

A Report on the 1998 Archaeological Investigations at the Brimstone Hill Fortress National Park, St. Kitts, West Indies

Brimstone Hill Archaeological Project Report No. 12

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By

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Dr. Gerald F. Schroedl, Associate Professor of Anthropology, University of Tennessee, is the principal investigator and director of archaeological studies at Brimstone Hill, and Mr. Todd Ahlman, graduate student in Anthropology, is Assistant Project Director and in charge of artifact analysis. Dr. Walter Klippel, Professor of Anthropology, University of Tennessee, is responsible for the identification and analysis of faunal remains recovered at the site. He carried out on-site faunal studies and gathered important comparative specimens in 1998. Ms. Ashley McKeown, graduate student in Anthropology, provides analysis of human skeletal remains. In 1998, Ms.

Judy Patterson, graduate student in Anthropology, assisted with the excavations and the analysis of the artifacts. Eight students enrolled in the University of Tennessee's archaeological field school participated in the project as did seven St. Kitts high school students from the Sandy Point, Old Road, and Basseterre communities.

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Abstract

Archaeological investigations were carried out at the Brimstone Hill Fortress National Park on the eastern Caribbean island of St. Kitts from June 3 to July 9, 1998. Excavations focused on an area (designated site BSH 2) located between the Orillon and Magazine Bastions on the west side of the fortress. This area was selected for study because a 1791 military engineers map indicates it was the location of four buildings occupied or utilized by slaves. Forty-eight one meter pits were excavated to complete the excavations of one building and to expose one wall and two corners of a second building. Further excavations to identify the locations of the other two buildings were unsuccessful. A surface collection also was made of the area from the top of the curtain wall connecting the two bastions and extending upslope to the base of the Prince of Wales Bastion. This was designated site BSH 3. Approximately 25,000 artifacts were recovered, cleaned, and identified by project personnel. These remains indicate that African slaves occupied or utilized this area of the site. Refuse discarded by British soldiers also contributes to the abundance of artifacts and the complexity of the archaeological deposits.

Introduction

Archaeological studies at the Brimstone Hill Fortress in June and July 1998 constitute the third field season conducted at the site. The general goals of the Brimstone Hill Fortress archaeological project are to: (1) discover and document the role African slaves played in the fort's construction and maintenance; (2) provide accurate information about the architecture of individual structures used or occupied by slaves so that they can be properly restored for visitation by the public; (3) demonstrate that the heritage of Brimstone Hill is as much African-Caribbean as it is Colonial British; (4) provide the people of St. Kitts information which they can use to better understand and appreciate their own culture heritage.

In 1997 and again in 1998 archaeological studies focused on site BSH 2. BSH 2, is situated outside the defensive curtain wall connecting the Orillon and Magazine Bastions on the west side of the fortress. The specific goal of investigations here is to document the remains of four buildings that are shown on a 1791 military engineer's map, and that were occupied or utilized by African slaves. These structures are identified as a workshop, a kitchen, and two hospitals. The buildings also appear on a mid 1790s watercolor of the fortress attributed to Lieutenant James Lee. The painting, however, shows the structures as three connected buildings rather than four separate buildings as depicted on the 1791 map (Schroedl 1998). One of the hospital buildings (Structure 1) was partly excavated and the location of the workshop building (Structure 2) was determined in 1997.

The specific objectives of the 1998 excavations at BSH 2 were to: (1) complete the excavation of Structure 1; (2) further investigate Structure 2 to determine its size, orientation, and architectural characteristics; and (3) identify the locations of two additional structures, the kitchen and second hospital shown on the 1791 map.

Additional objectives included excavating test pits above the curtain wall connecting the Orillon and Magazine Bastions. The purpose of this work was to determine if any traces of a barracks building shown on the 1791 map could be located.

An accidental fire in late May 1998 removed most of the vegetation above the defensive wall connecting the two bastions. This provided the opportunity to conduct a surface collection in this area which was given a new site number, BSH 3. The site includes the ground from the defensive wall upslope as far as the base of the Prince of Wales Bastion and between the access roads to both the north and south. Three one meter test pits also were excavated at the site. The materials from the surface collected area and the test pits here are important to the overall project goals because artifacts from this area were discarded over the defensive wall and are now incorporated in the sediments being excavated at BSH 2.

The 1998 excavations produced a large artifact sample which when combine with materials recovered in previous years, totals over 50,000 objects. Most artifacts are ceramic and metal objects constituting debris deposited by British soldiers. Importantly, among the artifacts are locally made ceramics and modified European ceramics that were produced by African slaves. Also recovered are abundant debris from the manufacture of bone buttons. This was a primary activity conducted in and around the structures at the site and African slaves undoubtedly were engaged in this work. Faunal remains also include numerous bones from small fishes probably consumed by African slaves.

The Brimstone Hill studies are unique in addressing the role of African slaves in the context of Colonial British military organization. The work thus far has produced artifactual and architectural data relating to African slaves at the fortress. Eventually, the research should make it possible to describe and interpret the organization of slave life at the fort, the interaction of slaves and British soldiers, and the relationship of

these patterns to the broader scale of colonial and plantation society that existed on St. Kitts in the eighteenth and nineteenth centuries

Excavation and Laboratory Methods

At Brimstone Hill the protocol for field studies is to excavate in 1 by 1 meter squares and to remove the soil in 10 cm arbitrary levels. Levels are established with an optical transit level and are measured from a datum arbitrarily assigned an elevation of 100.0 m (see Schroedl 1997).

