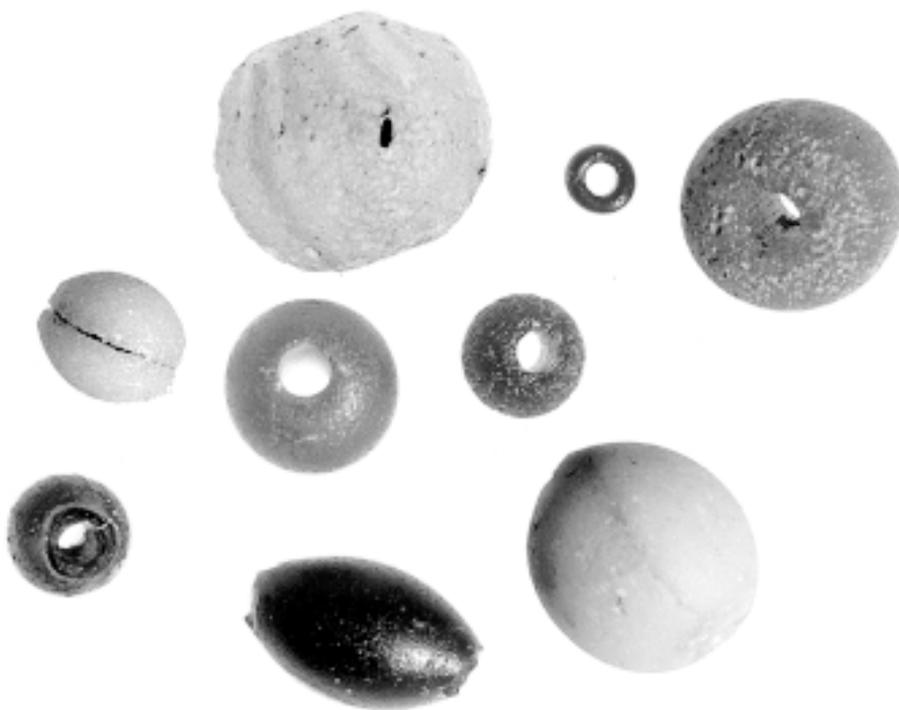


1997 Interim Report

on the APVA Excavations
at Jamestown, Virginia

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APVA *Jamestown*
REDISCOVERY

October 1998

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Also, many APVA volunteers provided much appreciated help throughout the year.

A major enhancement for visitors to the site in 1997 was the construction of a viewing platform with graphics to enable visitors to get a better understanding of the site. The platform was made possible by a grant from James City County. *Jamestown Rediscovery* was funded in 1997 by the Virginia General Assembly, the National Endowment for the Humanities, the National Geographic Society, and individual members and branches of the APVA.

INTRODUCTION

The general plan for the 1997 field season was to expand the excavation north, east, and south around the southeast bulwark of James Fort to better define the fort plan and to continue the investigation of major features encountered in 1996. One of these features was a slot trench north of the bulwark. Running perpendicular to the east curtain, the slot trench possibly was an extension of the fort. The excavations continued eastward to follow the bulwark earthwork trench which had turned 90 degrees in that direction. South of the bulwark, a large pit was partially uncovered and tested in 1996. The

pit contained copper, Irish pennies, and military artifacts suggesting that it too was a very early feature.

Other objectives of the 1997 field season were continuing to track the fort trace; testing the east palisade, opening the north bulwark area and trying to locate the west palisade slot trench. Excavation of a burial found next to JR102C also was part of the plan. Construction of a wing on the Yeardley House was scheduled for 1997 and necessitated archaeological testing of the area to be impacted by the excavation of the footings.

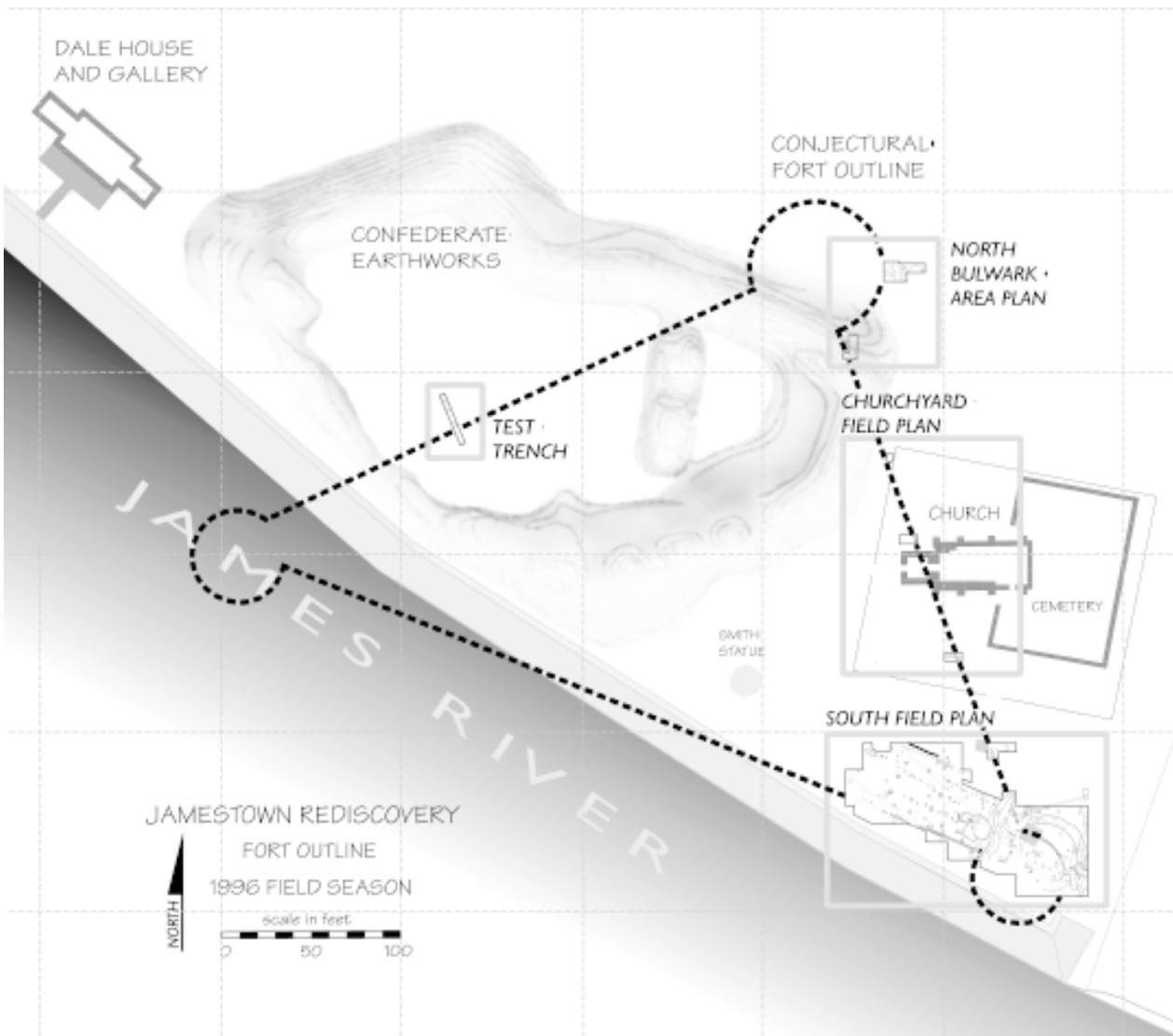




Figure 1: Overhead view of excavations at southeast corner of James Fort showing bulwark trench, Pit 3, Structure 163, possible James Town palisade slot trench, and Burial 2. Site observation deck is in the center.

1997 EXCAVATIONS

JAMES FORT

The guide for *Jamestown Rediscovery's* excavation of James Fort is a model based principally on William Strachey's description of the fort in 1610. Strachey observed that the fort was:

*"...cast almost into the forme of a Triangle, and Pallizadoed. The south side next to the river (howbeit extended in a line, or Curtaine sixscore foote more in length, then the other two, by reason the advantage of the ground doth so require) contains 140 yards: the West and East sides 100 only. At every Angle or corner, where the lines meete, a Bulwarke or Watchtower is raised, and in each Bulwarke a peece of Ordance or two well mounted."*¹

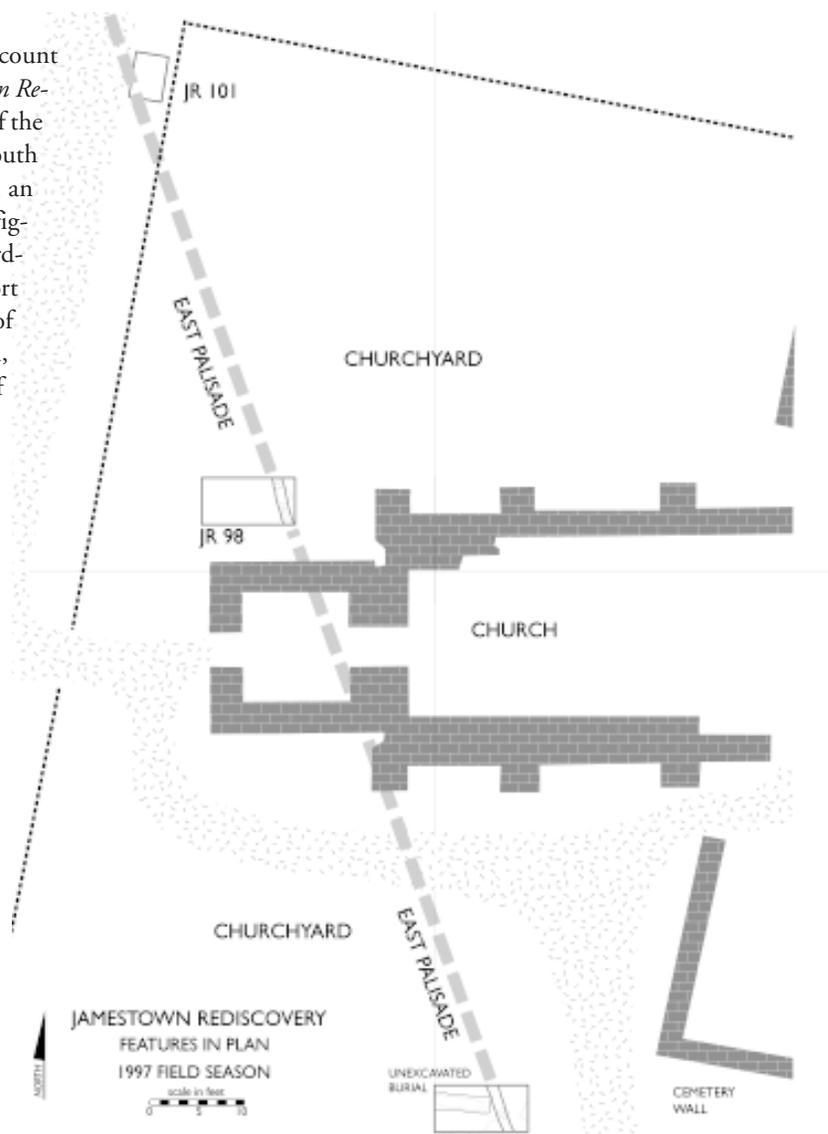
The accuracy of Strachey's account was verified by previous *Jamestown Rediscovery* excavations of one-half of the east bulwark and parts of the south and east fort walls which formed an angle that precisely matched the figures described by Strachey.² Accordingly, the southeast corner of the fort was used to project the position of the north end of the east curtain, the north bulwark, and the line of the west curtain of James Fort.

East Curtain

The slot trench of the east curtain palisade was identified, but not excavated, in a test trench (JR98) on the north side of the church tower in 1996. The initial excavation showed intact stratigraphy, as did the test trench (JR96) on the south side of the church tower. This confirmed that the area inside the iron fence always had been considered churchyard and never was used agriculturally, thus it never was plowed.

Excavation of this test trench was expanded in 1997. A layer of black sandy loam (JR98D) was encountered between 1'2" and 1'4" below modern

Figure 2. Plan of test pits in church yard.



grade and thought to be original topsoil. This was sealed by a heavy brick bat and brick dust scatter (JR98C) in the west half of the trench, while the east half was covered by a layer of shell mortar plaster, and brick (JR98B). Both of these layers were below root mat and modern topsoil (JR98A). Clearly cutting through the original topsoil but sealed by JR98B was a narrow trench (JR98L), directly on line with the projected path of the east curtain. Part of the trench was obscured by a more recent hole (JR98F). The 11" wide trench was approximately the same width of the previously excavated palisade trenches and certainly seemed to be part of the east curtain palisade. There was, however, 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 an inch or two. This resulted in a decision to examine the trench by digging in from the side. This method of excavation removed all the subsoil along the west side of the trench, exposing the outside face. Instead of finding the expected clean straight edge of the palisade construction trench, there were two bulges of mixed fill that measured 1'1" by 1'4" and 1'6" by 1'6". Next, the trench was sectioned down the center lengthwise leaving the east side intact, however this also failed to reveal any postmolds. Therefore, it appears that the posts were removed from their foundation trench by digging them out which resulted in the bulges or dismantling holes of mixed fill. But the palisade trench was not entirely disturbed; an obvious postmold within a typical slot trench was evident in the south profile of the test trench after the slot trench had

been excavated. The archaeological evidence also suggests that the palisade posts were extracted not too long after they were erected. The dismantling holes not only were sealed by the same layers that capped the palisade trench, but they were devoid of artifacts, indicating that the dismantling holes were dug and filled before any midden accumulated from the settlement.

