the Interior, p. 172.

⁹ Cary Carson et al. (2003) *Evaluation of Previous Archaeology, Williamsburg, Virginia: Colonial Williamsburg Foundation and the College of William and Mary*, p. 3 – 7.

¹⁰ Carter C. Hudgins, "Chemistry in the New World," *Chemical Heritage* 25:2, Summer 2007, 20-26.

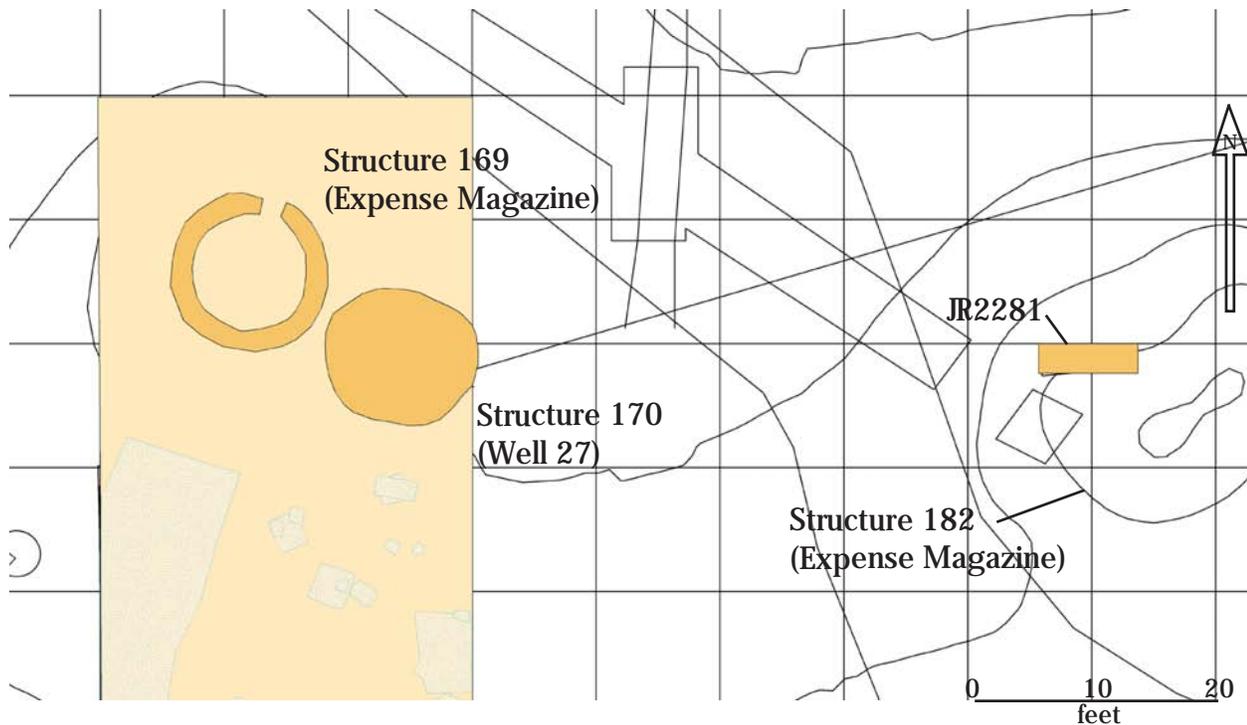


Figure 203. Structures 169 & 182 (expense magazines) in relation to Structure 170 (well).

Jamestown in the 19th Century

Structure 169: Civil War Expense Magazine (JR969, JR981, JR997, & JR1036)

In the summers of 2002 and 2003, a number of test units were excavated in search for the west wall of James Fort. Although no wall was found until late in 2003, a number of important features of the Civil War earthwork sometimes known as Fort Pocahontas were discovered. Among these features was a magazine (Structure 168), one of the primary features on the interior of the Civil War earthwork.

Visible on the ground surface as a horseshoe-shaped mound, Structure 169's unusual shape led to excavation in the interior of the feature. Several units were excavated into the mound, each encountering soils composed of almost pure sand.

Few artifacts were recovered from the magazine's sandy fill. The most common finds were 19th-century cut nails, likely from the collapse of a roof. The base to a Midlands Purple butter pot, sherds of tin-glazed earthenware, porcelain, Border ware, copper scrap, as well as local and European pipestems pre-dating the magazine's construction were found in loam pockets.

