

ARCHAEOLOGICAL EXCAVATIONS AT FORT BRUERE, BERMUDA



Wilfrid Laurier University and the Bermuda Maritime Museum

Report submitted to the Bermuda Maritime Museum

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TABLE OF CONTENTS

Introduction	5
Historical Background	5
Excavation Methodology	9
Powder Magazine	10
The Fort	13
Kitchen/Barracks	16
Kitchen/Barracks Structural History	20
Conclusion and Recommendations	27
References Cited	29

List of Figures

Figure 1	Fort Bruere, Tucker's Town, Bermuda
Figure 2	Aerial view of site with surveyed features
Figure 3	Map of Bermuda dated 1793 by Capt. A. Durnford, R.E.
Figure 4	Pam Schaus excavating in the kitchen/barracks
Figure 5	Three-dimensional surface map of site with excavation units
Figure 6	Site map with contours and excavation units
Figure 7	Magazine entrance protected by natural rock overhang
Figure 8	Magazine entrance after excavation
Figure 9	Powder magazine drawing
Figure 10	Tool marks and graffiti in magazine chamber
Figure 11	Passageway leading from magazine to hilltop fort
Figure 12	Unit D at top of passageway showing bedrock stairs
Figure 13	'Dutch' bead recovered from magazine interior
Figure 14a	Unit D, east profile drawing
Figure 14b	Unit L, east profile drawing
Figure 15	Fascine bundle of brushwood
Figure 16	Wicker gabion
Figure 17	Gabion construction
Figure 18	Gabion/fascine battery
Figure 19	Stitched overhead photograph of hilltop excavation trench
Figure 20	Hilltop excavation trench showing front and rear parapet
Figure 21	Blue painted tin-glaze earthenware
Figure 22	Flat iron
Figure 23	Modified gun flint

Figure 24	Fort – units E, F, G, J, stratigraphic section, south wall
Figure 25	Fort – units E, G, and J – plan view
Figure 26	Kitchen/barracks before excavation
Figure 27	Unit C showing bedrock shelf and interior deposit
Figure 28	Kitchen/barracks– west wall elevation
Figure 29	Photograph of excavated kitchen/barracks interior
Figure 30	Kitchen/barracks– plan view
Figure 31	Photograph of kitchen/barracks interior showing east foundation wall
Figure 32	Harris Matrix
Figure 33	80th regimental pewter button
Figure 34	Royal Provincial pewter button
Figure 35	Flintlock pistol trigger guard
Figure 36	Acid-etched stemware glass
Figure 37	Brass clothing buckle
Figure 38	Bristol slipware tankard
Figure 39	Rhenish stoneware tankard with armorial pattern

List of Tables

Table 1	Summary of Ordnance in Bermuda – 1783, 1798, 1806	8
Table 2	Ceramic Types in Kitchen/Barracks	23

Appendix

Appendix A	Stratigraphic Correlation Chart
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INTRODUCTION

Excavation of the fortification known historically as Fort Bruere, located on privately owned land in Tucker's Town, Bermuda, was carried out from December 2-13, 2005 (Figure 1). The project was led by Dr. Edward Harris of the Bermuda Maritime Museum (BMM) and Dr. John Triggs of Wilfrid Laurier University (WLU), Waterloo, Ontario, Canada. The excavation team was comprised of two WLU staff, trained student excavators, together with staff and volunteers from the BMM. The goal of the work was to assess the archaeological integrity of the fortification by conducting investigative excavation in three areas: the powder magazine, the hilltop fort/battery, and a kitchen/barracks (Figure 2). Over the course of ten days the magazine interior and kitchen/barracks interior were excavated completely and preliminary test excavations were carried out on the fort itself. Artifacts and architectural features recovered during the excavation revealed that the archaeological remains on the property date to the late 18th century and further, that the remains have witnessed little disturbance since their discontinued use and abandonment. Archaeological and documentary research supports the identification of these remains as a significant heritage resource because they represent a unique surviving example of a rare type of Bermudian fortification. The following report describes the results of the investigation and makes recommendations for further work on the site.

HISTORICAL BACKGROUND

Fort Bruere is mentioned specifically in two separate accounts in 1783 by Simon Fraser, Royal Engineer [R.E.], and Capt. Andrew Durnford, R.E. The last battery to be built by native Bermudians, the fort was perhaps never finished as originally designed according to Fraser:

*...this Battery Appears to me but of little consequence, as the Ground on the Opposite side is much higher, And of course must command it, that seems to have Accured to the Governor & Assembly, for about half a mile further in on the land, they have Begun a Work of fashines [Fort Bruere], on the Highest ground there, but like all the publick Works, belonging to these Islands, is given over before tis half finished, most of the Designs of this kind here, being ill laid out, and wers Executed, from this bad management, the people are discouraged, from voting money for publick uses . . .*¹

In the same year Durnford expressed similar sentiments about the poor design of the fort:

... The Castle and Tucker's Town Point are Separated by a Channel full of sharp Rocks about 150 yards over, and the Point is above half a mile long forming the West [sic. South-east] Side of Castle Harbour and is a Succession of Hills. A small Oval Redoubt was begun during the War on the Top of the highest of these Hills, at about a Mile from the Castle, in order to prevent an Enemy's approaching this Point, and to command some Small Bays near it. This Work was

¹ SRO, Report on the Defenses of Bermuda. Simon Fraser 1783, Scottish Record Office GD/50/185/267/12/7in Harris *Bermuda Forts*, 1997, pp. 89-90, Bermuda Maritime Museum Press.