The undisturbed topsoil stratum (JR98D) contained a large quantity of prehistoric pottery sherds, mostly Mockley ware and thereby dating to the Middle Woodland period. Dennis Blanton conducted the excavation of the unplowed lower A-horizon (JR98H) in this test trench. His preliminary observations of the results are as follows:

"To find traces of activity of this age that survives undisturbed by plowing is rare, indeed, anywhere in the Tidewater region. Though directly adjacent to a paling trench for the fort enclosure, the deposit predates the military intrusion by up to 700 years. Pottery sherds in these early layers date primarily to the end of the Middle Woodland period (Mockley), although an appreciable number are representative of the succeeding Late Woodland period. (There appeared to be a general stratigraphic separation of the Middle and Late Woodland sherds in this unplowed layer, but whether the ceramics [Roanoke] are associated with the English occupation or earlier native activity is still uncertain).

This evidence is interesting and important in its own right, but it also is instructive about the site eventually chosen for the English toehold. Elsewhere on the island Middle Woodland occupations are virtually unheard of, most likely because freshwater had become chronically scarce due to sea level rise. The presence of a relatively intensive encampment in what is now the churchyard indicates that this may have been one of the remaining well-watered places on the island after about AD900. The elevation of this area puts it among the highest points on the island, a factor which guaranteed relatively superior drainage."³

Figure 3. Portion of south profile of JR98.

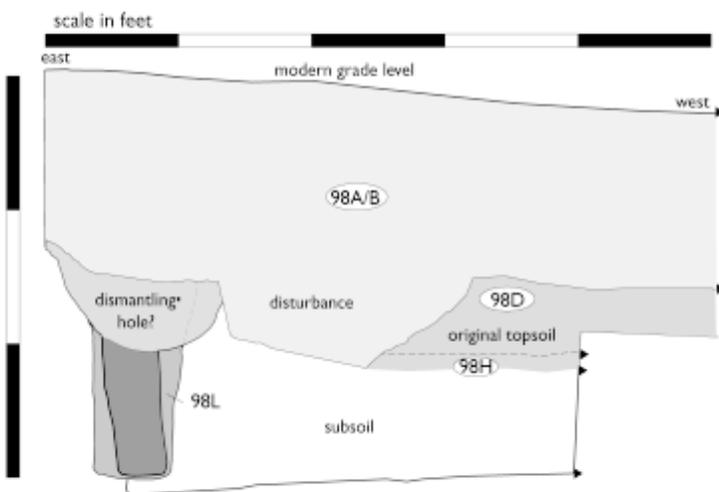


Figure 4. Plan of features in projected north bulwark area.

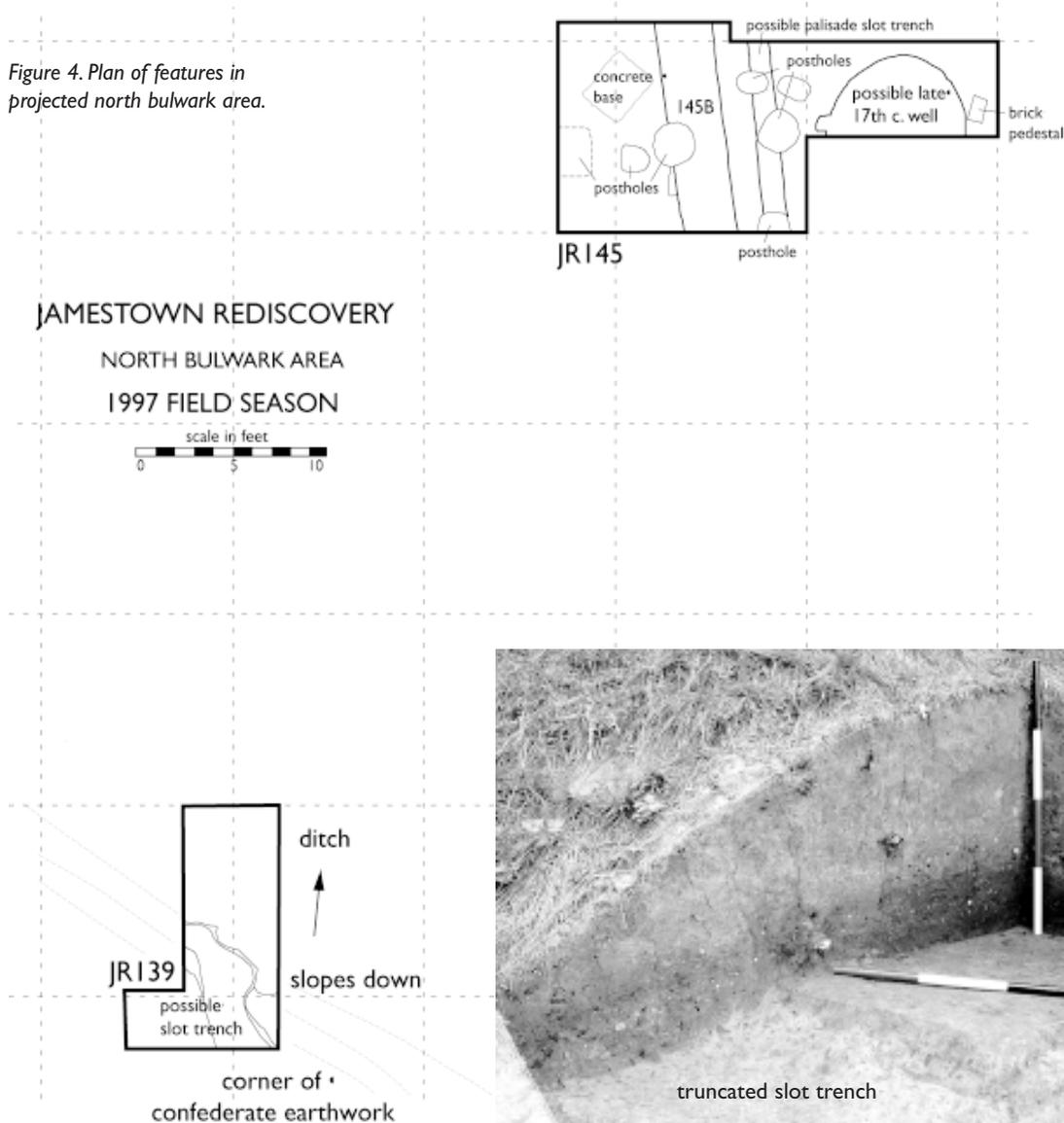


Figure 5. Reverse stratigraphy and possible truncated slot trench in JR139.

North Bulwark

The search for the north bulwark was based on the assumption that it resembled the configuration of the southeast bulwark and that it was located 300' along the east curtain as indicated in the Strachey model of James Fort. Initially, a 5' by 10' test trench (JR145) was positioned to intersect the projected bulwark earthwork trench. This area of Jamestown also had been farmed in the past so there was a plowzone beneath the sod. Excavation of the plowzone (JR145A) soon produced flint, Bartmann sherds, copper scrap, and sherds of Midlands Purple ware; the same kinds of artifacts that were found in the earliest features at the southeastern corner of James Fort. A 1'2" wide trench, similar to the palisade slot trenches of the curtains and bulwark, and three postholes were found cutting into the subsoil. Several expansions were then made to the original test

trench in an effort to obtain a larger pattern of features for better interpretation. A large round feature was found, about 7' in diameter and east of the narrow trench. Possibly a well, this feature may be associated with a late 17th-century building (JR58) located about 40' to the southeast. One foot nine inches west of the narrow ditch was a 3' wide ditch and three more postholes. A test excavation of the wide ditch (JR145B) yielded prehistoric pottery, 1 English tobacco pipe stem, 1 fragment of case bottle, 1 piece of lead scrap, 1 spade nosing and 7 more pieces copper scrap. All the artifacts recovered so far from the 3' wide trench, like the plowzone finds, are consistent with those from 1st period features of James Fort. The obvious difficulty with the conjectural north bulwark features is that the suspected

palisade slot trench is on the outside—the wrong side—of the possible earthwork trench. No test cuts were made into the well-like feature, the narrow trench, or the postholes.

Another 5' by 10' test trench (JR139) was excavated in the north face of the north wall of the Confederate fort to intercept the projected east palisade trench. This likely would be the last position where the east palisade trench would survive at the north end since the very wide and deep trench of the Confederate fort surely obliterated any trace of the palisade trench that was there. The fill that formed the Confederate fort rampart consisted of a 1'7" thick layer of orange clay (JR139B) that was clearly redeposited subsoil. The clay sealed 1'4" of brown loam (JR139C,F) that contained an abundance of artifacts dating to the second half of the 17th century. Beneath this was an ancient topsoil. The reverse stratigraphy of subsoil superimposed on 17th-century loam layers indicated that the rampart, at least in this area, was constructed from soil dug out to create the adjacent moat. Beneath the Confederate fort fill was a shallow trough-shaped feature that could be the bottom of a truncated trench. The possible palisade slot trench was on-line with the archaeologically documented east wall palisade, although the feature is so insubstantial that it is difficult to make any interpretation of it with confidence.

West Curtain

A 3' by 20' test trench (JR155) was excavated inside the Confederate fort in hopes of finding the palisade slot trench for the west curtain of James Fort. The excavation revealed no accumulation of topsoil, indicating that the area had been graded

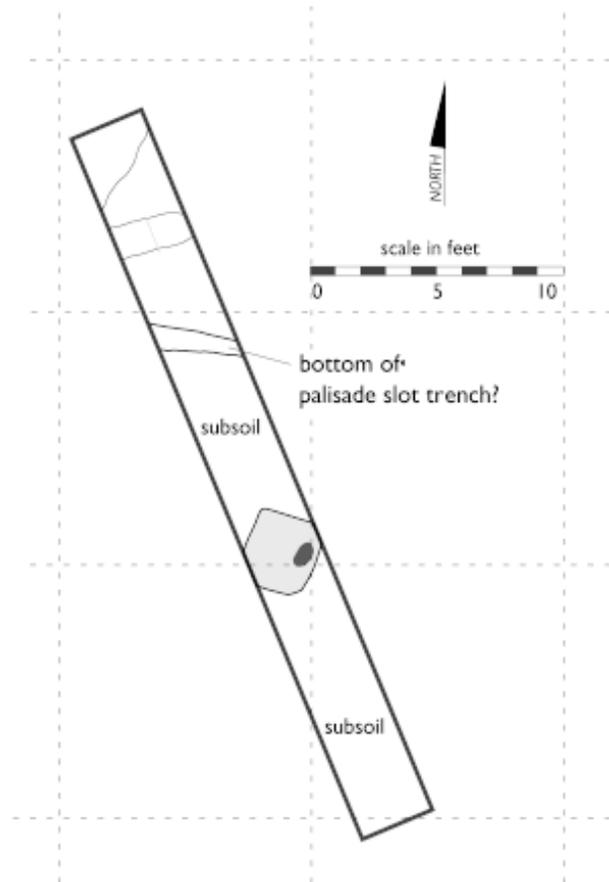


Figure 6. Plan of test trench JR155 in Confederate Fort.

during the construction of the Confederate fort. However, there were features still present; a 2'9" by 3'0" posthole and several ditch-like features. One of the ditch-like features was 1' wide and on the theoretical line of the of the west curtain, allowing that it may be a remnant of the palisade slot trench.

Pit 3 (JR69 & 124)



Figure 7. Pit 3 after excavation.

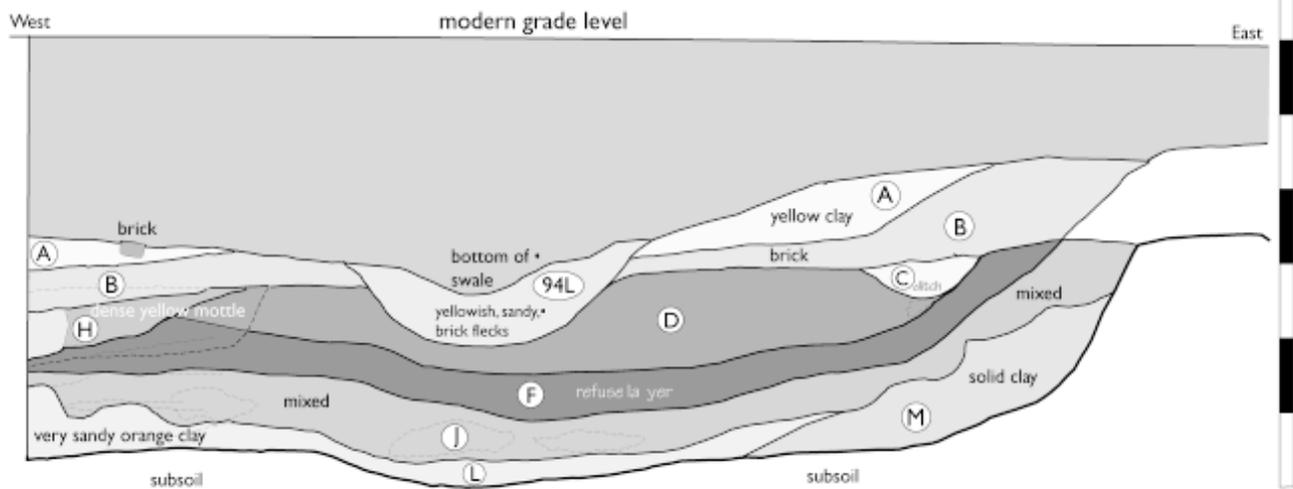


Figure 8. Pit 3 stratigraphy.