Also of note were four pieces of clinker, likely from a feature identified by NPS archaeologist Joel Shiner in 1955 during Project 100. Shiner observed that it was a pit with slag which been graded by the Civil War era construction.¹

Following the mapping and removal of the earthen mound, a large amount of charred wood was encountered. Directly beneath the charcoal was a circular foundation composed of dry-laid bricks, two courses thick. Intensive cleaning of the brick and charred wood revealed the charred remains of an octagonal roof atop circular brick walls.

Further excavations into the magazine revealed a large portion of the roof to be slumping into the feature, but mostly intact. From the charred elements remaining, the entire construction process was observed. The foundation of the roof consisted of eight planks approximately 6" wide and 1" thick mitered together at 22.5° angles. The rafters were beveled on the end to form a roof pitch of 25° to 35°. Atop the low sloping roof were planks ship-lapped over each triangular section across the long axis of the triangle. Each section was then beveled on the edge of the rafter to receive the next set of planks on the adjacent roof section.



Figure 204. Section of collapsed magazine roof (lower left) and rafter (middle right). Note the charred lining in the background (facing east).

On the northern end of the magazine, a 2' wide entryway was discovered, which was tall enough to accommodate an individual standing upright to enter the magazine. Over the gap was a charred plank that appeared to have functioned as a lintel. Beneath the lintel was a series of dry-laid bricks forming the doorjamb. On both sides of the entrance, the bricks tipped towards the center of the top 2'6" of the door. The evidence of a wooden lintel combined with the form of the bricks suggested the doorway was arched. On the interior of the brick foundations, upright planks, 6" wide, lined the entire magazine and were heavily charred.

The charred magazine elements may be explained by historical documentation from Union cavalry inspecting Fort Pocahontas on 5 May 1862. Upon the fort's abandonment by its Confederate defenders several days before the Battle of Williamsburg, Federal cavalry reported that "the battery was abandoned, the magazines and gun carriages were burned."² The archaeological information confirms this.

As the structure burned, a vent hole formed near the west side of the doorway, enabling a fire to burn hot enough inside to facilitate the collapse of the



Figure 205. Conjectural reconstruction of the expense magazine roof based on the archaeological evidence: ledger boards are first placed (A), then rafters are added (B), followed by ship-lapped sheathing (C), and overlapping adjacent sheathing panel (D).



Figure 206. Door on the north side of Structure 169.

roof. This event charred the magazine's interior planking, and the bricks were also extensively burned. The sand fill found near the plank remnants was deep red in color, another indicator of an intense blaze. Consequently, little of the aforementioned roof elements were found intact near this intense fire area.

Excavation deep into the feature did not produce any evidence of ordinance or gunpowder; the contents of the magazine likely were removed prior to the magazines destruction. On the night of 3 May 1862, the Jamestown garrison was ordered to abandon the post, taking with them "only ammunition, three 9-inch Dahlgrens, and six 32-pounders."³

Fragments of artillery shells dating to the Civil War years (1861-65) have been found in and around the Confederate earthwork, as well as a brass mercury-fulminate friction primer. No intact artillery projectiles from the period have been recovered. Expense magazines are:

very small gunpowder-magazines, containing the made-up ammunition for the service of the guns on the works, at the rate of so many rounds per gun. In fortifications of the old construction an

expense-magazine was made in each bastion and battery, though this was not always the case. Expense-magazines are often made under the earthen ramparts of fortifications, with a passage cut into them in the interior slopes. In the more modern works, such as the Instruction of Fortification at the Royal Military Academy, Woolwich, it is shown that expense-magazines should be placed as near as is practicable to the guns which they have to supply, and may often be conveniently constructed under the traverses and below the level of the terreplein, with lifts of communication. They can, if so situated, be easily secured against the enemy's fire, and be provided with subterranean communications with the main magazine, which would permit them to be replenished without risk, even during action. The first suggestions made as to the size of expense-magazines in fortifications of the present day gave four guns to be supplied by each, but a later recommendations [sic] proposes only two guns, in the case of very heavy guns.