Deposits at Brimstone Hill generally consist of a matrix of loose, very fine loam and sandy loam sediments containing abundant rocks. The rocks are angular and range from small pebble and gravel size pieces to large cobbles and small boulders. Most rocks represent geologic debris, and are mineralogically andesite, the material which forms Brimstone Hill. Additional rocks represent debris from the preparation of areas for construction and from the preparation of individual stones used in building structures.

Because the deposits are so rocky and because they contain numerous artifacts from the occupation of the fort, excavations are done almost exclusively using trowels and dustpans. Excavated deposits are placed in buckets which are then screened through quarter inch mesh screen. All artifacts which include ceramics (European and locally manufactured), glass, metal, and animal bone are placed in paper level bags marked with the appropriate provenience data--site name, unit coordinates, level number and elevations, date, and the names of the excavators. Completed level bags are transported to a field laboratory where all but the animal bones are washed in plain water, sorted into their constituent categories, and placed in appropriately labeled plastic bags or vials for further identification and analysis. In 1998, accession numbers, consisting of the year followed by consecutively assigned numbers, were given to all individually recorded proveniences. The number 96-023, for example, refers to a level excavated

in 1996, while numbers preceded by 97 or 98 refer to proveniences recorded in these years.

In addition to using the procedures described above, Levels 4, 7, and 8 in unit 206-207N/100-101W were screened through eighth and sixteenth inch mess screen in 1998. Each level contained 60 to 80 liters of sediments and had previously been screened through quarter inch mesh. By doing this it was possible to recover small animal remains, including the scales and bones of small fishes, incisors of sheep and goats, and the bones of small mammals and birds that normally pass through the large sized screen. These materials are especially important for identifying and interpreting the diets of both African slaves and British soldiers

Once the excavations were complete all associations of architectural elements and occupational debris that were designated as portions of structures or features were drawn at scale of 1:10 cm. Stratigraphic profiles were recorded at the same scale and the excavated buildings and their associated features were photographed.

Excavations at BSH 2

The excavation grid used at BSH 2 consists of one meter squares which are designated by north or west coordinates. West grid lines run approximately parallel with the fortification wall and have progressively higher numbers in a westerly direction. North grid lines run approximately perpendicular to the wall and progressively increase in a northerly direction. All vertical measurements are obtained from a datum at grid coordinate 200N/100W that is arbitrarily assigned an elevation of 100 m. The datum is approximately equidistant from the two bastions and approximately 4.5 m from the fortification wall.

Five one meter test pits were excavated at BSH 2 in 1996. In 1997, one to ten arbitrary excavation levels were removed in 34 excavation units. A total of 159 levels

or approximately 15.9 m³ of sediments was excavated and screened at the site. In 1998, a total of 48 units were excavated using one to twelve levels. A total of 223 levels or approximately 22.3 m³ of sediments were processed at the site. Individual squares and levels are listed in Appendix A. Excavations of Structure 1, identified as a hospital building, were completed, and the north wall and segments of two other walls of Structure 2, identified as a workshop, was uncovered.

Stratigraphic Profiles

The recorded stratigraphy essentially documents the deposits in the vicinity of Structures 2 and the test excavations to locate the kitchen and second hospital building north of Structure 1. North-south profiles record the stratigraphy parallel to the long axis of Structures 1 and 2 and to the curtain wall connecting the Orillon and Magazine Bastions. East-west profiles record deposits perpendicular to these features.

Each profile records site deposits distinguished on the basis of color, consistency, compactness, and predominance of associated debris, especially the size and number of rocks, and the occurrence of artifacts, especially glass bottle fragments, ceramics, and pieces of iron.

The profiles, particularly the east-west profiles at 199N/103-105W and 208N/100-107 and the north-south profile at 206-208N/100W record the accumulation of debris immediately adjacent to the east wall of Structure 2 and show how these deposits accumulated over the top of the ruins of the building (Table 1). Profiles between 220W and 225N and 101W and 104W record sediments excavated to locate the kitchen building, while profiles between 231N and 232N and 101W and 106W show stratigraphy of excavations used to search for the second hospital structure. The locations of neither the kitchen nor second hospital was confirmed.

Table 1. Stratigraphic Profiles recorded at BSH 2 in 1998

North-South Profiles		East-West Profiles	
West Coordinates	North Coordinates	North Coordinates	West Coordinates
100W	206-208N	199N	101-102W
101W	199-200N	199N	103-105W
102W	199-200N	200N	101-102W
103W	199-201N	206N	100-101W
105W	199-202N	208N	100-107W
101W	220-221N	220N	101-102W
101W	222-223N	220N	103-104W
101W	224-225N	221N	101-102W
102W	220-221N	221N	103-104W
102W	224-225N	222N	101-104W
103W	220-221N	223N	101-104W
103W	224-225N	224N	101-102W
104W	220-221N	224N	103-104W
104W	222-223N	225N	101-102W
104W	224-225N	225N	103-104W
101W	231-232N	231N	101-102W
		231N	103-106W

Features

Eight specific occurrences previously were recorded as features in 1997. Five of these represent architectural elements or debris associated with Structure 1, while two of these, a stone wall (Feature 7) and a mortar floor (Feature 8) are associated with Structure 2. In 1998, six additional features were recorded at BSH 2. Two of these are associated with Structure 1, while the other four represent architectural elements of Structure 2.