The north end of this feature was first uncovered in square JR54 and was partially excavated as context JR69 in 1996. The rest of the pit was uncovered and fully excavated in 1997 as context JR124. This was done to insure that there was no contamination from later features, that is post-Pit 3 artifacts being mixed into Pit 3 contexts. This may have occurred in the 1996 excavation of the north end where some subtle post-Pit 3 ditch fill was excavated as part of the layers of the pit.

Pit 3 essentially was a round hole, about 15' in diameter and 6' deep below modern grade. It had smooth vertical sides that rounded at the bottom to a flat floor. The initial episode of backfill on the bottom of the pit consisted of 1'0" of clay and sand layers (JR124J, L, M, P) that contained few artifacts and very little shell, bone, brick, or charcoal. Above this was a 6" layer of loam with many oyster shells and much charcoal (JR124F) that was the main refuse deposit in Pit 3. The artifacts from this stratum were plentiful, early, and largely military in nature. More than 7,400 artifacts were recovered from JR124F including 63 local and 35 English tobacco pipe bowls and stems, Native American Roanoke simple-stamped pottery, Border ware, Dutch and Spanish coarsewares including olive jar, delftware (all from drug jars), Martincamp flasks, Midlands Purple butter pot, Chinese porcelain, Frechen jugs, Raeren jugs, crucibles, 26 glass beads, 3 copper beads, 1 Irish coin, 12 jettons, 7 lead cloth seals, pieces of iron armor, 9 iron bandolier bottles, 5 copper bandolier bottles, 6 brigandine plates, iron chain mail, 3 bullet molds, 1 dagger, 3 matchlocks, 5 pieces for 2 helmets, 1 jackplate, sword blade pieces, 27 bullets, 236 shot, and sprue. The arti-

facts suggest a deposition date of c. 1610. Additionally, a very significant piece of a glass flask was found in JR124L because it crossmended with another piece of flask from JR105D, a lower layer in the middle-section of the southeast bulwark trench. These pieces in turn crossmended with a flask fragment in JR81F which is another sealed layer in the bulwark trench. The crossmending process suggests that the bulwark trench and Pit 3 likely were filled in at the same time and therefore may be contemporary.

A 1'4" thick layer of brown sandy loam with few oyster shells and little charcoal (JR124D) sealed JR124F. Although it contained markedly fewer artifacts than the total in JR124F, many of the 1143 artifacts from JR124D were the same as those in JR124F, such as Roanoke simple-stamped pottery, Border ware, olive jar, delftware drug jars, Martincamp flasks, Frechen jugs, glass beads, iron bandolier bottles, bullets, shot and sprue. However, JR124D also had approximately 14 artifacts that date to the 2nd quarter of the 17th century such as 6 Jamestown potter sherds (c.1630-45), 2 Merida costrel sherds (c.1620s & 1630s), 1 "WC" and 1 "RC" marked pipe bowls (both c. 1630-1650), and 1 "EL" marked pipe bowl (c.1631-41). A layer of brick-filled loam (JR124B) dating to the 1630s capped JR124D. JR124B is a context that is part of Midden I that is discussed later in the report under that heading.

Although the artifacts collected from JR124D technically make it a post-Pit 3 fill that was deposited in the 1630's, it is quite possible, even probable, that JR124D is legitimate c. 1610 Pit 3 fill that is lightly contaminated, perhaps through some



Figure 9. Excavator points to bank of subsoil that may have been entrance ramp into Pit 3.

form of turbation. Pit 3 began at the level of the surrounding subsoil. JR124B not only sealed the top layer in Pit 3, but it also spread well beyond the edges of Pit 3 where it lay on subsoil. Accordingly, JR124B was a 1630s horizon that lay directly on subsoil except where it covered Pit 3. The JR124D stratum was contained exclusively within the subsoil sides that formed the edges of Pit 3 and filled the top space of the pit. As the uppermost layer, it was cut by at least two later ditches and sealed by a deposit which all dated to 1630s or later. Thus, there were opportunities for some intrusive material to get mixed into JR124D. Further, the absence of brick in JR124D also may be indicative of an earlier rather than later date of deposition. The *Jamestown Rediscovery* project has shown that brick is a material more prevalent in post-original settlement (c. mid-1620s) features. Both JR124D and JR124F have little brick, while, in contrast, the superimposed JR124B layer and the two intrusive ditches contain comparatively much more brick. Given this situation, and that 99% of the artifacts

from JR124D date to the same time as JR124F, one could argue that JR124D should be considered as slightly tainted Pit 3 context.

Access to Pit 3 apparently was gained from the west where the edge of the pit was interrupted by a 2'6" wide section of undisturbed subsoil that sloped down into the pit (Fig. 9). This bank of subsoil could have been the foundation for wooden steps or a ramp. Whatever the exact date of construction for Pit 3, the inside of the bulwark at that time must have had a wooden platform rather than an earthen ramp, if it ever had an earthen ramp.

One of the ditches that cut through Pit 3 was the continuation of a zig-zag ditch (JR94G) that was found running north-south through the southeast bulwark. The zig-zag ditch is probably associated with a snake fence that likely marked a property line. Since the zig-zag ditch cut through both the bulwark trench and Pit 3, it must date to after the demise of James Fort. Spanish costrel and Jamestown potter sherds were recovered from the zig-zag ditch fill, suggesting it dates to the 2nd quarter of the 17th century.

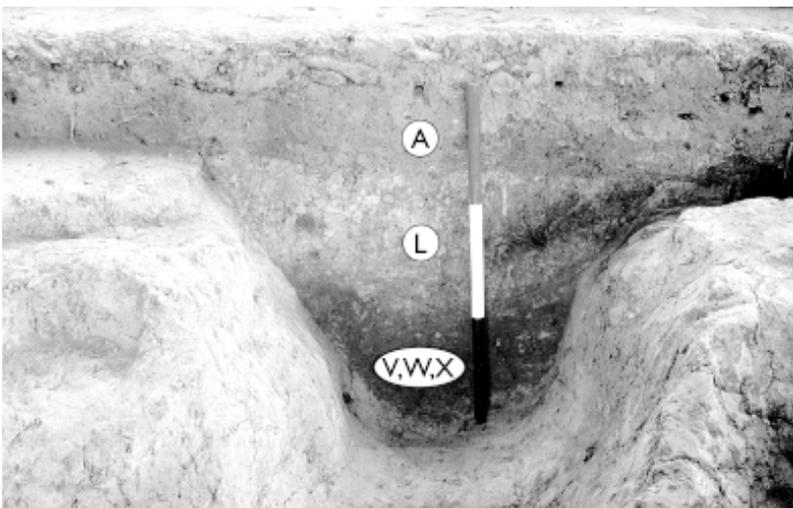


Figure 10. Stratigraphy of southeast bulwark trench, JR83: JR82A—plowzone, JR82L—yellow clay, JR82V,W, X—sandy brown loam.

A small part of Pit 3 was not excavated. The subsoil edges of the southwest perimeter of Pit 3 were never uncovered due to the deep and heavily disturbed fill above it. Perhaps a 2' wide band of the lower layers of Pit 3 remains along this side.

Southeast Bulwark Trench

The 1997 field season continued to follow the path of the 4' wide trench that was concentric to the bulwark palisade slot trench. After making approximately $\frac{1}{4}$ of a circle (the trace of the bulwark trench is actually more banana-shaped than round), the bulwark trench made a 90 degree turn to the east. It continued eastward for nearly 8', curving slightly to the south, where the south chimney foundation for Structure 163 removed most of the bulwark trench. If the floor construction of Structure 163 is not as deep as the bottom course of the chimney foundation, it is possible that the bottom few inches of the bulwark trace survive within the building. The bulwark trench at this point is nearly 2'6" deep below subsoil with tapering sides and a rounded bottom. It had two major fills, a lower deposit of sandy brown loam (JR82 V, W, X) and an upper layer of yellow clay (JR82L).

Southeast Bulwark Overview

The smooth and regular form of Pit 3 indicates that it was carefully constructed for some purpose and not simply a clay quarry. The distinction is readily apparent when Pit 3 is compared to the irregular shape and profiles of Pit 1 (JR1-4). It is also quite obvious that if the bulwark palisade slot trench were projected to make an unbroken circle, it would extend across the center of Pit 3, surely an illogical construction plan. Therefore, one of the following must be true:

- 1) the bulwark palisade slot trench did continue as an unbroken circle at one time, but it and Pit 3 are of different periods and did not co-exist, or
- 2) the bulwark palisade slot trench did not run as an unbroken circle, but stopped short of Pit 3, or
- 3) the bulwark palisade slot trench and the bulwark earthwork trench are contemporary, and the east curve of the bulwark earthwork trench is a modification to accommodate the addition of Pit 3.

A factor that severely hinders analyzing the sequence of the bulwark construction is the extensive



Figure 11. Detail of James Fort from Zuniga map.

loss of land at the south end of the site. Perhaps this is most evident in the postholes that were excavated within the bulwark. None of the postholes were more than 3"-4" deep, suggesting that at least 1' or more of grade has been lost. This is particularly troublesome when trying to assess the bulwark palisade slot trench. Does the slot trench stop where it does because it has been graded away and it is only a coincidence that this is the point where the bulwark earthwork trench turns east or did this happen by design? What is clear is that the c.1608 Zuniga map, the only known depiction of James Fort, shows round bulwarks at each corner. The scale of the actual drawing is so small however, that it likely precluded the inclusion of any details such as a protrusion on the southeast bulwark, if indeed one were present at the time the map originally was drawn.⁴

A round bulwark scenario might consist of a thesis that the first bulwark was erected with dispatch to complete the fort as quickly as possible and that the bulwark in this case was simply a round palisade as shown by Zuniga. This bulwark was replaced later by a more substantial bulwark, represented by the earthwork trench, and included Pit 3, while the complete trace of the palisade slot trench has been impacted by land loss. There is documentary evidence of several episodes of fort repair/rebuild during the first decade of settlement. The first time occurred after the great fire of 1608 when

"...this new supply being lodged with the rest, accidentally fired the quarters, and so the Towne;

*which being but thatched with reeds, the fire was so fierce as it burnt their pallisadoes (though 10. or 12 yarges distant), and their armes, bedding, apparell, and much private provision.”*⁵

Another occasion for extensive repair or modifications to James Fort was in the spring of 1610 when Thomas Gates and others who were shipwrecked on Bermuda in 1609 eventually made their way to Jamestown. The previous winter was the tragic “Starving Time” in Virginia and the new arrivals found the fort in ruinous condition with

*“...the palisades torn down, the ports open, the gates from off the hinges, and the empty houses (which owners had taken from them) rent up and burnt...”*⁶

Lord De La Warr, the new governor, landed shortly thereafter and had the fort repaired. More changes were made a year later when Sir Thomas Gates returned to Virginia:

*“The Towne [James Town] it selfe by the care and providence of Sir Thomas Gates, who for the most part had his chieftest residence there, is reduced into a handsome forme, and hath in it two faire rowes of houses, all of framed Timber, two stories, and an upper Garret, or Corne loft high, besides the three large, and substantial Storehouses, joyned 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 faire platforme for Ordnance in the west Bulwark raised.”*⁷

There is archaeological evidence that suggests that the bulwark earthwork trench was open before October of 1608. A layer of frothy slag-like material previously was excavated in the north end of the bulwark earthwork trench.⁸ Thought to be the waste from melting the raw materials to make glass, samples of the solidified froth were petrologically examined and found to contain more than 90% silica, confirming that this material is glass gall⁹ and therefore cannot date any earlier than the time of the arrival of the first glassmakers at Jamestown in the fall of 1608.¹⁰

A second possible scenario for the southeast bulwark is that since the earthwork trench and the palisade slot trench are concentric, they must be contemporary and therefore, since the bulwark trench honors Pit 3, Pit 3 is a first period feature. In this instance, the bulwark palisade slot trench either is the remains of a stockade erected on top of the earthen rampart, a very typical feature of fort construction of that period, or a retaining wall to hold

the earth of the rampart, also a common feature of earthen fort construction.

Another plausible scenario is that the greater depth of the eastward turn of the bulwark trench is a modification to accommodate a newly added Pit 3 into a round bulwark. In this case, both the palisade slot trench and the earthwork trench arc are first period fort features forming the north half of a round bulwark.

Pit 3 most likely functioned as some type of safe storage chamber or magazine. In the early 17th century, there were several different types of magazines for military supplies. Munition magazines were used to hold all sorts of military equipment except gunpowder. There was a munition magazine at James Fort, though the following account suggests that it was an above ground structure:

*“After we disembarked, which was on Monday, the following Thursday [7 January] there was a fire that spread so that all the houses in the fort were burned down, including the storehouse for munition and supplies, leaving only three [unburned].”*¹¹

Very little is known about English powder magazines before 1650.¹² In addition to security, gunpowder magazines were built to protect their contents from fire and water. There are examples of later powder magazines that are deep holes in the ground, however, they are well-lined to inhibit the development of moisture.¹³ One military historian suggests that Pit 3 was an expense magazine. This would have contained the provisions for immediate use by the gun crews of the southeast bulwark in case of attack. As they were expended, gunpowder and ammunition would be replenished from the main magazine.¹⁴

JAMES TOWN

Palisade (JR140-144)

A palisade slot trench was found perpendicular to the juncture of the east curtain and the southeast bulwark. The 1’0” wide trench extended off of a 1’9” gate framed by two distinct postholes, one at the south end of the east curtain (JR147A, B, C) and the second at the west end of the town palisade (JR140). This possible town palisade continued in a straight line for nearly 60’.