The excavation was conducted to a total of 6'5" below the top of the brick lining, and three small auger tests were excavated in the bottom. All tests were excavated an additional 3'5" and water was encountered in each. None of the tests indicated a change in stratigraphy, nor was any trace of a brick or wood floor encountered. Thus there was no floor other than the dirt, and the chamber appeared to be empty. Excavations were terminated at this point.

Structure 182

In the summer of 2006, a small test was excavated into what was thought to be an expense magazine complementing the brick-lined magazine located 58' to the west (Structure 169). Like its counterpart, this feature was horseshoe-shaped in plan and formed a mound only a few feet high, with an apparent opening which faced the rear of the Civil War fortifications.

The 8' long and 2' wide test was strategically placed in order to locate the outer wall of the magazine with a minimal impact to the feature. The first layer removed was determined to be overburden, as evidenced by modern artifacts and gravel from adjacent paths recovered in the fill (JR2281A). A second, much deeper fill layer was encountered sloping steeply towards the center of the feature. This layer, composed largely of sand and small chunks



Figure 207. Charred boards on the interior of Structure 182 (facing east)..

of clay, may have been the remnants of a protective dome that covered the entire magazine (JR2281B). This layer closely resembled the mound fill over the adjacent expense magazine (Structure 169). Beneath the dome layer, a compact orange sandy clay layer (JR2281C) was found sloping steeply towards the eastern half of the unit. In the center of this layer was a series horizontal charred board fragments that paralleled the fill.

The charred boards formed a straight line and were presumed to be the walls of the magazine, similar to those found in Structure 169. The walls and the layer fill suggested Structure 182 differed from its counterpart in that it appeared to be square or rectangular in plan, as well as having been burned in place. Extensive amounts of highly fired orange clay were also found around the charred wood and fill inside the feature. Although more excavations are needed to confirm this, a differing form from that of Structure 169 may suggest an alternative function, or it may be indicative of an overall change in construction supervision.

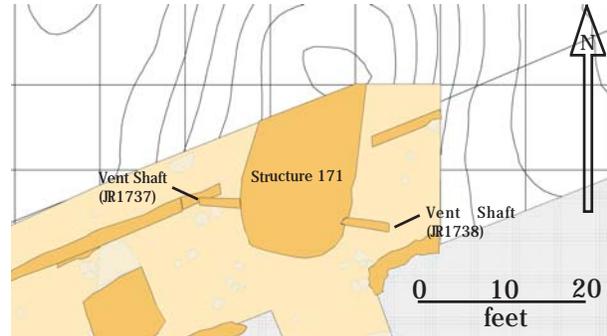


Figure 208. Location of Civil War bomb-proof showing vent shafts (JR1737 & JR1738).

Structure 171, Civil War Bomb-proof (JR1654, JR1655, JR1728, JR1729, JR1730, JR1733, JR1734, JR1735, JR1736, JR1737, JR1738, JR1739, & JR1740)

Work on delineating the west palisade wall of James Fort led to the partial excavation of one of the larger physical remnants of the Civil War's presence on Jamestown Island. Structure 171 was a 66' by 32' rectangular earthen bombproof, with a prominent 10' by 9' bowl-shaped depression in the center of the feature.

Excavation of nine 10' by 10' excavation units (JR1654, JR1728, JR1729, JR1730, JR1733, JR1734, JR1735, JR1736, JR1740) uncovered Structure 171's southern end. The soil was a mix of re-deposited plowzone containing 17th century artifacts, orange clay, and pockets of sand. About 7'5" of soil above a Native American occupation level was excavated from the bombproof, and the removal of 4' of soil revealed a 13' by 10' feature. Two core samples proved this feature to be one of Structure 171's subterranean rooms (JR1739). Two air vents



Figure 209. Structure 171 (facing east).

were located on the east and west sides of the room; the east vent (JR1738) was 5'5" long by 1' wide, and the west vent (JR1737) measured 4'6" long by 1' wide.

Excavation of the east vent (JR1738) yielded 13 cut nails. These nails were mapped *in situ* and indicated that the air vents were wood-lined shafts with openings on the outside of the mounded earth. Further excavation into the bombproof ceased; coring indicated a significant cavity below, which meant that any remaining James Fort-period features had been dug away. Additionally, the decision was made to leave the subterranean room and the section of the bombproof lying outside James Fort's palisade unexcavated and preserved in place.