intended for a Barbette Battery, but being placed injudiciously and raised in the front so high as to cover an enemy at the foot of it, I am of the Opinion, A Redoubt is necessary at this Place for the purpose above mentioned, but that this Work should be leveled, and the Redoubt more retired.
 ..²

It is thought that this plan was never carried out and that Fort Bruere fell into ruin in the years following the American Revolutionary War (Harris 1997: 91). This supposition is based on a 1793 survey of Bermuda forts by Capt. Durnford who mentions the fort and

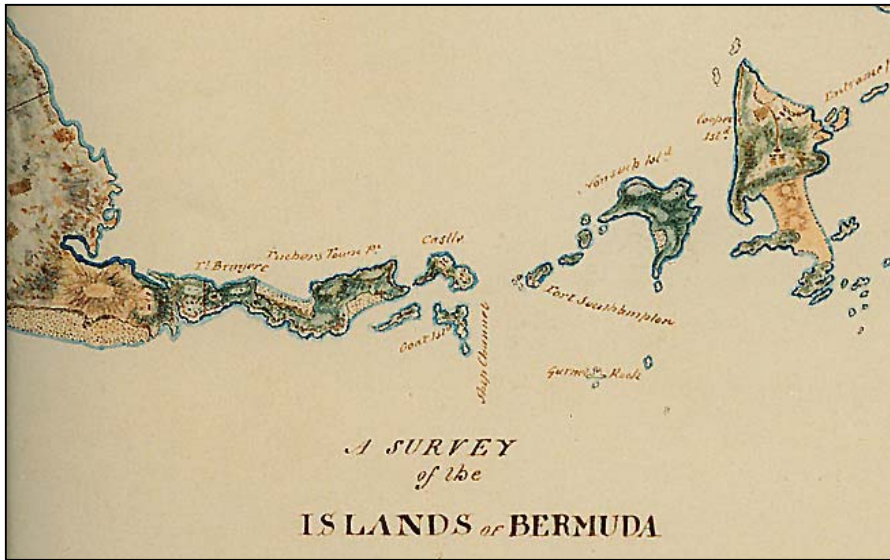


Figure 3. Section of map of Bermuda dated 1793 by Capt. A. Durnford, R.E.

also identifies it on an accompanying plan (Figure 3) but does not attach any significance to the site as a defensive position.³ Durnford's observations are echoed in other surveys of Bermudian fortifications carried out in

1780⁴, 1798⁵ and 1806⁶, all of which contain no reference to Fort Bruere. The value of these reports, however, is that they do contain useful information on the state of fortifications in Bermuda in the years prior to and following the American Revolution.

The 1798 report on the state of fortifications to the west of Ferry Reach is illuminating in the details provided on the design of the forts, redoubts and breastworks, ordnance, and

² PRO CO 37/38. Andrew Durnford. Report on the Defenses of Bermuda, 1783, in Harris *Bermuda Forts*, 1997, pp. 90-91, Bermuda Maritime Museum Press.

³ PRO MPH 137. A Survey of the Islands of Bermuda by Captain Andrew Durnford Royal Engineer assisted by Mr Henry Lauzun, Draughtsman. 1793. A copy 'corrected from a plan of Genl. Hodgsons in 1833 is found in 'The Library of George, 9th Earl of Dalhousie, Governor of Nova Scotia, 1816-1819, and of Canada, 1819-1828. William Inglis Morse Collection.' Vaughan Library, Acadia University.

⁴ Plan for the Defense of the Bermudas, Lieut.-Colonel Robert Dunkin, 1780. *Journal of the Society of Army Historical Research*, Vol. 6 (1927), pp.1-5.

⁵ Bermuda Defense Report submitted by Colonel Jennings, member of Committee of Council and Assembly, March 28, 1798. Courtesy of Edward C. Harris.

⁶ PRO WO 55/928, Bermuda 31 December, 1806. Report of the state of the Forts, and Batteries Field Ordnance – composing the Ordnance Establishment in the Colony of Bermuda, by Simon Fraser, R.E.

gun platform construction. In all, twenty fortified positions are described, most of which are forts with guns mounted *en barbette* (n=14) and only two with embrasures. For forts with embrasures Col. Jennings recommended that the openings should be filled with earth and stone and the barbette battery walls should be enlarged and strengthened. A single redoubt is described as being constructed of palmetto logs with embrasures. Gun platforms, where described, are almost equally split between wood (cedar planks) (n=7) and stone (n=8). In his recommendations, Col. Jennings called for all gun platforms to be constructed of cedar planks spaced 1" apart, to be raised on blocks 6" off the stone to prevent decay. Forty-two pieces of ordnance were reported in 1798. The most common caliber was the 9-pounder followed by the 6-pounder although a range of calibers were in existence (Table 1). Several cannons were noted as being 'very old and rust eaten' and recommendations were made for fitting all the forts with a common 6-pounder caliber. The purpose of converting to a common caliber was to facilitate the supply of ammunition from two common magazines built to service all south coast fortifications.