Feature 9

Feature 9 is a square postmold measuring 40 cm on a side and 29 cm deep located in the floor of Structure 1. The feature is located 3.0 m from the inside south wall, 2.5 m from the inside north wall, and 65 cm from the inside east wall. Its position in relationship to the north, south and east walls make it likely that a second post occurred in a similar relationship to the structure's west wall. A second postmold, if present, has been eroded away.

Feature 10

Feature 10 is the outline of an oval pit immediately exterior to the south wall of Structure 1 in 209-210N/102-105W. The pit extends into the adjacent unexcavated units. The observed portion of the feature indicates that it is slightly more than 130 cm long and 54 cm wide. Using a soil probe, its estimated depth is 84 cm. The shape, size, and depth of the feature suggest that this may have been used as a burial pit. The pit is intrusive from the same elevation as Structure 1, indicating that the use of both are contemporary.

Feature 11

Feature 11 represents a mortar floor and drain exterior to the northeast corner of Structure 2. The drain runs along the base of the wall, and the mortar floor extends into the profile of 206-208N/100-101W. The drain is 8 to 10 cm wide and 3 to 4 cm deep. The mortar floor articulates with a large limestone outcrop that separates Structure 1 from Structure 2.

Feature 12

Feature 12 is a 1.18 m segment of the east wall of Structure 2. The wall is made from subangular cut stones set in mortar. At the northeast corner of the building the

foundation rests on a cut rectangular limestone block measuring 47 cm long by 21 cm wide by 27 cm high. The maximum exterior height of the wall is 33 cm and its maximum width is 48 cm. There is a 20 cm wide mortar sill, similar to the one recorded for the east wall of Structure 1. The sill forms a 35 degree slope to the building's exterior.

Feature 13

Feature 13 represents the north wall of Structure 2. It is 6.23 m long and 40 to 45 cm wide. For about 2.3 m from the structure's northeast corner, the wall is constructed of cut stones comparable to the east wall. Here the large boulder or limestone outcrop between Structures 1 and 2 has been modified to accommodate the wall, and there is a narrow drain between the rock and the wall that was formed by cutting into the outcrop. The remainder of the wall is deteriorated and less well defined.

Feature 14

Feature 14 is a remnant of the south wall of Structure 2. It consists of mortared rubble, measuring 92 cm long and 32 cm wide. This articulates with a deposit of small angular pebbles and mortar, measuring 90 cm by 48 cm, that probably represents a portion of the structure's floor. In cross section, the stratigraphy suggests a possible, but poorly defined, builders trench associated with the wall.

Structures

The 1791 military engineer's map of Brimstone Hill shows four buildings positioned approximately equidistant from the Orillon and Magazine Bastions and approximately 4 m from the defensive wall connecting them. From north to south these are respectively a hospital, a kitchen, a second hospital, and a workshop. Excavations of the hospital situated between the kitchen and workshop and designated Structure 1 were

completed in 1998. The workshop building or Structure 2 was partly uncovered. Seven excavation units were placed immediately north of Structure 1 between coordinates 220N and 225N and 101W and 104W to find the kitchen building. No evidence of the building was identified. To look for the other hospital building, four excavation units were placed between coordinates 231-232N and 101W to 106W. Rocks on the surface suggested a possible structure wall at this location, but none was found in the excavations, and no other features relating to a building in this area of the site was discovered.

Structure 1 (Hospital Building)

The excavated hospital measures 6.5 m (21 ft) long and approximately 5 m (16 ft) wide. It consists of a narrow mortar and rubble stone foundation 20-30 cm wide. There is a carefully constructed 30 cm wide exterior mortar sill running the length of the east wall. The sill also is present on a segment of the south wall but was not observed on the north wall. No wall openings were detected in the excavated portion of the building. The west wall and as much as 50 percent or more of the building's floor on the downslope or west side has been lost to erosion. The structure floor is hard-packed mortar which was directly placed on indurated mortar and mortar rubble which served to level the area for construction of the building. Excavations suggest that this deposit is a meter or more thick. There is a single square postmold (Feature 9) equidistant from the north and south walls and 65 cm from the east wall. This suggests that a second postmold, now lost by erosion, may have occurred in a similar relationship to the west wall. Adjacent to the exterior of the south wall is an oval pit (Feature 10) that may represent a burial pit.

The structure's foundation is nearly level with the floor and a portion of the wall, mortar sill, and mortar floor is removed at the southeast corner. At this location there is a large limestone outcrop that was slightly modified to accommodate the building's

foundation. The mortar floor exterior to the building's east wall covers the lower 5 to 10 cm of the outcrop.

Stone rubble scattered across the northwest corner of the structure may have come from the building's demolition or more likely the collapse of the adjacent kitchen. Stratigraphic evidence and artifact distributions suggest that some debris accumulated in the building before its destruction, and that debris discarded over the defensive wall accumulated between it and the structure's east wall.