The apparent "roof collapse" observed on the bombproof's northern end likely occurred when the Confederate Army retreated to Richmond in May of 1862 and destroyed the works as they departed. Given Structure 171's proximity to two expense magazines, this feature probably served as Fort Pocahontas's main ordinance depository, used from 1861-62.

Civil War Earthwork Gun Platform

An elevated gun platform that once supported the fort's river-facing artillery was found along the south earthwork mound of the Civil War battery. The platform was located on the northern side of the south earthwork mound and extended for 158' E/W. The platform likely would have stretched further to the west, but erosion caused by the James River claimed the southwestern corner of the earthwork in the late 19th century. The platform's eastern end was located in the southeastern corner of the fort, and its average width from N/S was about 16'. Access to the platform for the cannon

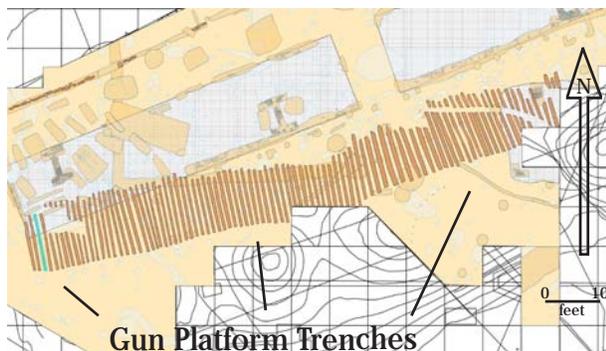


Figure 210. Civil War gun platform trenches.



Figure 211. Gun platform trenches and spikes.

was achieved from the interior of the fort by means of a N/S-oriented earthen ramp. The beginning of this ramp was located at coordinates N:9944 E:9485.

Surviving evidence of the gun platform consisted of entrenched joists, hundreds of large iron spikes, some remaining wood, and evidence of a bulkhead in the form of postholes and wood residue. Remnants of joists were found entrenched into previously constructed earthen mounds that were typically 1'6" to 2' high³ prior to the construction of the platform. The nearly 100 joists ran parallel in a N/S direction and were separated by a distance of 8" to 1'. Their lengths were generally around 16', with an average width of about 6", and a depth of about 4". Iron spikes approximately 8" long and spaced about 6" apart ran down the middle of every joist, and most were still in their upright positions.

Wood rarely survived in the joists, but remnants of the platform boards occasionally were found running on top of and perpendicular to the joists. In one section of gun platform, JR2011B, enough wood survived to determine that it was pine. Some



Figure 212. Bisected gun platform posthole with wood still intact.

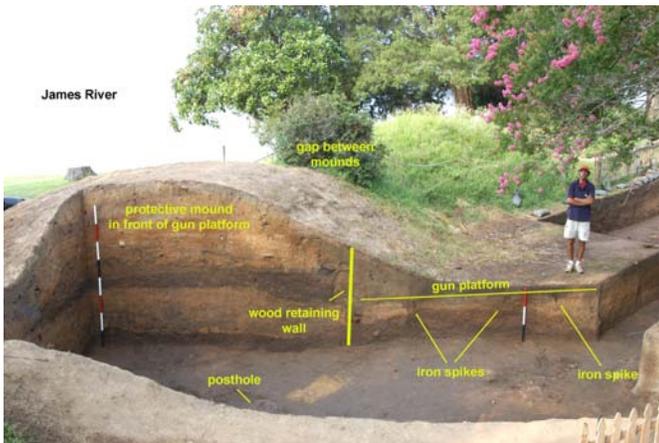


Figure 213. Cross-section of Civil War earthwork and gun platform showing detailed elements.

platform boards were 3" thick; a measurement determined by measuring the direction of wood grains that adhered to some of the spikes. All of the joists were gently sloping to the south, towards the river, at a 10° angle. The purpose of this slope was likely for drainage, and to counter some of the recoil when a piece of artillery was fired. Fine sand was often found on top of and in the joists. The sand's use was unclear, but it may have been from decayed sandbags positioned to the south or in front of the platforms.