The 1806 report is particularly useful in that it provides information on the state of all fortifications in Bermuda more than 20 years after the close of the American Revolution. Twenty-eight forts, batteries, and breastworks are mentioned in this document. Of these the most common is the breastwork which is comprised of a stone wall of 8" and/or 10" stones with a rubble core. These are found mostly along the south shore and employ cannons firing *en barbette*. In fact, barbette batteries and positions (n=21) are three times more numerous than forts with embrasures (n=7). The most common artillery piece mounted in Bermuda at this time was the English-manufactured 12-pounder followed by almost equal numbers of 18- and 9-pounders. However, the range of artillery pieces is considerable (Table 1), and, as well, small numbers of Dutch and French pieces were deployed at a few positions. These were mounted most often on stone gun platforms but a large number (n=9) had platforms of wood (pine/cedar planks on cedar sleepers) or no platforms at all. Purpose-built magazines were present for most of the individual positions, although in some cases positions in close proximity shared a common magazine. 'Moveable magazines' were used extensively for storage of shot and powder within the often damp and poorly constructed permanent magazines which were not sheathed with brick or planks. In seven cases magazines were cut out of the natural rock as at Fort Bruere. In addition to the magazines located to the rear of the positions, several types of structures were also mentioned in connection with the various defensive locations: dwelling houses/barracks, kitchens, guard houses, storehouses and a single watch house.

It is clear from the evidence presented above that the period defined by the last two decades of the 18th century and the first decade of the 19th century was a transitional period for Bermuda fortifications. Prompted by the events of the continental war there was clearly a desire on the part of the Colonial administration to take stock of the fortifications and ordnance with a view towards making improvements where deemed necessary. Durnford's and Fraser's surveys of 1783 make it clear that some of the earlier 18th century forts and batteries were in need of improvements and that others were of little use, particularly some of the smaller south coast batteries. Of the 47 pieces of ordnance recorded the most common caliber appears to have been the 6-pounder followed by the 4-pounder. Most defenses at this time were *en barbette* batteries. All were built of stone, some mortared, others of un-mortared rubble, and only two fascine breastworks existed of which Fort Bruere stands as one of these rare examples. Fifteen years later the general size of the ordnance had increased to favor 9-pounders, although a considerable number of 6-pounders were still in existence. Recommendations, made in 1798, for *en barbette* batteries with wood gun platforms appear to have been ignored, as in 1806 a greater number of forts still had parapets with embrasures and stone gun platforms. Also, the general trend for the size of ordnance to increase is evident as 12-pounders were twice as numerous as the next smaller and larger calibers.

Table 1: Artillery Pieces in Bermuda 1783, 1798, 1806

Shot Size (pounds)	1783 ⁷	1798	1806	Non-serviceable ordnance 1806
36-pdr			2 (French)	
24			6	
18	1	5	20	2
12	2	5	40	1
9	4	13	19	4
6	14	11	10	3
4	8	6	6	2
3		2		
Unspecified	18			
8" Howitzer			1	
Field guns				
8" Howitzer			2	
6-pdr			8	
Total	47	42	114	12

⁷ Durnford 1783 report; Fraser 1783 report; 1783 Defence Report in cited in Harris 1997: 91-92.

By examining these contemporary accounts it is possible to hypothesize about certain aspects of Fort Bruere for which information is unavailable in the documentary record, and for which archaeological information has yet to be recovered. For example, when Fort Bruere is viewed in historical context it seems clear that there would have been little impetus to improve the fort in the years following the 1783 survey. It represented a fort thrown up in haste due to the exigencies of the American Revolution, perhaps without sufficient consideration of the strategic value of the position as noted by Durnford in 1783. Also, in relation to the other stone forts and batteries, the fascined work was a rare type of little defensive value. If guns were ever mounted at Fort Bruere (there is no mention of this being done) one can imagine that these would have been small caliber - probably 6-pounders - mounted on wooden carriages running on either stone or wooden platforms.

As discussed below, these written descriptions have also been useful in the interpretation and evaluation of the archaeological remains revealed at Fort Bruere in December, 2005.

EXCAVATION METHODOLOGY

During the 10 day field investigation a total of 15 excavation units of varying size, comprising an area of just under 60 square metres, were laid in and excavated (Figs. 5 & 6). All units were excavated using a stratigraphic approach; i.e., layers were removed in



Figure 4. Pam Schaus excavating in the kitchen/barracks.

reverse order of deposition, and all artifacts were collected with respect to specific stratigraphic provenience. Excavators were responsible for recording aspects of sediment composition and other relevant details for each layer within each unit. Written recording was supplemented by photographic documentation using a digital camera, in addition to measured drawings of architectural and structural features revealed during the excavation. Topographic mapping of the site area and specific features was carried out using a total station laser transit. Thousands of points collected over the 10 day period have been used to produce several images of the site (Figures 2, 5, 6). The site as a whole was divided into three excavation areas: the powder magazine, the hilltop fort, and the kitchen/barracks.

THE POWDER MAGAZINE

This structure is located on the east face of a rock outcrop that bisects the study area dividing it into two, roughly equal, east and west halves (Figure 5). Protected by a



Figure 7. Magazine entrance protected by rock overhang.

natural overhang, the entrance to the magazine chamber is visible as a small alcove that has been quarried out of the soft stone bedrock at the lowest ground level along the cliff face (Fig. 7). The difference in elevation between the top of the slope, where the steps to the hilltop battery are located, to the base of the alcove, is about three metres (Figure 2). The alcove itself measures about 1.6 by 1.9 metres (ca. 5' x 6') in area and about 3.9 metres (12' 6") in height as measured from the top of the artificially cut surface down to the base of the alcove floor (Figure 9). Although several stones were found within the alcove, buried beneath more than a metre of wind blown sand, the original access to the floor level of the entranceway and magazine proper was probably by wooden steps.

This is suggested by the seemingly haphazard arrangement of large stones that, although apparently forming a set of rudimentary steps, are thought to be too randomly placed at odd angles to have been the original entranceway staircase (Figure 8). Instead, it is



Figure 8 Entrance to magazine.

suggested that these were laid at a later date when the chamber no longer functioned as a powder magazine but was still used for other purposes. Evidence of the wooden staircase may be present in the form of small, irregularly shaped niches, presumably for timber supports, cut into the sidewalls of the magazine alcove.