Within a meter of the structure's northeast corner is another mortar floor which is distinguished by color and compactness. This floor may be associated with the kitchen building shown on the 1791, although no associated architectural features were discovered by further excavations. Similarly test excavations further north did not encounter the ruins of the second hospital building and the steep slope suggests that much of this structure may have been lost to erosion.

Structure 2 (Workshop Building)

The workshop building is located approximately 2 m south of the hospital building (Structure 1). Excavations exposed the poorly preserved remnants of the west wall (Feature 7), the north wall (Feature 13), and a segment of the east wall (Feature 12) forming the northeast corner of the building. Limited excavations suggest that most of the south wall may be missing, and only a small portion of it was recorded (Feature 14). Structure 2 measures approximately 6.3 by 7.7 m or 21 by 25 ft. The walls are stone rubble measuring approximately 60 cm thick and there is a mortar sill, similar to the one associated with the hospital building, at the northeast corner extending along the north wall for 1.1 m and running along the excavated portion (1.4 m) of the east wall. A mortar floor occurs on the building's east exterior side, and there is a narrow drain at the base of the foundation (Feature 11). The drain continues along a segment of

the north wall where a limestone out crop was partly removed to accommodate the structure's wall and the drain. The structure's floor is poorly defined, consisting of packed small, angular pebbles and hard pieces of mortar. Not enough of the building has been excavated to determine if the structure contains any interior posts, partitions or other features, or if there are any wall openings.

Faunal Remains

In 1996 and 1997 animal bones recovered at BSH 2 totaled 1229 identifiable fragments and 3955 unidentified fragments (Klippel 1997, 1998). Most identifiable specimens include domestic cattle, pigs, and goat/sheep. Among the remains are small numbers of bones representing dog, black/brown rat, turtle, lizard, fish, domestic chicken, and swan/goose/duck. An additional 998 specimens represent bone discs and the debris from their manufacture. Bone discs were presumably covered with cloth and used for buttons. There is evidence for the manufacture of nearly 1400 discs made from domestic cow and sea turtle bone.

Analysis of the faunal remains from the 1998 excavations is currently in progress. Preliminary inspection suggests that a total of 2000 to 3000 animal bones were recovered from the excavations at BSH 2. Fewer than about 100 bones are represented by test pit excavations at BSH 3. The kinds of animals and the proportion of their representation appear similar to what was recorded previously at the site (Klippel 1998). The sample of debris from the manufacture of bone discs also is as large as previously recovered at the site, and the range of remains at different stages in their production indicates that this work was conducted in and around the buildings excavated at the site. Furthermore, the faunal remains and their distributional study should help identify the local habitats where African slaves acquired food slaves as well as determine patterns of food preparation, consumption and waste disposal at the site.

In 1998 three levels (60 to 80 liters of sediments each) in unit 206-207N/100-101W were screened through eighth inch and sixteenth inch mesh to recover smaller remains that are normally lost using larger mesh screen. The quantity of bones recovered in this manner, particularly from a range of different sized fish, suggest utilization of several marine habitats by African slaves and British soldiers. To identify these remains and the habitats they represent, approximately 35 tropical fishes were collected from local markets and fisherman for the zooarchaeology comparative collections at the University of Tennessee. Other comparative specimens obtained in 1998 were a complete skeleton of a Barbados black-bellied sheep, a black rat, and the partial remains of a Hawksbill turtle. These specimens will add substantially to the effort to identify and determine the manner in which animal were utilized at the Brimstone Hill Fortress. Excavations also have produced a collection of marine mollusks shells that probably represent food consumed at the site. A comparative shell collection was gathered at several beaches to assist in the identification of the archaeological sample.

Human Remains

Previous investigations demonstrate that there are human burials immediately south of Structure 2 and between the east walls of Structures 1 and 2 and the curtain wall connecting the Orillon and Magazine Bastions (Schroedl 1997, 1998). It is known that the burials occur as far north as grid coordinate 220N. Excavations also indicate that human interments do not intrude Structures 1 and 2. These data indicate that the burials date after the abandonment of the structures and that the buildings were visible at the surface when this occurred. Excavations also have produced individual human teeth and bone fragments, suggesting that burials were sometimes disturbed by subsequent interments. Analysis of the bones suggests that all are attributable to persons of European descent, probably British soldiers (McKeown 1997, 1998).

Although this area of the fortress was occupied and utilized by African slaves, they are not represented in the skeletal remains recovered at the site.

In 1998, two human bones, a tooth and a nearly complete humerus, were recovered from excavated levels. Metric data for the humerus are inconclusive regarding racial affiliation. The skull of a human burial also was exposed in the profile at 207-208N along 100W. None of the bones were removed. This burial was interred less than 50 cm from the east wall of Structure 2. The placement of the burial is comparable to Burials 1 and 2 previously recorded at the site. In contrast, Feature 10, assuming it contains a burial, is placed between Structures 1 and 2 and is stratigraphically contemporary with the buildings. This suggests the possibility of an African interment.

Investigations at BSH 3

The 1791 military engineer's map shows 15 buildings at BSH 3. There is one building shown as a slave hut, another shown as a kitchen, two others labeled Engineers quarters and offices, eight buildings are identified as huts or barracks for the married men of the garrison. The use or purpose of three others is not indicated.

A controlled surface collection and the excavation of three test pits were undertaken at BSH 3. This work was tied to the same excavation grid used at BSH 2. The surface collection was made according to 10 m units, and ten units were completely covered. Because of the topography or the locations of stone foundations four additional units were only partly collected (Appendix B).