A line of posts and a wooden bulkhead marked the southern terminus of the joists and gun platform. The posts were typically 3' to 5' apart and formed a nearly straight line with a slight bend as the gun platform moved from east to west towards the southeastern corner of the fort. Unlike 17th-century features, the posts could be seen cutting through the pre-1861 plowzone. This fact, along with the remnants of wood often present from the posts, made the postholes easily identifiable. The posts had been part of a larger wooden retaining wall or bulkhead that would have supported interspersed earthen mounds to the south of the gun platform. These mounds were much higher than the gun platform and protected the fort's artillery; gaps between the mounds served as positions for the placement of cannon. The initial height and shape of these protective mounds were unknown because of erosion and the addition of soil by the Association for the Preservation of Virginia Antiquities after 1893. The erosion of these mounds eventually caused much of the gun platform to be buried with up to 1' of fill.

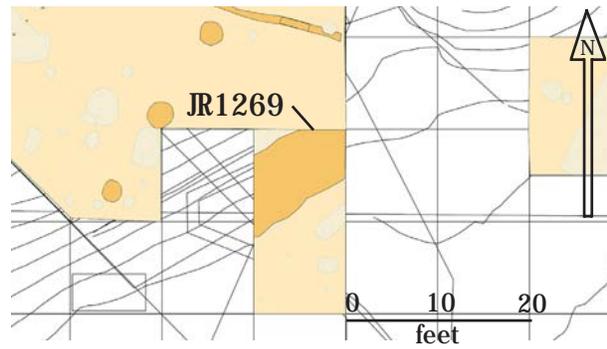


Figure 214. Plan of Civil War moat (JR1269).

Moat to Civil War Earthwork (JR1252 & JR1269)

Two 10' by 10' units (JR1252, JR1269) were excavated at the Confederate earthwork's base on the south side of the earthwork. These units were excavated because they were located at the geographic center of James Fort, a likely location for a well.

JR1252 was excavated first and revealed a modern landscaping layer (JR1252B) that contained a horseshoe, a souvenir pendant shaped like a projectile point, and landscaping staples. Below this layer was JR1252C, a 2'6" thick layer of brown loam composed mostly of brick and rubble; wire nails and modern glass were mixed in with the fill. It seemed likely that the area was used as a spoil area for the 1897-1902 church excavations, or for the 1907 church reconstruction. Notably, the layer took a dive less than 1' away from the adjacent 10' by 10', JR1269, which indicated that the spoil was placed into a deeper depression.

The brick rubble peeled off to an orange clay layer (JR1252D) that may have been related to earlier archaeology or construction. It contained three cut nails, placing the date of deposit post ca. 1790. Below this was a medium brown sandy loam deposit (JR1252E) that sealed subsoil. This layer contained 17th- and 18th-century artifacts, but also contained a fragment of drainage tile, which placed the TPQ of deposit post ca. 1835 and reflected how disturbed this context was. Similar to other excavated 10' by 10' units nearby, this deposit had no plowzone, which likely was scraped away during earthwork construction.

While JR1269A, B, and C contained the same soil layers found in JR1252, below the heavy rubble was a light brown sandy loam layer. This layer was 1' deep (JR1269F) and contained a mix of artifacts



Figure 215. Condiment bottle excavated from JR1269F.

including Midlands Purpleware butter pot, a pearlware teapot lid, a Border ware crucible, wire nails, a ca. 1860-80 condiment bottle, and a reed plate from a harmonica. When this context was removed, downward-sloping subsoil was found on the unit's south side. Contexts JR1269G and H were the terminal layers of this sloping layer, which was probably the dry moat to the earthwork from 1861. More modern rubble including late nineteenth century bottles, a kerosene can, and a light bulb filament were found in the fill.

Evidence suggested that the moat of the Confederate earthwork was first filled in when the Association for the Preservation of Virginia Antiquities acquired the property in the late 19th century, and subsequently with spoil from early monument construction in the early 20th century. It was assumed that no further testing was needed in this area; 17th-century features likely had been obliterated.



Figure 216. View of Civil War-period hearth (facing east).

Civil War Period Hearth (JR1617D, JR1940B, & C)

While excavating 10' by 10' units through the Confederate earthworks (Structure 145), the charred timber remains of a 2'5" by 1'5" hearth (JR1940C, JR1617D) were unearthed. This feature was about 4" below the rootmat, oriented E/W, and parallel to the mounded earth walls of Structure 145.