Clearing away the wind-blown sand from the interior of the magazine and the alcove consumed the first day of work on site and much of the second day. Sand that had drifted down into the magazine was removed bucket-by-bucket and screened through ¼ inch wire mesh to recover artifacts. As noted above, the greatest depth of sand was found in the alcove and entrance area outside the magazine

chamber where it reached a depth of more than one metre. Prior to excavation the actual doorway to the magazine (Figure 8), quarried out of the natural stone, was visible as an opening about 1.3 metres in height above the sand layer making it necessary to stoop upon entering the interior. After clearing away the sand, the full dimensions of the doorway were exposed at 1.8 m (5' 9") high by 0.95 metres (3') wide (Figure 9). This sand fill followed a gentle slope into the magazine where it covered the natural stone floor to a depth varying from about 40 centimetres at the entrance to about 10-15 centimetres at the rear of the chamber.



Figure 10. Tool marks and graffiti on interior magazine chamber.

The interior of the chamber itself measures about 3.3 metres (10' 6") long by 2.9 metres (9' 4") wide (greatest width) and approximately 2 metres (6' 5") in greatest height (Figure 9). Vertical side walls and a slightly arched ceiling have clearly been created by chiseling the soft stone bedrock as indicated by tool-marks visible on all flat surfaces (Fig. 10). The magazine resembles very closely the 18th century descriptions of similar structures, in that planking was never used to sheath the sides and the interiors were often damp. Given the correspondence with

contemporary descriptions, as well as the communication of the structure with the hilltop fort by way of a passageway leading from the face of the same cliff to the battery above (Figure 2), its function seems obvious. Moreover, the covered position of the magazine at the base of the slope behind and below the battery itself, argues strongly for the presumed function.

The passageway connecting the magazine to the hilltop battery was first documented by Edward Harris and Norman Barka during a site visit in 1994. At this time a vertical cut 60 centimetres wide was noted in the east face of the rock outcrop upslope and to the north of the magazine. This hypothesized passageway connecting the lower magazine with the upper battery is pictured in Harris (1997: 90, 91). In the latest investigation excavation of the feature by pick and shovel over a period of one and a half days soon



Figure 11. Passageway leading from magazine to fort.

revealed that the narrow passageway continued for a distance of about 6 metres running upslope (Fig. 11) where it would originally have opened onto the natural bedrock surface of the fort interior [UNIT D] (Fig. 12), defined as the area encompassed by the line of fascines forming the parapet around the circumference of the hill. Most of the passageway is characterized by neatly cut vertical walls which rise about one metre in height above a flat, inclined natural bedrock floor. A few metres from the upslope end three steps have been cut to facilitate access and egress (Figure 14a). Clearly, the purpose of the passageway was to provide communication between the magazine and the battery but in a protected or ‘covered way’ below the line of sight.



Figure 12. Unit D at the top of the passageway showing steps cut into natural bedrock.

The few artifacts recovered from the powder magazine were intriguing in that they were



Figure 13. 'Dutch bead' recovered from magazine.

unlike other

collections of artifacts found in other contexts at the fort in 2005. At the rear of the magazine a natural cavity in the floor appears to have acted as a trap for artifacts that may have been washed down into the lowest part of the interior chamber [UNIT Q]. One artifact of particular interest was a hand-made, wire-wound blue glass bead, or ‘Dutch bead’, of the type commonly associated with the 16th and 17th century slave trade (Fig. 13). This was found together with a relatively large number of fish bones, smaller numbers of

mammal bone, scrap lead, iron scales of unidentifiable origin, an unidentified brass and iron object, and a musket flint fragment. Unfortunately, the context in which the artifacts were found prohibits an interpretation of the items other than to suggest that they represent a collection of items whose association is spurious – an association resulting from natural, as opposed to human, agency.

THE FORT

Fort Bruere sits atop the highest point on the Tucker's Town peninsula. At an average elevation of about 25 metres above mean sea level this hilltop served the strategic role of providing a landward defense for the Castle Island fortifications, and also to cover the small bays on both the seaward and harbour side of the peninsula. The earliest surviving account of the fortification by Simon Fraser in 1783 describes the fort as having been constructed of fascines. Durnford, in 1783, further described these fascines as having been raised so high as to allow an opposing force to advance below the line of fire.

During a site visit in 1994 Edward Harris and Norman Barka noted a linear distribution of small rubble along the west side of the hilltop and following the natural curve of the hill on the south side (Harris 1997: 91). In 2005, prior to excavation in this area, the same distribution was visible, although partially obscured by vegetation. After clearing away the ground vines from the vicinity of the surface rubble it soon became

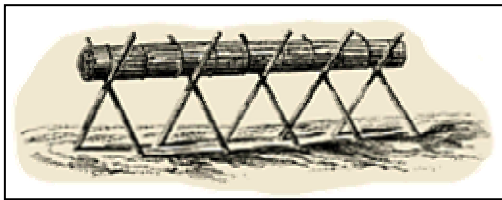


Figure 15. Fascine made of brushwood.

evident that the distribution followed the upper contours of the hill, suggesting that these may represent vestiges of the original 'fascined fort' referred to by Fraser and Durnford in 1783. Fascines (Fig. 15), most commonly associated with field fortifications in a military context, are bundles of brushwood (1-2" diameter) of varying length (6-20' depending on the availability of material), tightly bound together with wire or withes

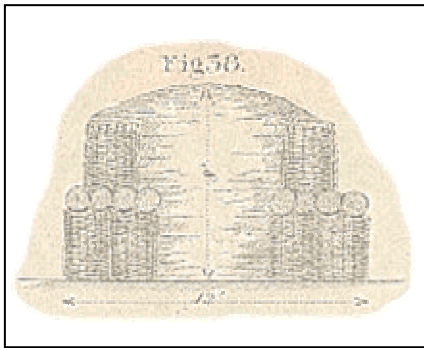


Figure 18. Gabion and fascine battery.