Two test pits were excavated 4 m apart at the edge of the access road that runs between the Orillon and Magazine Bastions and the base of the steep slope that rises to the Prince of Wales Bastion (Appendix C). Their coordinates were 231-232N/103-104W and 231-232N/104-105W; eight levels were removed in each unit. These locations

correspond approximately to the west wall of a barracks building shown on the 1791 map. It is likely that some of the materials recovered at BSH 2 were discarded from this structure. Neither test pit, however, encountered any structural remains, and in fact, produced comparatively few artifacts. The third test pit at BSH 3 was excavated at the north edge of a building foundation also attributed to a married men's barracks in the southeastern portion of the site. This pit was oriented approximately to the site grid, but was not tied to it. Six levels were excavated in it, but very few artifacts were recovered from the excavation. The locations of profiles recording the stratigraphy of the three test pits excavated at BSH 3 are shown in Table 2.

Table 2. Stratigraphic Profiles recorded at BSH 3 in 1998

North-South Profiles		East-West Profiles	
West Coordinates	North Coordinates	North Coordinates	West Coordinates
90W	202-203N	202N	90-91W
90W	206-207N	206N	90-91W
91W	206-207N	207N	90-91W
Test Pit 1, east wall		Test Pit 1 south wall	

Artifact Analysis

Laboratory identifications and quantification followed the same general procedures as previously described by Ahlman and Schroedl (1997) and Ahlman et al (1998). Analysis and data recording of the artifacts recovered at BSH 2 and BSH 3 were completed in St. Kitts. By arrangement with the Brimstone Hill Fortress National Park Society and the Minister of Culture, Tourism, and the Environment, the faunal remains were transported to the University of Tennessee, where the comparative zooarchaeological collections are available for identifying them. Afro-Caribbean

ceramics, a small sample of modified British ceramics, and a small number of military buttons and personal items also were returned to the United States for further studies.

A total of 23,048 artifacts was recovered at BSH 2 and an additional 2061 artifacts were found at BSH 3 in 1998 (Tables 3 and 4). Over 50,000 artifacts have been recovered and analyzed over the three field seasons spent at BSH 2. These remains were sorted, identified, and recorded according to seven different material classes. These classes, which are based on

Table 3. Summary of Material Classes recovered at BSH 2, 1996-1998

Material Class	1996	1997	1998	Total
Ceramics	1328	6858	7219	15405
Curved Glass	1981	10534	9974	22489
Smoking Pipes	200	632	883	1715
Metal	249	1388	1773	3410
Nails	617	2004	2200	4821
Construction Material	2384	824	809	4017
Miscellaneous	5	143	190	338
Total	6764	22383	23048	52195

Table 4. Summary of Material Classes recovered at BSH 3 in 1998

Material Class	Total
Ceramics	817
Curved Glass	598
Smoking Pipes	97
Metal	95
Nails	134
Construction Material	312
Miscellaneous	8
Total	2061

material type and function, are ceramics, curved glass, smoking pipe fragments, metal, nails, construction materials, and miscellaneous objects. Artifact analysis involved recording appropriate provenience information, such as site number, excavation unit coordinates, excavation level number, and elevation. This information is important for distributional analyses which can be used to determine occupation or work areas, or suggest the existence of a structure that may not been immediately recognized during excavation.

Ceramics

Ten specific ceramic wares, including whiteware, pearlware, creamware, Chinese export porcelain, British bone porcelain, stoneware, redware, earthenware, yellowware, and Afro-Caribbean Ware are represented by specimens. These types are determined by differences in paste and manufacturing techniques that change through time. However, many of these wares have been used for hundreds of years and it is the decorative techniques that are used to determine a more precise period of manufacture. Table 5 lists the different wares recovered at BSH 2 and their associated temporal period, while these data for BSH 3 are provided in Table 6.

Significantly, among the ceramics are 354 Afro-Caribbean ware sherds, attesting to the probable presence of African slaves. Vessel forms include small jars and bowls, and many of the sherds are smudged with charcoal indicating their use in food preparation activities (Ahlman et al 1998). Furthermore, there are 70 European ceramic sherds modified with scratched "X", initials, or geometric patterns on the vessel base. These undoubtedly represent religious marks or personal identifications and some are surely attributable to African slaves (Schroedl and Ahlman 1999).

Table 5. Temporal Period and Ceramic Wares recovered at BSH 2 in 1996-1998.

Ware	Date Range	1996	1997	1998	Total
Creamware	1761-1820	726	3648	3891	8265
Pearlware	1780-1830	380	1869	2004	4253
Whiteware	1830-present	15	121	172	308
Stoneware	16th century to present	66	289	305	660
Redware	16th century to present	51	445	400	896
Chinese export porcelain	1660-1800	15	59	58	132
British bone porcelain	1745-1795	8	10	34	52
Earthenware	1580-1795	34	151	105	290
Yellowware	18th century to present	9	86	84	179
Afro-Caribbean	17th to 19th century	20	174	160	354
Miscellaneous ceramics		3	6	6	15
Total Ceramics		1327	6858	7219	15404

Table 6. Temporal Period and Ceramic Wares recovered at BSH 3 in 1998.