Trowel cleaning the trench revealed that it contained many obvious and generally round post-

Figure 12. In situ postmolds and partially removed construction fill from one side of slot trench in JR141.

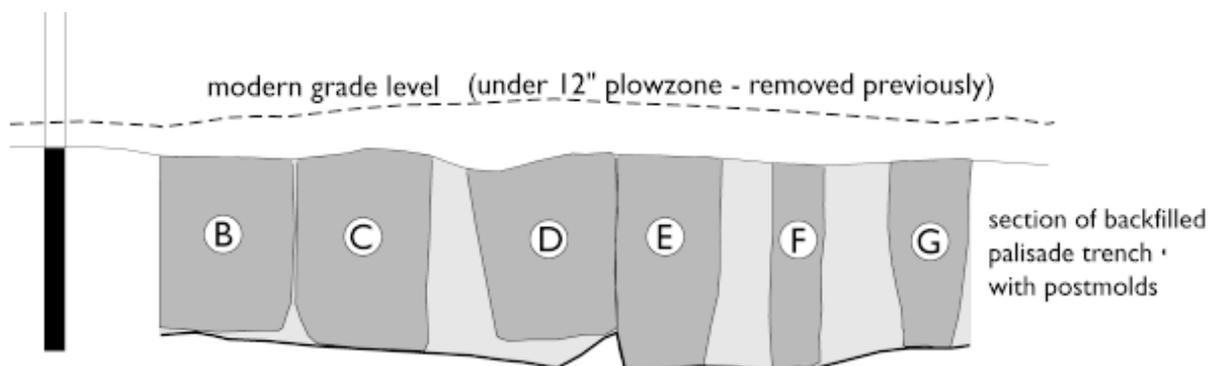


molds. The entire trench was excavated 1'-2" to further highlight the postmolds. The only artifacts found during this procedure were sherds of prehistoric pottery, flakes, and a lead drip, suggesting that the palisade indeed was constructed during the first years of the settlement. This early date was supported by a test excavation of the trench in which a 4' long section with 6 postmolds was bisected laterally down the center of the trench. The excavation of the section produced no European artifacts. Like the test of the east curtain slot trench north of the church tower, the section initially was dug from the outside, removing subsoil and the mottled yellow clay construction backfill, leaving the brown loam postmolds intact. Subsequently, a second lateral section was made through the center of the 6 postmolds. The postmolds were round and flat bottomed, most measuring 7"-9" in diameter. The palisade slot trench was 1'0" deep into the subsoil, which added to the 1'0" of overlying plowzone, proves that the

slot trench was originally at least 2'0" deep.

The palisade may be an enclosure surrounding the town that quickly grew up outside the confines of James Fort. John Smith's comments suggest that this may have occurred as early as the summer of 1608, the same time that he refers to the fort as being 5-sided.¹⁵ A rectangular palisade attached to the east wall of the triangular fort would create a 5-sided enclosure. This also would explain the previously discussed archaeological evidence of the east curtain being dug out not long after it was erected. Further, the highest ground, and thereby most suitable for building houses, is the ridge running from the church northeast to the present NPS Visitor Center. This, of course, is the ground outside the east curtain, and the area that this palisade seems to be protecting.

Figure 13. Lateral section through James Town palisade, JR141.



EARLY NEW TOWN

Structure 163 (JR100)

Structure 163 was a substantial post-James Fort building that disturbed part of the east bulwark of the fort. Its 30' east-west by 50' north-south footprint extended across the APVA property line onto NPS property, although approximately 90% of Structure 163 is on APVA land. A federal Antiquities Permit was granted by the NPS to *Jamestown Rediscovery* to dig test trenches on NPS property to locate the northeast corner of Structure 163. The location of the building was manifested by three types of backfill: brick rubble in the south half, yellow clay in much of the north half, and a dense concentration of clinker in the center. Structure 163 had at least one, and probably two chimneys on the west side.

The southwest corner of Structure 163 was archaeologically investigated in 1997. It was filled with a top layer of brown loam and brick bits (JR100A) over a layer of heavy brick rubble (JR100C). Cutting through the rubble was a robber's trench (JR100B) along the outside of the building whose foundations had been extensively salvaged. A section of the south foundation survived and showed that the building had a dry-laid cobble foundation that was 3'6" wide. The brick chimney base foundation measured 8' by 6' and about one-half of the last course of brick remained *in situ*. Part

of the last course was left, showing that the foundation was 1 and ½ bricks wide. Stone was used instead of half-bricks on the outside of some of the chimney base foundation.

Careful cleaning and removal of the brick rubble uncovered sections of fallen, but articulated brickwork. These, in turn, lay on ash layer which painstaking excavation with small tools and a heavy-duty vacuum cleaner revealed a clear grid of burned timbers and boards that were the remains of the wooden floor. Other architectural details also were exposed by careful excavation. The front of the fireplace contained what seems to be part of a herring-bone pattern of Dutch bricks that might have been a hearth. Near these were 8 red clay bricks, the same size as the Dutch brick, that also formed some type of paving. Large numbers of Dutch bricks were found along the chimney base and adjoining wall lines. Fragments of pantiles and pieces of square brick pavers were recovered from the rubble layer as well, all suggesting a building that was quite architecturally advanced for its time in Virginia. Preliminary dating evidence consists of the fact that Structure 163 cuts through the bulwark earthwork trench, indicating that it was built after the demise of James Fort in the mid-1620s. The absence of any wine bottle glass in the fill excavated off the southwest corner of the building suggests that Structure 163 was abandoned before c.1650.

Midden I (JR83M, P, Q, R; JR93F-H, J-N, Q, R, V; JR94E-H; JR124A, B)

An extensive deposit of refuse was encountered off the southwest corner of Structure 163. The various component layers generally were a rich brown loam heavily laden with tobacco pipes and ceramics, animal bone including many cow bones, oyster shell, and charcoal. The datable artifacts suggest that the midden was deposited during the 1630s and 1640s. It may be related to nearby Structure 163, although at this time, there is no conclusive evidence to determine whether the midden preceded Structure 163 or accumulated during the occupation of Structure 163.



Figure 14. Cobblestone foundation, brick chimney base and charred remains of wooden floor, southwest corner of Structure 163.

HUMAN BURIALS

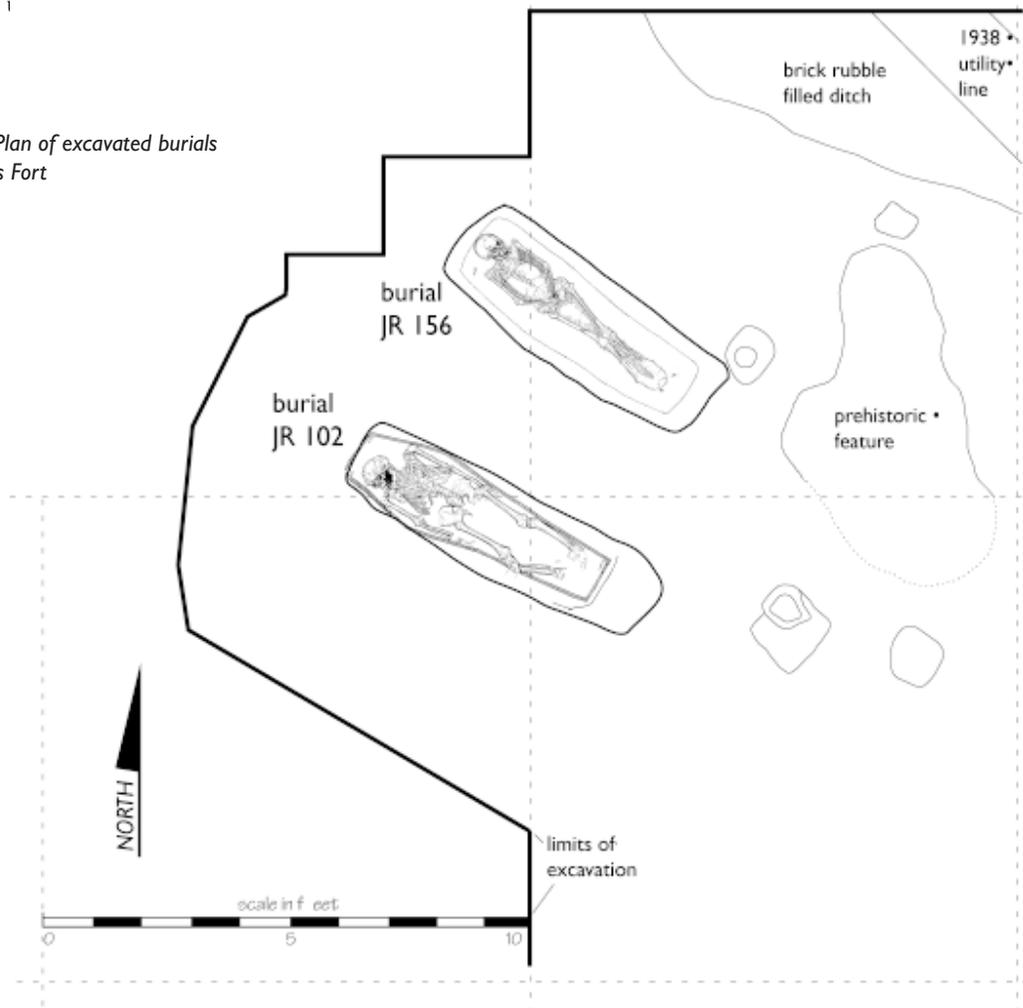
Prior to the 1997 field season, two human burials had been found, but only one was excavated. JR102C was found in the southeast corner of James Fort. The skeleton was that of a Caucasian male, about 19-22 years old and approximately 5'6" tall. The grave was oriented with the head at the west end. Soil stains and nails *in situ* indicated that the individual was buried in a wooden coffin, while a straight pin found at the skull and a copper stain near the right knee implied that the body had been wrapped in a shroud. A .60 caliber musket ball and 21 small pieces of lead in the right knee revealed that the cause of death was a devastating gunshot wound.¹⁶ The paucity European artifacts found in the burial fill suggested a very early date of interment; arguably sometime before 1610 and more likely during the first year or two of settlement. A second burial was discovered in a test trench (JR91) in the church yard south of the church tower while tracing the slot trench for the east curtain. Oriented east-west, it is 1

Burial 2 (JR156C)

A burial was found in a decayed coffin 3' north of Burial JR102C and excavated in 1997. The 6' long and 2'3" wide rectangular grave shaft was nearly aligned with Burial JR102C, though not exactly parallel. The long axis of JR102C was 62 degrees west of north while JR156C was 53 degrees west of north. Like JR102C, most of JR156C had been covered by the gravel road that led to the pre-1925 steamboat landing and, consequently, the burial fill was compacted.

The top layer in the burial was a 4" thick layer of brown loam (JR156A), most likely plowzone that washed into a shallow depression that formed after the wooden coffin eventually deteriorated and collapsed and the original burial fill subsided. Below this was the primary burial fill (JR156B), a 7"-1'2" thick layer of dark orange clayey sand mottled with

Figure 15. Plan of excavated burials inside James Fort



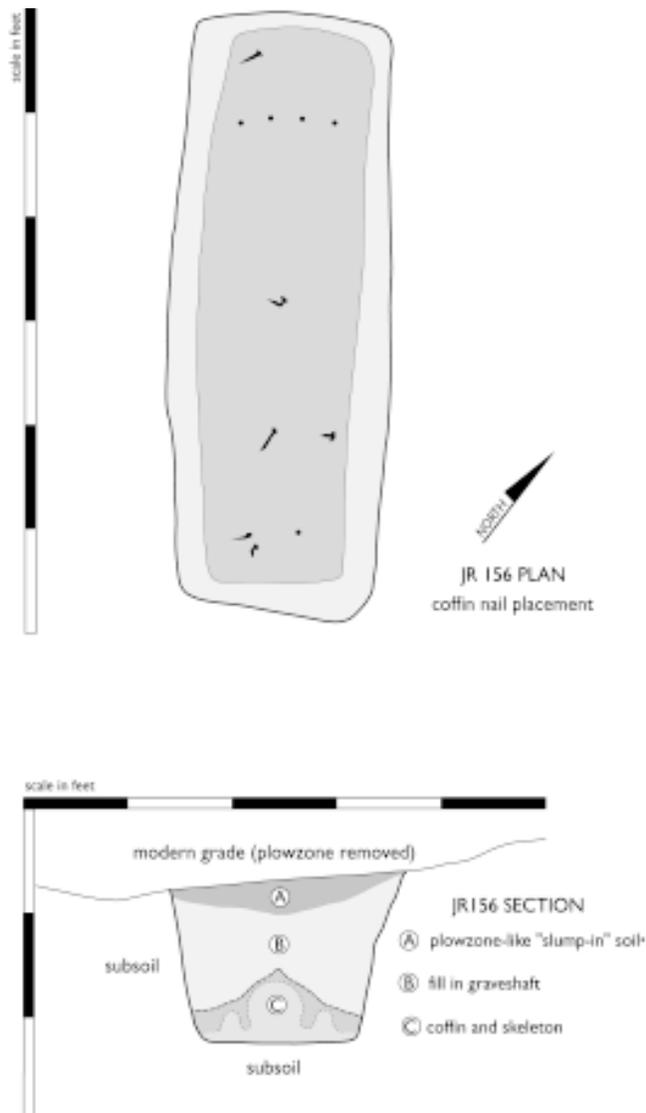


Figure 16. Plan of nails and section of Burial 2.

dark sandy loam flecked with brick or daub and charcoal. This layer, which was the subsoil excavated to make the grave shaft and subsequently redeposited back into the grave on top of the coffin, contained 93 historic artifacts including a lead ball, 6 lead shot, 2 brass rivets, a copper scrap, 2 pipestem fragments, 5 glass beads, a glass doublet button, 8 nail fragments, 4 Border ware sherds, 2 delftware sherds, 1 Martincamp sherd, 1 North Devon plain sherd, 1 crucible sherd, 5 case bottle fragments, brick nuggets and pieces of clinker. This collection stands in conspicuous contrast to the neighboring grave, JR102, whose grave shaft fill (JR102B, C) yielded only 15 nail fragments (many assuredly from the decomposed coffin), 9 lead shot, 2 straight pins, 1 aiglet, 1 Border ware sherd, 1 Nueva Cadiz bead, and 1 jetton.