(Straith 1849). These are often combined with gabions (Fig. 16) - wicker baskets about 2'9" to 3' in height and about 2' diameter (Fig. 17) - which, when placed vertically and filled with earth, may be combined with horizontally-laid fascines to

create a parapet (Fig. 18). In the case of Fort Bruere, the absence of compactable earth in the area appears to have prompted the substitution of stone rubble as fill

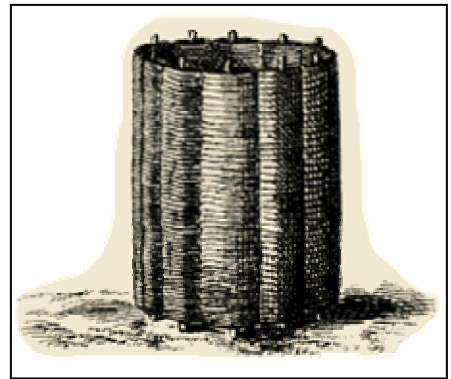


Figure 16. Wicker gabion.

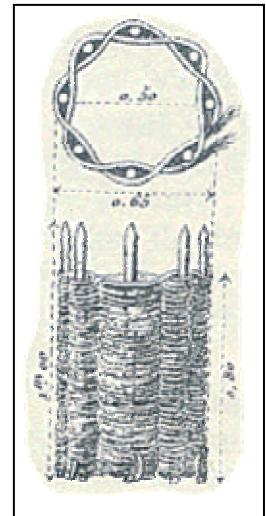


Figure 17. Wicker gabion construction.

within the wicker baskets. If so, it is thought that the line of stones visible on the ground surface along the brow of the hill may represent the original fascined work, which has deteriorated *in situ* and which has not been disturbed for more than two centuries.

To investigate this feature, a 14 x 1 metre long trench was laid in running in an east-west direction across the hilltop intersecting the east and west edges of the hill at an oblique angle [UNITS E, F, G, AND J]. Over a period of several days, excavation in this area served to confirm the hypothesis when definable distributions of rubble were found in



Figure 19. View showing rubble from collapsed gabions/fascines at east and west ends of trench.

both ends of the trench (Fig. 19) separated by an expanse of bedrock floor with virtually no rubble present (Figure 24). At the west end of the trench, where rubble was first visible on the ground surface, excavation revealed that the deposit was over one metre in depth with smaller sized stones overlying a bedding of larger stone rubble (Figure 25). Although the line of stones was intersected at an angle, the linear distribution was approximately two to three metres wide. At the east end of the trench excavation revealed a similar line of stones which were not visible prior to excavation and which were buried only a few centimeters below the surface (Figure 25). These also defined a



Figure 20. Collapsed gabions/fascines from advanced (rt.) and rear (lt.) parapets with rubble on bedrock.

defensive line about three metres in width. Due to time constraints, excavation was not conducted below the stones in this area to determine thickness/depth. Both lines of stones at each end of the trench were separated by a distance of about six to seven metres in which only a few isolated larger stones were found top of the natural bedrock below the sand fill (Fig. 20). The natural bedrock floor was found below about 60 centimetres of sand that had presumably collected in the ‘trap’ formed by the two adjacent lines of stone on opposing sides of the hilltop.

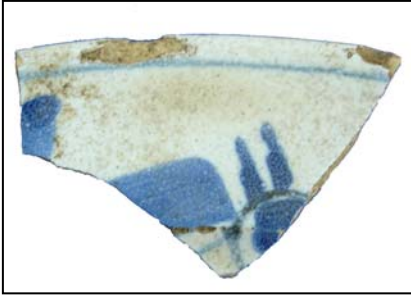


Figure 21. Blue painted tin-glaze rim sherd from plate recovered from excavation trench on hilltop.



Figure 23. Trapezoidal gunflint with use wear edge damage and possible evidence of modification.

placement. This appears to have happened over a prolonged period of time since some of the rubble fill from the fascines was found on bedrock and also within the sand deposits adjacent to and contiguous with the main body of rubble, although at different levels.

Evidence that the stones represent the original line of fortifications is suggested by the small number of 18th century artifacts found among the stone rubble at the west end of the trench and in the sand fill between the two lines. Fragments of 18th century ceramics; e.g., blue-painted tin-glazed earthenware (Fig. 21), white salt-glazed stoneware, and porcelain, in addition to a flat iron (Fig. 22), and three musket flints (Fig. 23) and fragments were recovered from the trench. The recovery of these artifacts from within the rubble provides strong evidence supporting the hypothesis that the stone distributions represent the original fascined work that has remained in a relatively undisturbed state since the construction of the fort in the late 18th century. Based on the width of the stone rubble distribution (three metres) it appears that the fascines deteriorated *in situ*, allowing the interior rubble fill to disperse laterally on both sides of the original



Figure 22. Flat iron found among collapsed stones of front parapet.

THE KITCHEN/BARRACKS

Evidence of this structure was visible prior to excavation as a masonry wall and fireplace built on top of a natural stone foundation that had been quarried out of the native bedrock



Figure 26. Fireplace in west wall of kitchen/barracks prior to excavation.