Ware	Date Range	Total
Creamware	1761-1820	290
Pearlware	1780-1830	222
Whiteware	1830-present	174
Stoneware	16th century to present	46
Redware	16th century to present	22
Chinese export porcelain	1660-1800	9
British bone porcelain	1745-1795	12
Earthenware	1580-1795	21
Yellowware	18th century to present	12
Afro-Caribbean	17th to 19th century	0
Miscellaneous ceramics		9
Total Ceramics		817

Curved Glass

A total of 9,974 pieces of curved glass were recovered from BSH 2 in 1998, while 598 pieces of curved glass come from BSH 3. Most pieces are liquor bottle fragments. The attributes recorded for curved glass artifacts are similar to ceramics. The attributes include color, vessel form, vessel portion, size, decoration, date of manufacture, and notes concerning the type of finish. Glass has been used in the analysis of site function (South 1977), chronology (Jones and Sullivan 1985), ethnicity, and socio-economic status. The date of manufacture for the majority of the glass sherds, however, can not be as closely identified as the ceramic artifacts. The majority of the glass containers in the artifact sample were manufactured during the eighteenth and early nineteenth centuries.

Smoking Pipes

A total of 883 smoking pipe fragments, represented by pipestems and pipebowls, were recovered at BSH 2, while 97 specimens were found at BSH 3. All of the specimens are kaolin clay. No stoneware, redware, or terra cotta smoking pipes were found. Pipes can be used in the analysis of site function (South 1977), temporal range based on decorative type (Sudbury 1980, 1983) and stem diameter (Harrington 1954; Binford 1962; Walker 1965), socio-economic status, and ethnicity. The attributes recorded in the pipe analysis are whether the fragment is from a bowl, stem, or junction of a bowl and stem, the stem bore diameter, and notes concerning maker's marks or decorative techniques.

Metal

The metal category contains non-ferrous and ferrous metals not assigned to the nail or miscellaneous categories. At BSH 2, 1,773 pieces of metal were recovered in 1998. A total of 95 pieces were found at BSH 3. This group includes items such as

tools, horse or mule tack, fragments of barrel hoops, unidentifiable metal objects, and other miscellaneous metal objects. The analysis of the metal involved a general description of the item plus any specific characteristics of the item like size or possible function.

Nails

Nails are analyzed as a separate category from construction materials because of the different analytical techniques employed. The variables recorded during the nail analysis are type, condition, state, size, and general notes. There were 2,200 nails recovered from the 1998 excavations at BSH 2 and an additional 134 specimens were found at BSH 3.

Construction Materials

The construction materials, totaling 809 specimens, recovered at BSH 2 in 1998 include roofing slate, bricks, floor and roof tiles, and flat window glass. There were 312 examples of these materials found at BSH 3. Other construction materials noted in the field but not collected or quantified are mortar and foundation stones.

Miscellaneous Artifacts

The miscellaneous category consists of those items that fit no other group and are primarily personal items like buttons and personal adornments (Savage and Schroedl 1999; Schroedl and Ahlman 1998). In addition, gun flints, chert flakes from gun flints, and musket balls are considered part of this category since very few armaments have been found even though this is a military site. The attributes recorded for this category include a general description of the item and any distinguishing characteristics. A total of 190 such artifacts was recovered at BSH 2, while eight came from BSH 3. Another 26 artifacts and eight

Summary and Conclusions

The immediate objectives of excavations at BSH 2 are to determine the location, size, and architectural characteristics of the four buildings shown on the 1791 map of the fortress and to determine the kinds and distribution of activities carried out in and around these structures by African slaves. In 1998 excavations of one of the two hospital buildings (Structure 1) were completed and work was started on the adjacent workshop building (Structure 2). Further test excavations to locate the kitchen building and second hospital that stood north of Structure 1 were unsuccessful.

The east and north walls of Structure 1 are comparatively well preserved as is about a third of the interior mortar floor. The north wall is poorly preserved; while the west wall and the mortar floor on this side of the structure have been lost to erosion. The excavations identified a posthole in the structure's floor and a possible burial pit adjacent to the exterior of the south wall. The southeast corner of Structure 1 is adjacent to a large limestone boulder or outcrop that separates this building from Structure 2.

The north wall and a 2 m segment of the east wall of the workshop building (Structure 2) were exposed. This building, like Structure 1, has mortared rubble walls and there is a mortar sill on the east wall and part way down the north wall. There is a mortar floor exterior to the east wall, and a drain runs along the base of the wall. The limestone boulder separating the building from Structure 1 was modified to accommodate the construction of the north wall and a drain was also placed between the wall and the outcrop. Limited excavation suggests that most of the building's south wall may be missing. Most of the base of the west wall, however, is intact. The floor of Structure 2 consists of small angular pebbles and pieces of mortar rather than a smooth mortar floor.

The area above the curtain wall connecting the Orillon and Magazine Bastions was designated site BSH 3. An area covering approximately 20 by 70 m was surface collected in 10 m units. Test pits were dug near the edge of two different buildings, but the excavations produced few artifacts and no evidence of architectural features. Artifacts from the site are important because trash deposited by British soldiers at BSH 2 surely came from occupation at BSH 3.