Figure 17. Skeletal remains of Burial 2, JR156C

The preliminary analysis indicated that the individual was a Caucasian woman, about 35 years old, and about 4'8" tall. She had only 5 teeth at the time of her death and several of her tooth sockets were completely healed over.¹⁷ The coffin had collapsed and several large pieces of wood were lying on the skeleton. Scientific analysis of the wood indicated that it was yellow pine.¹⁸ Several nails were found in a line down the center of the coffin, suggesting that the coffin had a gable lid. The use of a coffin in the burial suggests that the woman was someone of status.

Documents indicate the first English women at Jamestown were Mistress Forest and Anne Burras who landed with the Second Supply in October of 1608.¹⁹ Anne Burras is known to have married John Laydon and both listed as living in Elizabeth City

in the 1625 Muster.²⁰ In contrast, Mistress Forest, almost certainly the wife of gentleman Thomas Forest, is never mentioned again in the historical record, implying that she died soon after her arrival at Jamestown.

The archaeological evidence suggests that both this woman and JR102C were people of status, which may explain why they were buried inside the fort, perhaps near the earliest church. However, they may have been buried inside the fort because at times, it was unsafe to linger outside the fort during the first years of the settlement. This danger period seems to have lasted only until 1610 when the Jamestown colonists destroyed the Paspahugh village,²¹ an event that corresponds with the absence of any further reports of Powhatan attacks on James Fort.

TESTING AT THE YEARDLEY HOUSE

It became apparent from the profusion of artifacts recovered during the first four years of *Jamestown Rediscovery* that the Dale House artifact and conservation laboratory would soon be inadequate to store the *Jamestown Rediscovery* artifact collection. The APVA decided to build a new wing on to the 1907 Yeardley House that would contain a state-of-the-art storage facility. The new wing, a replica of the original house, would be located on the north side of the original house and addition.

The footprint of the new Yeardley House wing, which included the location where J.C. Harrington found a large ditch in 1939, was tested in 1997.²² Four test trenches (JR500-503) were excavated to check the paths of the foundation construction trenches and the area in the center of the building. The north side of the Yeardley House was found to be severely disturbed and there were several utility trenches that criss-crossed the area. Surprisingly, no colonial plowzone or old topsoil was found anywhere, nor were any 17th-century artifacts found despite ¼" screening of the excavated soil. In fact, there were very few artifacts of any kind. It seems that the entire area was graded at the time of the construction of the Yeardley House which would explain why all the strata above subsoil dated to the 20th century and the complete absence of any colonial artifacts. Based on these

findings, the remainder of the wing footprint was excavated using a backhoe and then hand cleaned to look for features.

Test trench JR503 intersected the wide trench found by Harrington. A section through the 10'6" wide trench showed that it was almost 3' deep and filled primarily with sandy orange clay and various hues of light grey and brown sandy loam threaded with sand laminations. No artifacts were recovered from the fill. The "Harrington trench" was also found in the mechanically expanded test trench JR500, giving the trench a northeast-southwest orientation. It is possible that the trench was part of the defenses constructed at Jamestown in 1676 during Bacon's Rebellion, or that it was a major property boundary. The northeast-southwest orientation of the trench, if unchanging, would carry it to the last statehouse which one assumes would have been protected during the conflict. The foundation of the new wing of the Yeardley House spanned the "Harrington trench" which will remain preserved beneath the foundation and crawl space of the addition.

OFFSHORE TESTING

Gerald Johnson of the Geology Department at the College of William and Mary tested the river bottom offshore from the James Fort site in an effort to determine the amount of erosion that has occurred off Church Point during the last 400 years. Six vibracores were taken at 75' and 125' intervals in a line about 150' offshore and parallel to the seawall. The cores revealed a deeply buried sand layer representing an earlier beach of unknown date that accumulated over an ancient swamp deposit.²³ Two samples of wood found in the vibracores in the layer above the sand layer were radiocarbon dated and returned dates of 2000 +/- 40 BP and 2140 +/- 40 BP.²⁴

Figure 18. Profile of "Harrington trench" in Yeardley House yard.



SELECTED ARTIFACTS

FROM PIT 3

Beads

Eighty-nine beads were recovered from Pit 3 including 82 made of glass, 2 lapidary, 2 fashioned of shell, and 3 copper beads.

The disc shell beads each measure 3 mm in diameter and were most likely produced by Native Americans. These thin white beads do not appear in the archaeological record until the Late Woodland Period. Some researchers believe that perhaps the technology to manufacture them was not possible until Contact and European tools could be used. Their presence at Jamestown in a 1607-1610 context may help to substantiate this idea.

The tubular copper beads were manufactured by the colonists as trade items from sheet copper they brought from Europe.²⁵ There is no evidence that the colonists were also producing the glass beads despite the fact that crucibles containing molten glass and sand, glass cullet, and glass gall all point to the glassmakers working within the fort soon after their arrival in 1608.

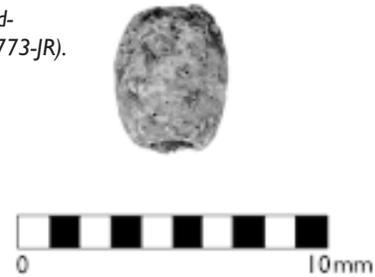
The discussion that follows for the glass and lapidary beads is derived from an unpublished report prepared for the APVA by Heather Lapham.²⁶ This analysis is preliminary and ongoing as every feature adds more beads to the assemblage, now numbering close to 600. However, this study of Pit 3 is valuable for bead scholars as it provides a tightly dateable context, c.1607-1610, for this bead sequence.

All the glass beads from the pit were identified and typed according to the Kidd and Kidd classification system for beads.²⁷ This system, which is based on manufacturing techniques and physical characteristics, provides a standard by which the beads can be compared throughout the site and with assemblages elsewhere in eastern North America.

All but one bead (773-JR) from Pit 3 could be identified according to the typology. The anomalous bead is a light maize mold-pressed bead as described by Karlis Karklins' re-evaluation of the Kidd's classification system.²⁸ Of the remaining glass beads, 80 are drawn and 1 is wound. Drawn beads, which are the most common on 17th-century sites, were

formed by two glassworkers pulling a glass ball formed from molten glass into a long hollow tube about 50' in length. The cooled tube was then broken into bead lengths, creating many beads. Wound beads had to be produced one at a time. Molten glass was wrapped around a thin metal rod and rotated above a flame to shape the bead and to add layers. The Kidd and Kidd system designates wound beads by the prefix *W*.

Figure 19. Mold-pressed bead (773-JR).



The most common type of glass bead from the pit, comprising 29.3% of the assemblage, is widely known as the Nueva Cadiz bead. The name is derived from an island of the coast of Venezuela where the beads were first discovered in a 16th-century Spanish port. They have traditionally been associated with Spanish explorations and colonization of southeastern North America, Mexico and South America in the early to middle 16th century. These beads also occur on late 16th and early 17th century sites in eastern North America. There are distinct differences in color and color sequences between the early "Spanish" beads and those found later so it may be possible to develop a typology of this type.

Figure 20. Two types of Nueva Cadiz beads found at Jamestown, Kidd IIIc1 (top) and Kidd IIIc3 (bottom).



The Nueva Cadiz beads come in two varieties: IIIc1 (17.1%) which are square tubular turquoise beads, and IIIc3 (12.2%) which are square tubular navy blue beads. They all exhibit ground ends and all but one are composed of three layers of glass. A unique IIIc1 bead (454-JR) consists of five layers: turquoise, white, turquoise, white, turquoise.

The turquoise IIIc1 beads, with an average length of 15.7 mm, tend to be larger than the navy blue variety IIIc3 which have an average length of 10.6 mm. A similar pattern has been recorded with the early 16th-century Neuva Cadiz beads in Peru.²⁹

Nueva Cadiz beads have been located on several northeastern early 17th-century Native American sites.³⁰ Seventy-eight Nueva Cadiz beads have been recovered from the James Fort site thus far. Besides being found in much larger quantities than any other site in the northeast, these beads differ in two substantial ways. The IIIc1 beads are smaller in size, particularly diameter, and the IIIc3 variety is not found in any other northeastern assemblage.

Pit 3 also yielded bead types that are fairly common in eastern North American areas of early 17th-century trade. Kidd variety IIa56 (circular navy blue beads) comprising 12.2% of the assemblage, IIa13 (round white beads) making up 20%, and IIa40 (round robin's egg blue) which are 9.8% of the total, are among these. Many of the latter exhibited evidence of a *speo* heat rounding. In this method, beads are altered on a spit rotating in a furnace. This process of rounding results in partial fusion between some of the beads and projecting "tails" of glass on one end.

The IIa56 beads are remarkable for their small size, measuring between 2 and 3 mm. This may be

Figure 21. Common 17th-century bead types recovered from Pit 3. Row 1: Kidd IIb18, Kidd IIa56, Kidd IIa40; Row 2: Kidd IIa15, Kidd IIa28, Kidd IIa55; Row 3: Kidd Iva19, Kidd IIa57, Kidd IIa13.

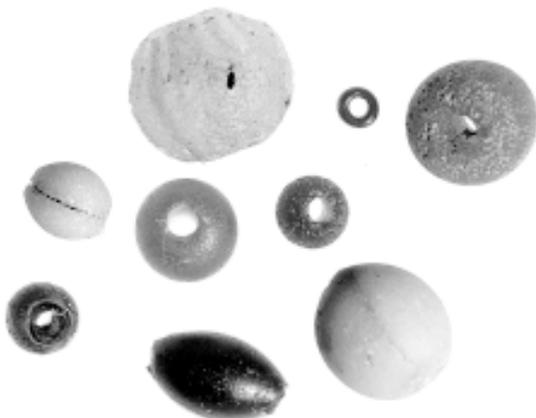
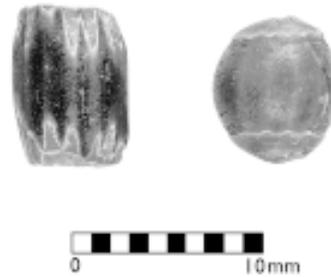


Figure 22. Chevron beads: Kidd IIIm1 (left) and Kidd IVk2 (right).



result of the archaeological retrieval methods, which included fine mesh water screening.

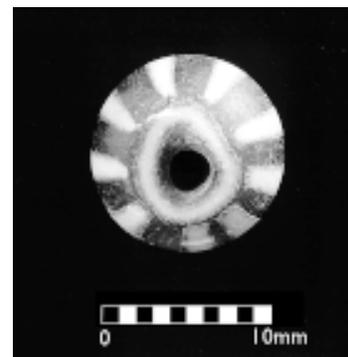
One-half of a "gooseberry" bead, Kidd variety IIb18, was found in Pit 3. The half contained 6 stripes. In the southeastern regions of the United States, gooseberries have been found as late as the mid 18th century³¹ while in the northeast this variety clusters in the late 16th and early 17th centuries.³²

Four chevron beads, exhibiting distinct star-like patterns when viewed from the end, were identified. Three are tubular Kidd type IIIm1 beads and are comprised of seven glass layers with faceted or ground ends. This is characteristic of the 16th-century chevron beads. The fourth bead (IVk2) is more typical of the early 17th century chevrons.³³ It is round and made up of only five layers.

The first type IVb35 bead to be found at the site was recovered from Pit 3. It is a large round dark navy bead with 9 simple white stripes. It is a variant of the Kidd typology in that it has more stripes and a translucent turquoise blue interior rather than dark navy.

The single wound bead in the pit is a melon-shaped, light maize bead with molded impressions of alternating vertical ridges and twisted rope designs. Kidd WIIe is the closest variety for this bead. It appears very similar to the seven oaks gilded

Figure 23. The only Kidd type IVb35 bead recovered from the Jamestown Rediscovery project area to date.