(Figure 28). Prior to excavation the presence of a fireplace (Fig. 26) suggested that the structure may represent a kitchen, although the date of the building and the association with Fort Bruere had not been substantiated at the initiation of the excavation. Three test excavation units [UNITS A, B, and C] were placed on the inside of the structure adjacent to the north, west and south walls in an exploratory investigation aimed at determining the depth of deposit within

the structure, date of construction, duration of use, and function. Based on the findings from these units; namely, that the depth of soil over bedrock was not substantial, a decision was made to excavate the entire interior of the structure in the time that remained.

In the preliminary excavation, during the first two days on site, the natural bedrock was

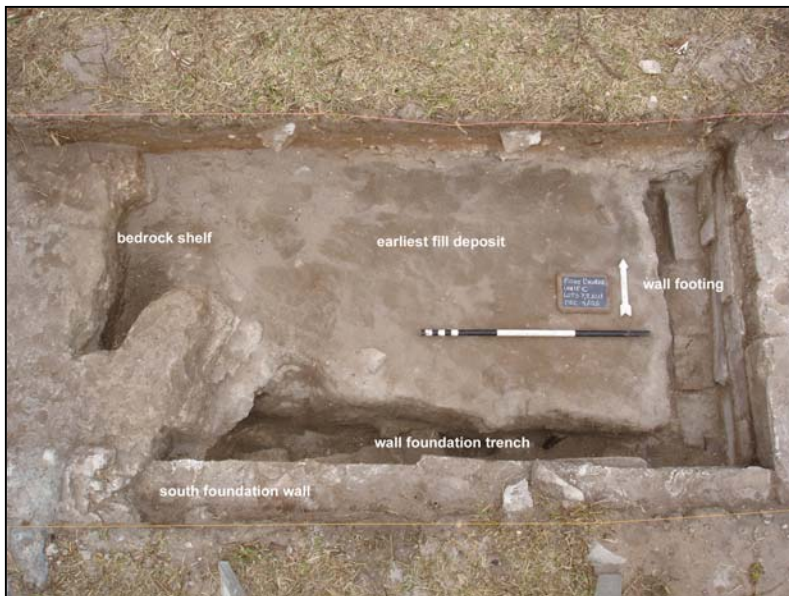


Figure 27. Unit C showing natural bedrock ledge on left and pre-construction deposit to the right.

exposed in the southwest corner of the building adjacent to the west wall and fireplace. In this area, bedrock was covered by about 20-25 centimetres of sand fill which sloped slightly to the east following the natural contour of the bedrock. Bedrock was found in the other excavation units at a similarly uniform depth, with the exception of unit

C. Here a natural break in the bedrock surface resulted in a difference in elevation such that the east half of the unit was about 40 centimetres lower than the west section (Figure 27). This uneven surface or cavity was filled with sand which was deposited prior to the building's construction. Also of interest was a neatly laid rubble deposit found in units A, K, M, and P. The careful placement of stone rubble in what was presumably a natural declivity in the bedrock, created a rudimentary pavement, or level working surface, on the interior of the structure. (This rubble deposit was not excavated during the field work [Figure 30]).