About 23,000 additional artifacts were recovered at BSH 2 and another 2,000 items were recovered at BSH 3. Few new artifact classes were added to the sample, but importantly a money shell cowry and a blue glass bead recovered in 1998 are further evidence for the presence of African slaves. Additional artifact studies currently in progress focus on the Afro-Caribbean ceramics and the British made ceramics that have various initials and symbols scratched into their bases. Besides understanding the range of vessels and their uses, it may be possible to determine whether the Afro-Caribbean ceramics were manufactured on St. Kitts or another island such as Nevis or St. Eustatius. The scratched ceramics provide insights into the maintenance of personal and ethnic identity by both African slaves and British soldiers. At no other site in the Caribbean is this artifact class so well represented (Schroedl and Ahlman 1999).

The 1998 excavations at BSH 2 successfully completed excavations of Structure 1 and began work on Structure 2. The locations of the other two structures at the site are unconfirmed. Artifacts recovered at the site, such as scratched European ceramics and Afro-Caribbean ware, are clearly linked to the occupation and utilization of the site by African slaves. There is abundant evidence for the manufacture of bone disks at the site. Current analyses of bones from food consumption are focusing on the diversity of species eaten, the habitats they represent, and the differences between the diets of African slaves and British soldiers. Understanding past patterns of environmental

exploitation by African slaves is directly relevant to the management of St. Kitt's natural resources today.

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Appendix A

Excavation Units at BSH 2, 1998

Unit	Level No.	Beginning Elevation	Final Elevation
199-200N/ 101-102	1	99.86	99.70
	2	99.70	99.60
	3	99.60	99.50
	4	99.50	99.40
	5	99.40	99.30
	6	99.30	99.20
	7	99.20	99.10
	8	99.10	99.00
	9	99.00	98.90
199-200N/ 103-104W	1	99.55	99.30
	2	99.30	99.20
	3	99.20	99.10
	4	99.10	99.00
	5	99.00	98.90
	6	98.90	98.80
	7	98.80	98.70
199-200N/ 104-105W	1	99.36	99.10
	2	99.10	99.00
	3	99.00	98.90
	4	98.90	98.80
	5	98.80	98.70
	6	98.70	98.60
200-201N/ 103-104W	1	99.47	99.20
	2	99.20	99.10
	3	99.10	99.00
	4	99.00	98.90
	5	98.90	98.80
	6	98.80	98.70
200-201N/ 104-105W	1	99.30	99.00
	2	99.00	98.90
	3	98.90	98.80
	4	98.80	98.70
	5	98.70	98.60
	6	98.60	98.50
	7	98.50	98.40
	8	98.40	98.30
200-201N/ 106.5-107W	1	98.56	98.40
	2	98.40	98.30
	3	98.30	98.20
201-202N/ 104-105W	1	99.17	99.00
	2	99.00	98.90
	3	98.90	98.80
	4	98.80	98.70
	5	98.70	98.60
	6	98.60	98.50
201-202N/	1	98.71	98.30

106-107W			
205-206N/ 106-107W	1 (excavated 1997)	98.45	98.24
	2	98.24	98.10
	3	98.10	98.00
206-207N/ 100-101W	1	99.78	99.60
	2	99.60	99.50
	3	99.50	99.40
	4	99.40	99.30
	5	99.30	99.20
	6	99.20	99.10
	7	99.10	99.00
	8	99.00	98.90
	9	98.90	98.80
	10	98.80	98.70
	11	98.70	98.60
	12	98.60	98.50
206-207N/ 104-105W	1	98.94	98.70
	2	98.70	98.60
	3	98.60	98.50
	4	98.50	98.40
	5	98.40	98.30
206-207N/ 105-106W	1	98.71	98.50
	2	98.50	98.40
	3	98.40	98.30
	4	98.30	98.20
206-207N/ 106-107W	1	98.45	98.10
	2	98.10	98.00
	3	98.00	97.90
207-208N/ 100-101W	1	99.78	99.50
	2	99.50	99.40
	3	99.40	99.30
	4	99.30	99.20
	5	99.20	99.10
	6	99.10	99.00
	7	99.00	98.90
	8	98.90	98.80
	9	98.80	98.70
	10	98.70	98.60
	11	98.60	98.50
207-208N/ 101-102W	1	99.55	99.30
	2	99.30	99.20
	3	99.20	99.10
	4	99.10	99.00
	5	99.00	98.90
	6	98.90	98.80
	7	98.80	98.70
	8	98.70	98.60
207-208N/ 102-103W	1	99.31	99.10
	2	99.10	99.00
	3	99.00	98.90
	4	98.90	98.80
	5	98.80	98.70
	6	98.70	98.60