GLASS BEADS FROM PIT 3

Kidd Variety	Description	Count	%
Ila13	Small to medium, round, opaque white bead.	16	20
Ila15	Small to medium, oval, opaque white bead.	6	7.3
Ila28	Medium, round, translucent dark palm green bead.	3	3.7
Ila40	Small to medium, round, semi-translucent/opaque robin's egg blue bead.	8	9.8
Ila55	Small to medium, round, translucent brite navy to deep navy blue bead.	3	3.7
Ila56	Very small to small, circular, translucent brite navy to deep navy blue bead.	10	12.2
Ila57	Small, oval, translucent navy blue bead.	1	1.2
Iib18	Medium to large, round, colorless bead with eight, eleven, or twelve opaque white stripes. Commonly called gooseberry beads.	1	1.2
IIIc1	Medium to very large, square-tubular, translucent turquoise blue bead comprised of three glass layers: translucent turquoise blue/opaque white/translucent turquoise blue. Commonly called Nueva Cadiz beads.	14	17.1
IIIc3	Medium to large, square-tubular, translucent navy blue bead comprised of three glass layers: translucent navy/opaque white/transparent light aqua green. Commonly called Nueva Cadiz beads.	10	12.2
IIIml	Medium to very large, tubular, translucent navy blue bead comprised of seven glass layers: translucent navy blue/opaque white/opaque redwood/opaque white/translucent navy blue/opaque white/translucent navy blue. Commonly called chevron beads.	3	3.7
IVa19	Small, circular, translucent navy blue bead comprised of three glass layers: translucent navy blue/opaque white/translucent navy blue.	3	3.7
IVb35*	Large, round clear dark navy bead with 9 simple white stripes; comprised of 3 layers: dark navy, white, translucent turquoise blue.(*More stripes and different interior color than Kidd IVb35 variety.)	1	1.2
IVk2	Medium, clear brite navy bead consisting of five layers: brite navy, white, brite blue, white, light gray. The outside layer is very thin making ridges of next layer appear as stripes. Commonly called a chevron bead.	1	1.2
WIIe*	Large, melon-shaped, translucent/opaque light maize beads with alternating vertical ridges and "twisted rope" molded impressions. Similar to a bead identified as a 'seven oaks gilded molded' depicted in Smith (1983:Figure 1, Row 4). (*No specific Kidd variety is available).	1	1.2
MB1b	Mold-pressed plain monochrome oval bead. (This is not a Kidd variety but a modification as described in Karlis Karklins [1985].)	1	1.2
Total Glass Beads in Pit 3			82



Figure 24. The single wound bead, Kidd Wille, from Pit 3.

molded bead that has been found in association with Spanish settlements in Florida and Georgia.³⁴

Two lapidary beads are also part of the assemblage. One is a round faceted quartz crystal measuring 13.4 mm in diameter. This type of bead “is one of the best-known lapidary-bead varieties of the Spanish colonial era”.³⁵ Found in the southeastern United States in contexts dating to the last half of the 16th century, this sophisticated bead is thought by some researchers to have been reserved for special gifts.³⁶

The other lapidary bead is an irregular nugget-shaped carnelian bead measuring 7.9 mm in diameter. It is possibly faceted although the wear makes that difficult to determine with certainty. Carnelian beads occur most frequently on 18th-century Spanish sites in an elongated, tapered, rectangular form. The few carnelian beads from the 16th century reflect a flat square or diamond-shape more akin to the bead from Pit 3.³⁷

This preliminary analysis of the beads from Pit 3 provides a view of the types of beads the colonists were trading with the Indians during the first few years of settlement. The similarities with assemblages

Figure 25. Two lapidary beads from Pit 3: round faceted quartz crystal (left); irregular nugget-shaped carnelian (right).



from 16th-century Spanish exploration and settlements are interesting and bear further study. Some of the varieties, particularly the Nueva Cadiz, gooseberry and seven-layer chevron beads, have also been reported on sites in the Netherlands. This possibly indicates that the beads were all manufactured at the same place. Venice dominated the glass beadmaking industry in 16th-century Europe and it is likely that it became the source for all the “trading kits” carried by Europeans attempting to barter with Native American populations. Questions of source and date will continue to be asked of the bead data as more examples are excavated from sealed contexts.

Jettons

Ninety jettons or casting counters have been recovered from the excavations so far. Twenty per cent (n=18) of them were found in Pit 3. Seventeen of the Pit 3 jettons were produced by Hans Krauwinckel II, a Nuremberg jetton master from 1586 to 1635. Krauwinckel spelled his first name *Hanns* to distinguish his work from that of his uncle Hans Krauwinckel I. His jettons are well made with regular die axes reflecting the reforms instituted in the Krauwinckel workshops during the 1580s.³⁸

As described in the 1995 *Interim Report*, jettons are accounting aids used during calculations with Roman numerals.³⁹ Their presence in such large numbers on early 17th-century Virginia sites may not be solely the result of the need for an ocular arithmetic, however. Jettons were widely used in the seventeenth and eighteenth centuries as gaming tokens. In addition, as cheap copper objects, the jettons would make attractive trade items for the Indians who desired copper.

All of the Krauwinckel jettons are of the *rose and orb* variety and all but one have the master’s name on the reverse with the orb and the legend on the obverse with the crowns. Five different legends are employed: *GOTES REICH BLIBT EWICH* [God’s kingdom lasts forever] (n=8); *GOTES SEGEN MACHT REICH* [God’s words bring riches] (n=5); *GOTT ALLEIN DIE EERESEI* [Honor God alone] (n=2); *DAS WORT GOTES BLIBT EWICK* [The word of God lasts forever] (n=1); and *HEVT RODT MORGENTODT* [Today red tomorrow dead] (n=1).

One jetton was made in France for the use of the *Conseil du Roi* in King Henry III’s administration, 1574 - 1589. On the obverse it has a crowned shield



Figure 26. Obverse and reverse of copper jetton made in Nuremberg, Germany, by Hans Krauwinckel II.

of France bearing 3 *lis* enclosed in the collar of the Order of St. Michael with the legend: *NIL NISI CONSILIO*, loosely translated as *Only with Counsel*. The reverse bears three crowns with the legend *MANET VLTIMA COELO*. This could mean *The Final Hope is in Heaven* as most of the jettons have inspirational admonitions on one side. On the other hand, this could be a witty pun by the jetton's maker for *coelo* also means "engraving tool" i.e., *The Final Hope is in the engraving tool!* The jetton was probably produced in the Paris mint which was "responsible for producing all jetons destined for use in the various offices of the Central Administration and for all local bodies of the Paris region, both public and private".⁴⁰

Figure 27. Obverse of copper jetton made for the administration of France's king Henry III c. 1574-1589.



Finger Rings

Three finger rings were excavated from Pit 3. Two are base metal decorative rings made in imitation of precious metal examples and the third is a merchant's brass signet ring.

One of the decorative rings is made of brass with the round-sectioned hoop and bezel cast in one piece. The round bezel has beading around the 8mm diameter opening which once held a gemstone or paste jewel.

The second decorative ring is made of lead. The hoop, bezel and setting are cast as one piece and the casting seams are still apparent running up over the square bezel and square-cut setting. Lead finger rings have been found in London contexts as early as the 10th century and they continued to be popular among the common folk as substitutes for silver.⁴¹

Rings were very popular adornment during the 16th and 17th centuries. It was not uncommon for men and women to wear rings on every finger of each hand, excepting the middle finger but including the thumb. Rings were often given as mementos and when they did not fit the finger "they were worn elsewhere—on the hat, ruff, ears and on the sleeve".⁴²

The signet ring has a simple round-sectioned hoop with a round bezel. It is engraved with a



Figure 28. Top: brass finger ring (634-JR) missing setting; bottom: lead finger ring (645-JR).





Figure 29. Portrait of Sir Henry Lee, champion to Queen Elizabeth, wearing rings on his fingers and on strings around his neck, arm, and wrist.

merchant's mark within a beaded border. The mark, which is in reverse so it will be positive when stamped, consists of a 4 whose vertical stroke is flanked by double crosses. This type of mark was originally used in Europe as a personal symbol to mark property and as a legally recognized signature before the time of widespread literacy. Merchants used them "to mark their products or containers, thereby guaranteeing the quality of their production".⁴³ A similar ring was excavated from the 1653 shipwreck of the Dutch East Indiaman *Lastdrager* and is believed to be Dutch.⁴⁴

The ring's presence at Jamestown may not mean that the tradesman owning the ring was there. It may have been carried by a factor to show that he was empowered to conduct official business on the merchant's behalf.

Figure 30. Brass signet ring bearing a merchant's mark (568-JR).



Crucifix

A cast lead crucifix found in Pit 3 hints at the belief systems of some of the colonists which, unless recorded in their own words, would be unknown to us today.

The crucifix, which has a very long vertical element, bears three figures: the body of Christ beneath a horizontal plaque, a praying woman—probably Mary—and what appears to be a death's head above crossed bones. This latter symbol represents immortality and was used on crucifixes from the 15th to the 17th centuries.⁴⁵

The crucifix is not pierced for wearing on a chain and there is presently no visible means of attachment on the back. Crucifixes adorned the exterior of bibles and collection boxes. They were also sometimes worn in hats as signs of pilgrimage to European shrines and other religious sites. Another possibility is that the crucifix formed part of a rosary. Other artifacts that may be rosary-related have been excavated from plowzone contexts at James Fort. These include two faceted jet beads and a small brass medallion. "Jet was used in Spain from the sixteenth century onward for pendants as well as for beads and was particularly popular for use in rosaries and for other religious or magical items. A string of jet beads attached to a crucifix was found in a late 17th-century burial at St. Augustine."⁴⁶

The small oval brass medallion (609-JR) bears the head of Jesus with a rayed mandala on one side and the head of Mary, similarly attired, on the other. A comparable medallion, with a different design, was excavated in association with what appear to be jet rosary beads from a 1656 Dutch ship, *Vergulde Draeck*.⁴⁷ These small religious medallions have also been found on Spanish shipwrecks including the *Santo Christo de Castello* (mid 17th century) and the *Atocha* (1622).



Figure 31. Cast lead crucifix in two pieces (912-JR).



Figure 32. Two jet rosary beads (516-JR and 504-JR) and a small brass religious medallion (609-JR).

Four pewter medallions with the same design as JR182 were recovered from the Spanish Armada shipwreck *Girona*.⁴⁸

While common enough on sites where Catholicism is practiced, crucifixes are very rare discoveries in post-Reformation English contexts.⁴⁹ Perhaps its presence at Jamestown can be explained by the very nature of the colonial experience. The perils and uncertainties of life would provide a ripe environment for reliance on amulets, including religious symbols, for bodily protection. On the other hand, Anglicanism in this early time period was struggling to define itself and perhaps a symbol from the Catholic Church would not be considered so unusual. After all, the Church of England was not essentially a *new* church but a reformed perpetuation of the Church of Rome. While Elizabeth I had wished the new liturgy to sound Protestant, she perpetuated the ritual of the Catholic Church, even maintaining a crucifix on her altar. By the end of her reign, there were as many religious conversions back to Catholicism as there were to Protestantism. Elizabeth's paradoxical orthodoxy continued under James I for, as a Scottish Protestant, he was committed to Calvinist theology, but he was also a proponent of the Church of England's idea of Royal Supremacy.⁵⁰

Finally, it must be remembered that there were a number of individuals at Jamestown who came from countries other than England that were still Catholic. The crucifix could have easily belonged to one of them. For instance, current research indicates that the three German glassmakers that arrived in 1608

were possibly from Grossalmerode, a Catholic area of Germany near Kassel. Another possibility is the Irish Catholic named Francisco Maguel who spent a year in Virginia. He was present at Jamestown when Captain George Kendall, whom he identifies as a *Catholic English captain*, was executed for mutiny in 1607.⁵¹

Tobacco Pipes

Clay tobacco pipes identified as English, Dutch, and of local manufacture have been recovered from Pit 3.

The Dutch pipes consist of two molded stems with baroque decoration from JR124D and a complete burnished tobacco pipe from JR124F. The baroque pipes date no earlier than 1630⁵² and can thus be considered part of the intrusive material that found its way into this layer. The burnished pipe bowl is cut off plain at the opening with no milling around the rim. It also has a crowned rose maker's mark on the heel. This is one of the earliest symbols used on Dutch pipes, although not all include a crown. It is believed that the mark originated with English pipemakers working in the Netherlands in the beginning of the 17th century. The mark quickly became popular and was used by Dutch pipemakers into mid century.⁵³

There are seven English marked pipes from the contexts included in Pit 3. Four of these pipes were found in JR124D and bear heel marks (*RC*, *WC*, and *EL*) placing them in the second quarter of the 17th century. These are among the intrusive materials from the D layer. The three remaining marked pipes are from JR124F and are among the earliest known London marks. Two bear the incuse initials *IR* that may stand for London pipemaker John Rosse. This mark has been found in pre-1610 contexts, as has the other mark, which is an incuse oak leaf.⁵⁴ Both of these marks occur on pipes recovered from Basing House in Hampshire, England, whose occupation covers the late 16th and early 17th centuries.⁵⁵

By far the most interesting pipes are among the locally made examples, particularly the 23 fragments



Figure 33. Complete Dutch clay tobacco pipe with a crowned rose maker's mark (877-JR).

bearing the stamp of what may be the first European tobacco pipemaker in the New World. Robert Cotton is identified as a *Tobacco-pipe-maker* on John Smith's list of individuals who arrived at Jamestown on the *Phoenix* in January 1608.⁵⁶ No other mention is made of Cotton so it is not known how long he remained at Jamestown or if he actually practiced his trade in the colony. He is not mentioned in the muster of 1624-25 so presumably he has either perished or returned to England by then. With archival information lacking, the material evidence in the way of very accomplished mold-made clay tobacco pipes fabricated from the Virginia red clay and decorated on the stem with European stamps may provide the sole documentation for this early craftsman's work. These distinctive pipes only occur in the early James Fort features dating no later than 1610—Pits 1, 3, and 4—and have not been recorded on any other early Virginia sites.