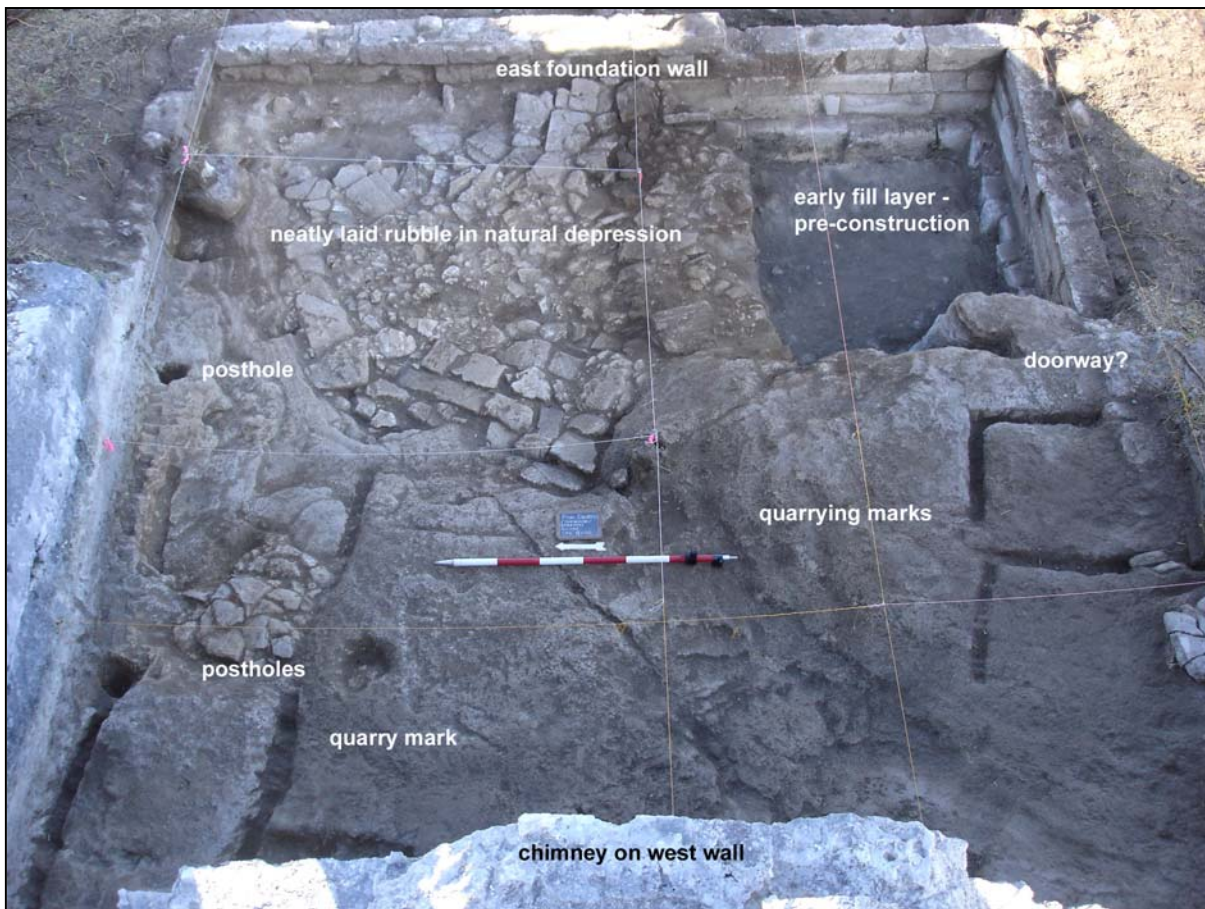


Figure 29. Excavated interior of kitchen/barracks showing quarrying marks, postholes for floor supports, and rubble fill below floor.

Other features revealed in the bedrock floor on the interior of the structure were quarrying marks (Figure 29) found in units B, C, H and N (Figure 30). In these locations, vertical grooves in the bedrock clearly outline three stone blocks that were initially cut but never removed, probably because the surrounding excavation/quarrying had reached the desired interior floor level.

The building itself is defined on the east side by a wall four to five courses in height. The exterior face of the wall is remarkably well constructed of neatly cut blocks which rest on a course of footing stones laid perpendicular to the wall stones (Figures 30 and 31). On the exterior of the building the stones are plumb and true, while on the interior no effort has been taken to create a neat face. The reason for the difference in construction can be attributed to the fact that the exterior wall was visible above ground level while the interior stones would have been below floor level inside the building. The interior floor level would have been at least as high as the highest projecting surface of bedrock which was located in the southwest corner of unit C. Also, in this location, some small cut stones laid in the natural bedrock suggest the presence of a doorway threshold (Figure 30).

In order to lay a wooden floor on the interior it would have been necessary to level the planks by raising the north section of the floor to the same level as the south side where bedrock was naturally higher by a few centimeters (Unit C). Evidence for floor construction, and the leveling that would have been necessary, may be represented by

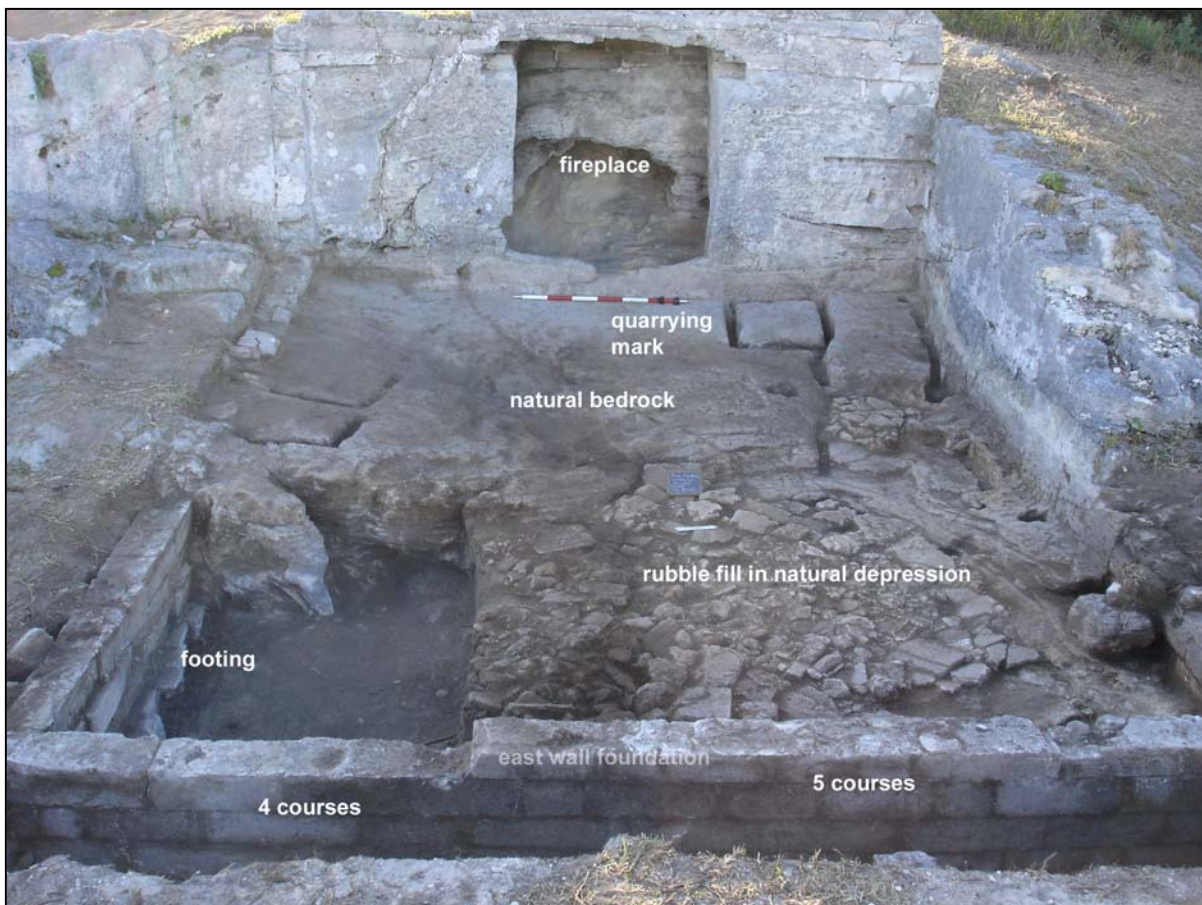


Figure 31. View of excavated kitchen/barracks looking west. Note the finished exterior face of the neatly laid east foundation wall.