The timber remains of the hearth were field mapped, measurements were recorded, and samples of the charred wood were saved. An orange, burnt clay layer (JR1940B) about 1" thick was excavated, but no artifacts were found.

Given the feature's placement and orientation, it was likely that the hearth was a remnant of the Civil War occupation (1861-65). Given the lack of artifacts recovered in the possible hearth, however, it was not possible to discern which forces, Confederate or Federal, used the hearth.

Wooden Walkway on the Civil War Earthwork (JR2168C)

A small surviving section of what had been a wooden platform was located in the northeastern corner of the Civil War earthwork. The context was designated JR2158C and consisted of two parallel lines of large iron spikes. The lines of spikes were 4' apart and were similar to those found in gun platform joists elsewhere at the site. Near the spikes, sections of rotted wooden planks were found standing on their sides, like floor joists. Between these wooden planks, evidence of smaller wooden boards was found perpendicular to the lines of spikes and the larger wooden planks. Only sparse evidence of these boards survived, but there was enough to sug-



Figure 217. Conjectural location of planking (yellow) and associated spikes (facing north).

gest that the smaller boards had once served as decking on top of the joists, and that this decking was secured to the joists with the iron spikes.

This feature ran N/S and parallel to the east earthwork wall of the Civil War fort. The wooden platform was located on top of the earthwork mound, but it sat on the inside-facing slope of the fort and was likely protected by the earthen walls of the fort to the east. Much of the platform was likely missing due to modern disturbances and erosion; only an 11' section of the feature remained. The platform once may have continued along the entire east earthwork wall. This platform was probably a footpath, but it also may have supported the movement of equipment, such as cannon.

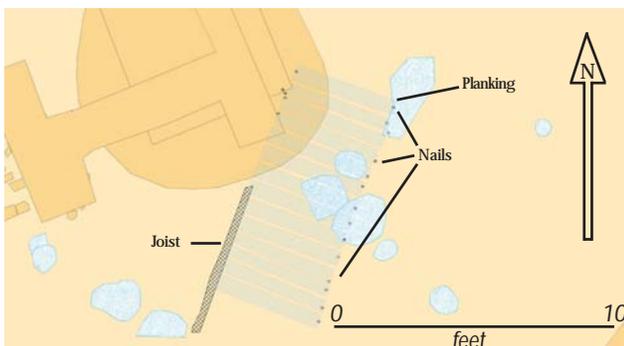


Figure 218. Plan of wooden walkway (JR2168C). Conjectural planking based on nail locations.

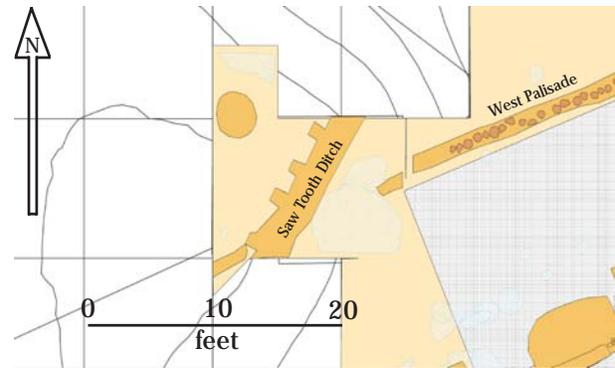


Figure 219. Plan of "sawtooth" ditch.

"Saw Tooth Ditch" (JR1258)

While tracing the northern limits of the west palisade trench of James Fort with a 20' by 10' exploration trench (JR1246, JR1278), a curious crenulated trench (JR1258) cutting into the palisade trench was identified. The trench was 2' 4" wide and had three 1' by 1' square slots spaced 2' apart jutting out on its west side. A 5' test into the trench at the 10' by 10' unit's northern excavation limits located the bottom at 2' below the subsoil surface. The feature had three layers of fill composed mostly of clay mixed with loam and sand. Only cut nails were found in it, and excavation of the slots revealed a 5" depth, with square bottom contours.