Samples of these pipes were submitted for analysis to determine if the clay was from the Jamestown area. Kimberly Schlusser, a geology student at the College of William and Mary, synthesized the pipe data from binocular microscope, X-ray diffraction, neutron activation analysis and textural analysis for her senior thesis. Her findings, which are on file with *Jamestown Rediscovery*, are consistent with the tobacco pipes being local products.

The decorative marks on the pipes are of two types and must have been applied by small metal stamps to the leather-hard pipe once it was removed from the mold. Sometimes the pipe stems are octagonally faceted before they are stamped. The faceted pipe stems go from octagonal to round, just as a 17th-century musket barrel, before the stem end.

The stamps consist of four *fleur-de-lis* forming a cross within a diamond-shaped cartouche. The sides of the diamond are incurving as on the 1580-1610 pipes thought to be the product of William Batchelor.⁵⁷ Batchelor was a London pipemaker as must have been Robert Cotton. Clay tobacco

pipemaking began as an industry in London in the latter half of the 16th century and was almost entirely restricted there by monopoly until the second decade of the 17th century.⁵⁸ Another indication of London influence is seen in Cotton's mark. It reflects the decoration on late 16th- and early 17th-century London pipes which most often take the form of incuse "diamond patterns enclosing initials, crosses or *fleur-de-lis*" on the stems.⁵⁹

The most commonly used mark, Type 1 (n=22), consists of **incuse** stylized *fleur-de-lis*; while, the second mark, Type 2 (n=2), has relief *fleur-de-lis* with broader leaves. Accompanying the Type 2 mark is a secondary stamp of the same broad-leaf *fleur-de-lis* but incuse and without the surrounding diamond. The Type 1 mark is usually applied around the stem in rows of 3 to 4 impressions which, if applied carefully, result in a negative pattern of rows of circles. Sometimes the area of stem on the bottom of the pipe is left unmarked. Type 2 is usually applied very geometrically: two of the diamond stamps and two of the plain stamps are impressed to form a larger diamond or four of the diamond stamps are impressed to form a diamond shape.

At least two two-piece molds appear to have been used to form the pipes. This is reflected in the measurement of the angle of the bowl to the stem taken along the lower planes. Five of the pipes had enough of the bowl remaining to take this measurement. Two of them were molded with the bowl at a 132° angle to the stem. Both of these pipes had a stem hole diameter measurement of 5/64". The remaining three measurable pipes were molded with bowls at a 117° angle to the stem. These pipes had stem hole diameter measurements of 6/64". It is not known if this statistic is significant since so few of the stems included enough of the bowl to calculate the angle.

Two of the pipes had complete bowls, one measuring 22mm in length and the other 23mm in length. There were no complete stems but an idea

Figure 34. Faceted Robert Cotton tobacco pipe (527-JR), bearing the Type 1 mark.



Figure 35. Left: the Type 1 mark. Right: the Type 2 mark appearing on Robert Cotton clay tobacco pipes.

of length is suggested by a Robert Cotton pipe excavated recently from Pit 4 which has an incomplete stem measuring 88mm in length.

Nineteen of the pipes had stems complete enough to measure the stem hole diameter (SHD). Eight of these measure 5/64" and 10 measure 6/64". The one measurable pipe with the Type 2 mark measures 8/64th of an inch. This substantially large stem hole with the different decoration may be important but until more pipes can be studied with the Type 2 mark this can not be established.

This is just a preliminary study of what appears to be one of the first crafts practiced in the Jamestown colony. It has long been known from the records that there was a pipemaker in the colony during its first year of existence but until now his products were unknown. The presence of this craftsman at early Jamestown and the fact that he practiced his craft could indicate how important smoking was to the early colonists. They knew they were coming to a place where tobacco was readily available. Not only was tobacco known as an intoxicant,

*the fuming vapor of tabacco wil cause some to be drunke, & to have a reeling giddines in their heads...*⁶⁰

but it was also considered by many to be a medicine in the early 17th century.

*The drie leaves of Tabacco are good to be used, taken in a pipe set on fire, and suckt into the stomacke, and thrust forth againe at the nostrrels against the paines of the head, rheumes, aches in any part of the body....*⁶¹

Did the Virginia Company include Cotton among the first craftsmen as a way to keep the colonists happy and healthy? Was the assurance that the

colonists would have the proper instruments with which to consume the weed a medical move? Or was a pipemaker sent to Virginia upon the insistence of the gentlemen among whom smoking was a fashionable pastime? Perhaps Cotton's role was similar to the jeweler Daniel Stallings—to make trade items that the indigenous population would accept in exchange for food? Clay Native American pipes are certainly known from this period and Cotton's products seem to be a melding of the native and English traditions.

As Pit 4 is excavated there should be more data to add to the present study, perhaps even pipe wasters or pipemaking tools. From pits 1, 3, and 4 there are fragments that appear to be of the same fabric as the Robert Cotton pipes that are mending into objects that look like pipemaking saggars. A saggar is a portable clay container in which the pipes would have been fired to keep them out of direct contact with the fire. This piece of kiln furniture would be particularly necessary if the pipemaker were sharing his furnace with another craftsman. Tobacco pipes have been found with glazed products in English 17th-century kilns.⁶²

The saggars appear to have been unused, as there is no fire damage to the outer surfaces. One is cylindrical with cutouts and buttresses on at last two sides. The earliest archaeologically recovered cylindrical saggar is from Barnstaple in North Devon, dated by pipe typology to c. 1610-30.⁶³ A pipe from the saggar has a maker's mark on the heel of LC. Is this just coincidence, or could the C stand for Cotton and represent another pipemaker in Robert Cotton's family? These and other questions will be addressed as excavation and research continue.

Figure 36. Robert Cotton tobacco pipes showing the bowl-to-stem angles created by two different pipe molds.

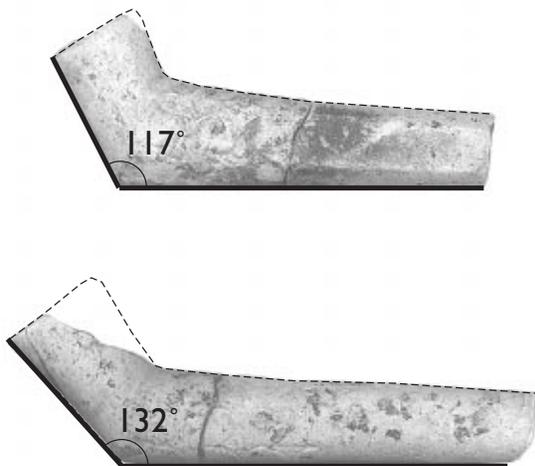


Figure 37. Fragments of a clay saggar probably made by Robert Cotton to fire his clay pipes.



ANALYSIS OF ROBERT COTTON PIPES FROM PIT 3

Context	Stamp Type	Description of Impressed Mark	SHD
JR69E	1	5 columns of 3 rows, not stamped on base; negative space forms circles	5/64
JR69E	1	5 columns of 3 rows, not stamped on base; negative space forms circles; 132° bowl-stem angle	5/64
JR69E	1	5 columns of 4 rows (incomplete); not stamped on base; octagonal faceting with unequal facets; negative space forms circles	6/64
JR69E	1	7 columns of 4 rows; not stamped on base; negative space of first two rows forms circles, last two rows form undulating lines which meet and move away from each other; 117° bowl-stem angle	6/64
JR69F	1	5 columns of 3 rows; not stamped on base; negative space forms circles	6/64
JR69F-124F	1	5 columns of 3 rows and 1 column of 2 rows; stamped all the way around stem; octagonal faceting with unequal facets; 117° bowl-stem angle; complete bowl, 23mm long	6/64
JR69F	1	Deeply impressed fragment	n/a
JR69F	1	5 columns of 3 rows; not stamped on base; octagonal faceting with unequal facets; 117° bowl-stem angle; complete bowl, 22mm long	6/64
JR124D	1	5 columns of 3 rows (incomplete); stamped all the way around stem	5/64
JR124D	2	Fragment	n/a
JR124F	1	6 columns of varying rows: 3-1-3-1-3-3; two stamps impressed at angle; stamped all the way around	5/64
JR124F	1	5 columns of 3 rows; not stamped on base; negative space forms circles	5/64
JR124F	2	4 stamps impressed to form diamond, 1 stamped singly (inc.); stamped all the way around	8/64
JR124F	1	8 columns of 3 rows (inc.), stamped all the way around; octagonal faceting with unequal facets; negative space forms circles	6/64
JR124F	1	5 columns of 3 rows, 1 column of 2; not stamped on base; negative space forms circles; 132° bowl-stem angle	5/64
JR124F	1	3 columns (incomplete); not stamped on base	6/64
JR124F	1	5 columns (incomplete); stamped all the way around	6/64
JR124F	1	5 columns of 3 rows; not stamped on base	6/64
JR124F	1	4 columns (incomplete), stamped all the way around	6/64
JR124F	1	Fragment	n/a
JR124F	1	6 columns of varying rows: 3-3-3-2-1-2; stamped all the way around	5/64
JR124F	1	Fragment	n/a
JR124H	1	6 columns (incomplete); stamped all the way around	5/64

NOTES

¹ William Strachey, "A True Reportory of the Wreck and Redemption of Sir Thomas Gates, Knight," in *A Voyage to Virginia in 1609*, ed. Louis B. Wright (Charlottesville, VA: Univ. Press of Virginia, 1964), 79-81.

² William M. Kelso and Beverly A. Straube. 1996 *Interim Report on the APVA Excavations at Jamestown, VA* (Richmond VA: Association for the Preservation of Virginia Antiquities, 1997), 12-13.

³ Dennis Blanton. JR98 Excavation Report (On file, APVA *Jamestown Rediscovery*, 1998).

⁴ Conventional wisdom is that the Zuniga map was made by copying John Smith's map of Virginia.

⁵ Philip L. Barbour, ed., *The Complete Works of Captain John Smith (1580-1631)* (Chapel Hill: The Univ. of North Carolina Press, 1986), 1:217.

⁶ Strachey, 64.

⁷ Ralph Hamor, *A True Discourse of the Present Estate of Virginia* in Barbour, II:242.

⁸ Kelso and Straube, 5-7; Nicholas Lucchetti and Beverly Straube. 1995 *Interim Report, Jamestown Rediscovery* (Richmond VA: Association for the Preservation of Virginia Antiquities, 1996), 46-48.

⁹ Dr. Glen Izett, personal communication, 1997.

¹⁰ Barbour, II:180181.

¹¹ Philip L. Barbour, ed., *The Jamestown Voyages under the First Charter 1606-1609* (Cambridge: The University Press, 1969), 69.

¹² Andrew Saunders, personal communication, 1997.

¹³ For example, powder magazines at Fort Michilmackinac in MI and Fort Chiswell in VA.

¹⁴ John Kenyon, personal communication, 1997.

¹⁵ Barbour, 1986, II:325.

¹⁶ Kelso and Straube, 10-11.

¹⁷ Douglas Owsley, personal communication, 1998.

¹⁸ Emily Williams, Colonial Williamsburg Foundation, personal communication, 1998.

¹⁹ Barbour, 1986, I:242.

²⁰ Annie Lash Jester and Martha Woodroof Hiden, *Adventurers of Purse and Person Virginia 1607-1625* (Richmond, VA: Order of First Families of Virginia, 1964), 49.

²¹ Barbour, 1986, II:236.

²² J.C. Harrington, "Memorandum for the Superintendent" (on file, APVA *Jamestown Rediscovery*), 1939.

²³ Gerald Johnson, "Preliminary Report on Jamestown Rediscovery Vibracores" (on file, APVA *Jamestown Rediscovery*), 1997.

²⁴ Testing done by Beta Analytical Inc., Feb. 19, 1998, Sample 1: 2000 +/- 40 BP, Sample 2: 2140 +/- 40 BP.

²⁵ Lucchetti and Straube, 43-47.

²⁶ Heather Lapham. *Glass beads from 1607 James Fort, Jamestown, Virginia* (Report submitted to the Association for the Preservation of Virginia Antiquities, 1998).

²⁷ Kenneth Kidd and Martha Kidd. "A classification

system for glass beads for the use of field archaeologists," *Canadian Historic Sites; Occasional Papers in Archaeology and History* (Ottawa: Parks Canada, 1970), 1:45-89. Reprinted in *Proceedings of the 1982 Glass Bead Conference*, Research Records 16 (Rochester: Rochester Museum and Science, 1983), 219-258.

²⁸ Karlis Karklins. "Guide to the description and classification of glass beads." In *Glass Beads*, 2nd edition. Studies in Archaeology, Architecture and History (Ottawa: Parks Canada, 1985).

²⁹ Marvin Smith and Mary Elizabeth Good. *Early Seventeenth Century Glass Beads in the Spanish Colonial Trade* (Greenwood: Cottonlandia Museum Publications, 1982), 53.