207-208	1	99.00	98.80
103-104	2	98.80	98.70
	3	98.70	98.60
	4	98.60	98.50
	5	98.50	98.40
	6	98.40	98.30
	7	98.30	98.20
207-208N/ 104-105W	1	98.84	98.60
	2	98.60	98.50
	3	98.50	98.40
	4	98.40	98.30
	5	98.30	98.20
	6	98.20	98.10
207-208N/ 105-106W	1	98.66	98.50
	2	98.50	98.40
	3	98.40	98.30
	4	98.30	98.20
	5	98.20	98.10
207-208N/ 106-107W	1	98.33	98.00
	2	98.00	97.90
209-210N 101-102W	1	99.41	99.10
	2	99.10	99.00
	3	99.00	98.90
	4	98.90	98.80
	5	98.80	98.70
	6	98.70	98.60
	7	98.60	98.50
209-210N/ 102-103W	1	99.08	98.90
	2	98.90	98.80
	3	98.80	98.70
	4	98.70	98.60
	5	98.60	98.50
	6	98.50	98.40
	7	98.40	98.30
209-210N/ 104-105W	1	98.68	98.50
	2	98.50	98.40
	3	98.40	98.30
	4	98.30	98.20
209-210N/ 105-106W	1	98.53	98.20
	2	98.20	98.10
209-210N/ 106-107W	1	98.23	97.90
210-211N/ 103-104W	1	98.81	98.60
	2	98.60	98.50
	3	98.50	98.40
	4	98.40	98.30
210-211N/ 104-105W	1	98.68	98.50
	2	98.50	98.40
	3	98.40	98.30
	4	98.30	98.20
210-211N 105-106W	1	98.52	98.40
	2	98.40	98.30
	3	98.30	98.20

	4	98.20	98.10
210-211N	1	98.30	98.20
106-107W	2	98.20	98.10
	3	98.10	98.00
210-211N/ 107-108W	1	97.95	97.50
211-212N	1	98.75	98.60
103-104W	2	98.60	98.50
	3	98.50	98.40
	4	98.40	98.30
213-214N/ 103-104W	1	98.71	98.60
	2	98.60	98.50
	3	98.50	98.40
	4	98.40	98.30
214-215N/ 103-104W	1	98.67	98.60
	2	98.60	98.50
	3	98.50	98.40
	4	98.40	98.30
215-216N/ 105-106W	1	98.38	98.10
	2	98.10	98.00
215-216N/ 107-108W	1	97.93	97.30
216-217N/ 103-104W	1	98.63	98.40
	2	98.40	98.30
	3	98.30	98.20
	4	98.20	98.10
216-217N 104-105W	1	98.58	98.30
	2	98.30	98.20
	3	98.20	98.10
	4	98.10	98.00
	5	98.00	97.90
216-217N 105-106W	1	98.37	97.90
	2	97.90	97.80
	3	97.80	97.70
220-221N/ 101-102W	1	98.69	98.50
	2	98.50	98.40
	3	98.40	98.30
	4	98.30	98.20
	5	98.20	98.10
	6	98.10	98.00
220-221N 103-104W	1	98.37	98.10
	2 (30 cm)	98.10	97.90
	3	97.90	97.80
	4	97.80	97.70
222-223N 102-103W	1	98.46	98.10
	2	98.10	98.00
	3	98.00	97.90
	4	97.90	97.80
	5	97.80	97.70
222-223N/ 103-104W	1	98.33	97.90
	2	97.90	97.80
	3	97.80	97.70

	4	97.70	97.60
224-225N/ 101-102W	1	98.38	98.20
	2	98.20	98.10
	3	98.10	98.00
	4	98.00	97.90
	5	97.90	97.80
	6	97.80	97.70
224-225N/ 103-104W	1	98.04	97.80
	2	97.80	97.70
231-232N/ 101-102W	1	97.97	97.80
	2	97.80	97.70
	3	97.70	97.60
	4	97.60	97.50
	5	97.50	97.40
231-232N/ 103-104W	1	97.56	97.30
	2	97.30	97.10
	3	97.10	97.00
	4	97.00	96.90
	5	96.90	96.80
231-232N/ 104-105W	1	97.11	96.70
	2	96.70	96.60
	3	96.60	96.50
231-232N/ 105-106W	1	96.56	96.20

Appendix B

Surface Collection Units at BSH 3, 1998

Unit	Level No.	Beginning Elevation	Final Elevation
170-180N/ 70-80W		Surface Collection	partially collected
170-180N/ 80-90W		Surface Collection	
180-190N/ 70-80W		Surface Collection	partially collected
180-190N/ 80-90W		Surface Collection	
190-200N/ 70-80W		Surface Collection	
190-200N/ 80-90W		Surface Collection	
200-210N/ 70-80W		Surface Collection	
200-210N/ 80-90W		Surface Collection	
210-220N/ 70-80W		Surface Collection	
210-220N/ 80-90W		Surface Collection	
220-230N/ 70-80W		Surface Collection	
220-230N/ 80-90W		Surface Collection	
230-240N/ 70-80W		Surface Collection	partially collected
230-240N/ 80-90W		Surface Collection	partially collected

Appendix C

Excavation Units at BSH 3, 1998

Unit	Level No.	Beginning Elevation	Final Elevation
Test Pit No. 1	1	0	10 cm below surf.
	2	10	20 cm below surf.
	3	20	30 cm below surf.
	4	30	40 cm below surf.
	5	40	50 cm below surf.
	6 -- 20 cm	50	70 cm below surf.
206-207N/ 90-91W	1	103.94	103.70
	2	103.70	103.60
	3	103.60	103.50
	4	103.50	103.40
	5	103.40	103.30
	6	103.30	103.20
	7	103.20	103.10
	8	103.10	103.00
201-202N/ 90-91W	1	104.15	103.90
	2	103.90	103.80
	3	103.80	103.70
	4	103.70	103.60
	5	103.60	103.50
	6	103.50	103.40
	7	103.40	103.30
	8	103.30	103.20