Although the function of the slotted trench was unknown, it was likely constructed as part of the Confederate earthwork. It may have served as a revetment wall of some sort for the gun platform located to the east. Another possible use may have been a drain covered with boards, supported on timbers seated in the slots.

Large-scale 19th-century Landscaping (JR431, JR453, JR454, JR512, & JR516-518)

A large round feature more than 20' in diameter impacted all of the pre-Civil War features in the northwestern quarter of the 1907 John Smith monument area. Some of the dirt that was used in the construction of the Confederate earthworks likely came from this large hole that was filled following the 1860s. Terracing for the John Smith monument in the early 1900s probably resulted in the filling of this large crater-like feature.



Figure 220. View of the 19th-century "disturbance." JR517 is located in the foreground to the right (facing south).

The round feature consisted of four fill layers below topsoil, none of which resembled traditional plowzone. A thin layer of tan clay (JR517B) sealed a stratum of dense brick and mortar (JR517C). This re-deposited fill probably resulted from the construction of the 1907 brick church to the northeast of the monument area. The brick and mortar fill contained a disarticulated human mandible, which likely came from an adult grave (JR561) disturbed by the 19th-century digging that produced the large round feature (JR431). The bottom two layers of fill (JR517D, E) consisted of re-deposited clay/loam and contained late 17th-century ceramics such as Challis coarseware and North Devon sgraffito

slipware. Several bullet casings in these contexts indicated that both layers likely dated from early 20th-century terracing for the John Smith monument. Overall, much of the top layers of soil from the monument area apparently was stripped away in the construction of the Confederate earthworks. The gaping hole left by these activities was then filled as the area was terraced for the 1907 monument.

(Endnotes)

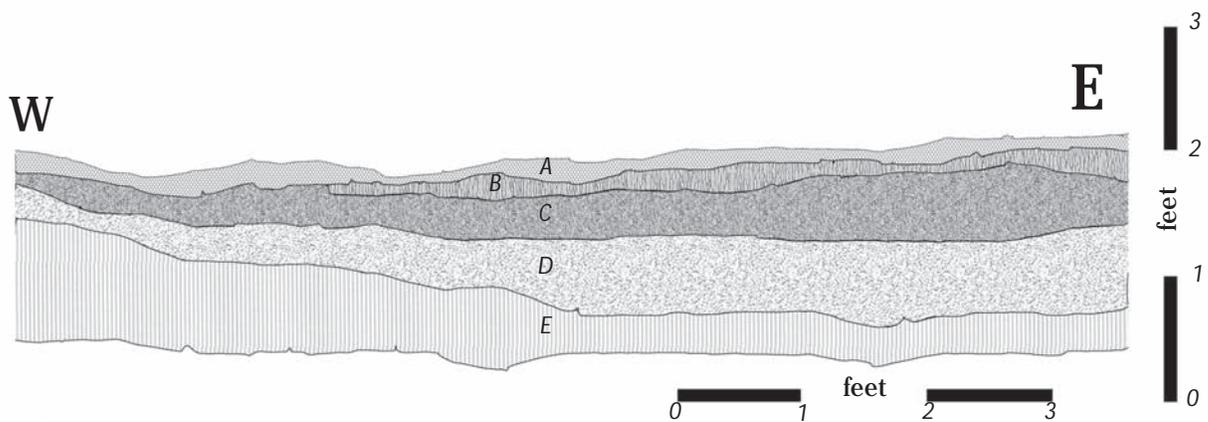
¹ John P. Cotter, *Archeological Excavations at Jamestown, Virginia*. Archeological Research Series No. 4. (Washington, D.C.: National Park Service, Department of Interior, 1958), 11.

² David F. Riggs, *Embattled Shrine: Jamestown in the Civil War*. (Shippensburg: The White Maine Publishing Company, 1997), 73.

³ *Ibid.*

⁴ Artillery Glossary. 1 April 2008 <<http://www.civilwarartillery.com/>>.

⁵ These elevations reflect measurements from the top of pre-1861 plowzone to the level in which the joists appeared.



JR517A: Dark brown sandy loam.

JR517B: Tan sandy loam.

JR517C: Orange sandy clay mixed with brick and mortar fragments.

JR517D: Brown sandy loam.

JR517E: Dark brown sandy loam.

Figure 221. Profile of JR517.

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