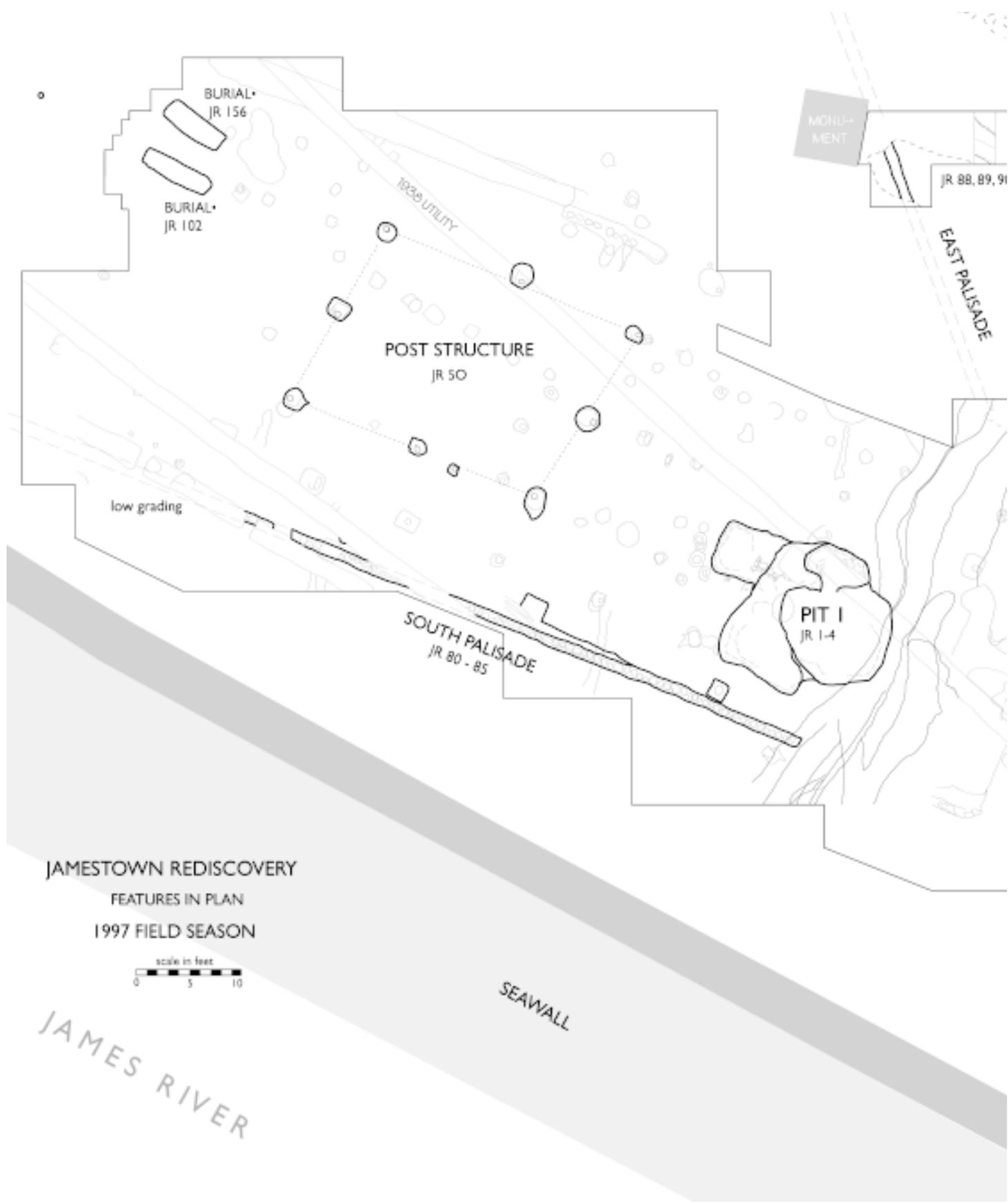
³⁰ Gerald Fenstermaker. "Early Susquehannock Iroquois colored trade bead chart, 1550," *Archaeological Research Booklets III* (Lancaster: 1974); Ira Smith and Jeffrey Graybill. "A report on the Shenks Ferry and Susquehannock components at the Funk site, Lancaster county, Pennsylvania," *Man in the Northeast* (1977), 13:45-65.; Heather Lapham. "The analysis of European glass trade beads recovered from Monogahela sites in Greene county, Pennsylvania" (Report submitted to the Bead Society of Greater Washington, Washington, D.C., 1995).; Martha Sempowski. "Early historic exchange between the Seneca and the Susquehannock," *Proceedings of the 1992 People to People Conference*. Research Records 23, (Rochester: Rochester Museum and Science Center, 1992).; Charles Wray, Martha Sempowski and Lorraine Saunders. *Tram and Cameron: Two Early Contact Era Sites*. Research Records 21 (Rochester: Rochester Museum and Science Center, 1991).; Smith and Good: 51-52.

³¹ Henry Miller, Dennis Pogue, and Michael Smolek, "Beads from the seventeenth century Chesapeake," *Proceedings of the 1982 Glass Bead Conference*, Research Records 16 (Rochester: Rochester Museum and Science, 1983), 127-144. Marvin Smith. "Chronology from glass beads: the Spanish period in the southeast, c.A.D. 1513-1670," *Proceedings of the 1982 Glass Bead Conference*, Research Records 16 (Rochester: Rochester Museum and Science Division, 1983), 147-158.

³² Ian Kenyon and William Fitzgerald. "Dutch glass beads in the northeast: an Ontario perspective," *Man in the Northeast* 32 (1986), 1-34. Charles Wray. "Seneca Glass Trade Beads c.A.D. 1550-1820," *Proceedings of the 1982 Glass Bead Conference*, Research Records 16 (Rochester: Rochester Museum and Science Division, 1983), 41-49.

³³ Marvin Smith. "The chevron trade bead in North America," *The Bead Journal* 3(1) (1976), 15. Smith, 1983: 148.

- ³⁴ Smith, 1983.
- ³⁵ Kathleen Deagan. *Artifacts of the Spanish colonies of Florida and the Caribbean, 1500-1800* (Washington, D.C.: Smithsonian Institution Press, 1987), 180.
- ³⁶ Jeffery Brain. *Tunica Treasures* (Cambridge, MA: The Peabody Museum of Archaeology and Ethnography, Harvard University, 1979).
- ³⁷ Deagan, 182
- ³⁸ Michael Mitchiner. *Jetons, Medalets & Tokens: The Medieval Period and Nuremberg* (London: Seaby, 1988), 1:320.
- ³⁹ Lucchetti and Straube, 25.
- ⁴⁰ Mitchiner, 1:979.
- ⁴¹ Geoff Egan and Frances Pritchard, *Dress Accessories c. 1150-1450* (London: HMSO, 1991), 334.
- ⁴² Diana Scarisbrick. *Tudor and Jacobean Jewellery* (London: Tate Publishing, 1995), 93.
- ⁴³ Robert Sténuit. "Early Relics of the VOC trade from Shetland: The wreck of the flute *Lastdrager* lost off Yell, 1653," *The International Journal of Nautical Archaeology and Underwater Exploration* (1974) 3.2:243.
- ⁴⁴ Jeremy N. Green. *The Loss of the Verenigde Oostindische compagnie jacht "Vergulde Draeck, Western Australia 1656*, BAR Supplementary Series 36(1) (1977), 449.
- ⁴⁵ Anonymous, *The Coinhunter Magazine*. (1995) 53: 7.
- ⁴⁶ Deagan, 182-183.
- ⁴⁷ Green, 223.
- ⁴⁸ Laurence Flanagan. *Ireland's Armada Legacy* (Dublin: Gill and Macmillan Ltd., 1988), 179.
- ⁴⁹ Egan, personal communication, 1997.
- ⁵⁰ Kevin Sharpe, "Stuart Monarchy and Political Culture" in John Morrill ed., *The Oxford Illustrated History of Tudor and Stuart Britain* (Oxford: Oxford University Press, 1996).
- ⁵¹ Philip L. Barbour. "Captain George Kendall: Mutineer or Intelligencer?" *The Virginia Magazine of History and Biography*, (1962) LXX:312.
- ⁵² D.H. Duco, *De Nederlandse Kleipijp* (Leiden: Stichting Pijpenkabinet, 1987), 88.
- ⁵³ Duco, 72.
- ⁵⁴ Adrian Oswald. *Clay pipes for the Archeologist*, British Archaeological Reports 14 (1975), 34.
- ⁵⁵ Stephen Moorhouse. "Finds from Basing House, Hampshire (c. 1540-1645): Part Two," *Post Medieval Archaeology* (1971) 5:74-75.
- ⁵⁶ Barbour, II:162.
- ⁵⁷ Oswald, 76.
- ⁵⁸ Colin Andrew Tatam. "The Clay Tobacco Pipe Industry in the Parish of Newington, Southwark, London," *The Archaeology of the Clay Tobacco Pipe XIII*, ed. by Peter Davey. BAR British Series 239, (1994), 5. D.J. Markell. "The Clay Tobacco Pipes," in Ian P. Horsey. *Excavations in Poole 1973-1983* (Dorchester: Dorset History and Archaeological Society, 1992), 159.
- ⁵⁹ Oswald, 96.
- ⁶⁰ Edmund Garniner (1611) *Physicall and Approved Medicines*. The English Experience Number 191 (New York: Da Capo Press, 1969), 53.
- ⁶¹ Garniner, 18.
- ⁶² Allan Peacey. "The development of the tobacco pipe kiln in the British Isles," *Internet Archaeology 1:1.1.2* (<http://intarch.ac.uk/journal/issue/1/Peacey/furn.html>).
- ⁶³ Peacey, 1:6 (<http://intarch.ac.uk/journal/issue/1/Peacey/ch5a.html>).



JAMESTOWN REDISCOVERY
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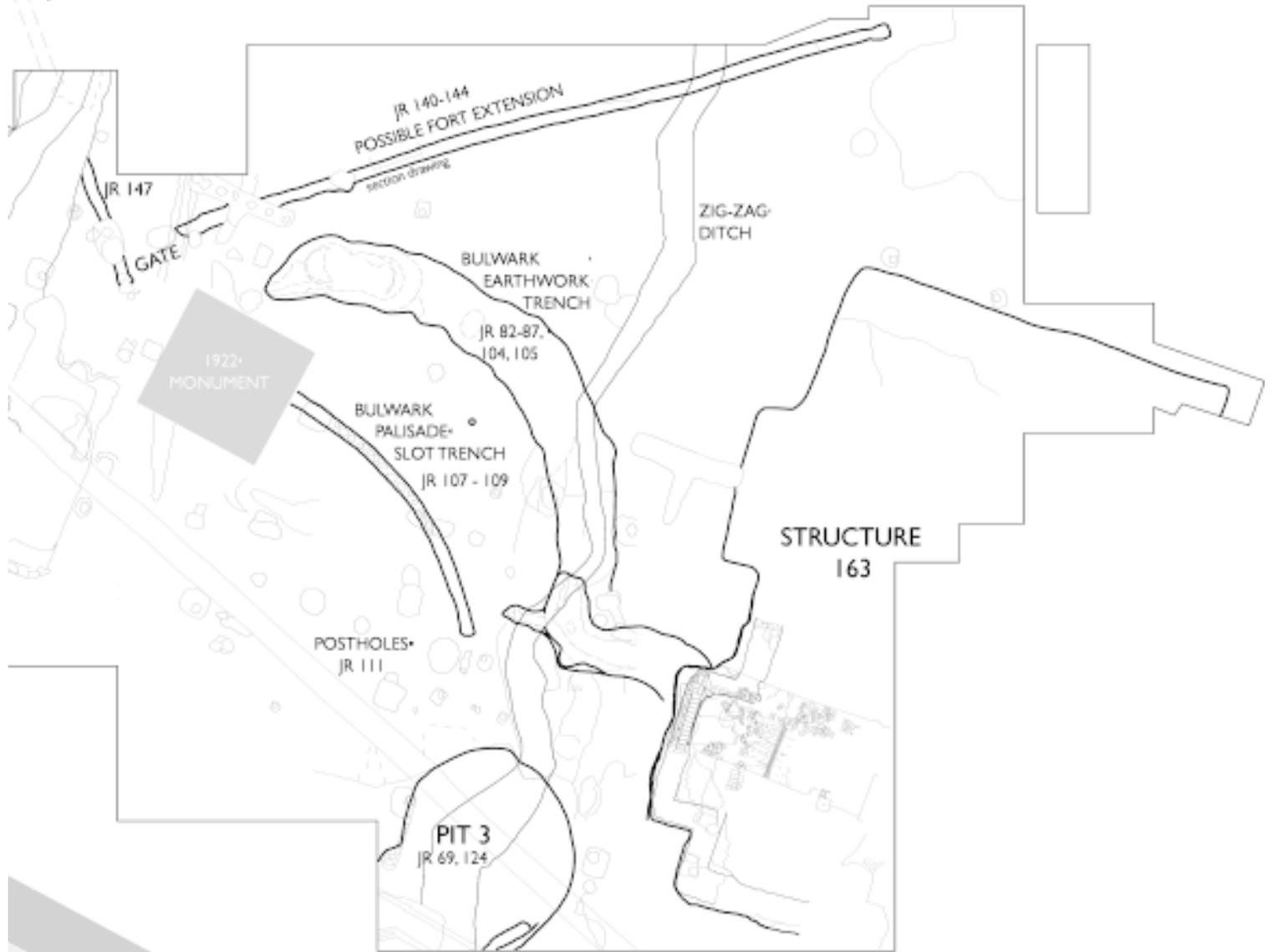
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