four post holes which have been excavated into the bedrock on the north side of the building. The theory is that these could have acted as vertical supports for a horizontal sleeper timber since the post holes are in an east-west alignment and parallel with the north wall foundation. Planks laid across such a horizontal sub-floor sleeper would have been oriented in a north-south direction with the south end presumably resting on the bedrock in this area or otherwise tied to the south wall foundation, perhaps through the use of a wooden wall plate. The recovery of several dozen wrought iron nails from various units within the building interior lends support to the idea that a wooden floor was present during the life of the building although no traces of the wooden floor itself were found.

KITCHEN/BARRACKS STRUCTURAL HISTORY

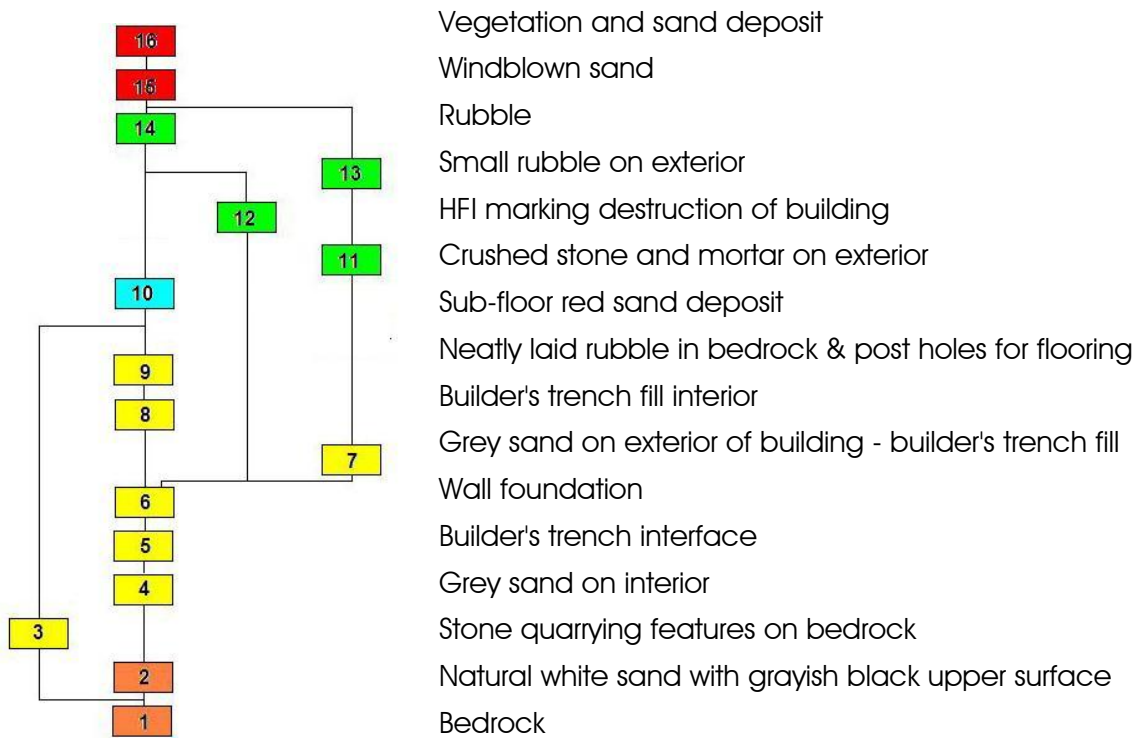


Figure 32. Harris matrix showing the stratigraphic relationships between the 16 phases of construction documented during the excavation. These have been grouped into 5 Periods of occupation. See Correlation Chart, Appendix A for descriptions of lots and units where found.

On the basis of the stratigraphic information recorded while in the field, the structural history of the building can be divided into five Periods (Figure 32). The earliest Period is represented by the soft stone bedrock [1] and a naturally deposited layer of white, windblown sand [2]. This layer is about 10 centimetres thick on average and is found on the exterior of the structure where it was later cut by the builder's trench [5].

The first two events in Period II (yellow boxes) are the stone quarrying features [3], discussed above, which have been cut into the natural bedrock, and the leveling deposit of gray sand found in unit C [4]. The sand clearly pre-dates the construction of the building, yet the recovery of two smoking pipe stems indicates that the layer was not deposited naturally. A study of the stratigraphy indicates that this cavity or low-lying area was filled in prior to the construction of the building. Although the paucity of artifacts does not allow for a more precise dating of this event, it can be said that the building had not yet been planned at the time the depression was filled in because the builder's trench truncates this layer. In other words, it is unlikely that the sand would

have been deposited if the building had already been planned, since it was necessary to dig through this layer in order to construct the building.

The actual construction of the building is represented by events [5] (the builder's trench interface), [6] (the wall), and [7] [8] (the builder's trench fill on the exterior and interior). As noted above, the exterior face of the wall presents a neatly constructed face which would have been visible above the buried footing and lower course. Deposition, probably by wind-blown sand after the building was abandoned, has served to bury the next three to four courses. The next event is the neatly laid rubble deposit on the interior of the building, laid prior to the construction of the wooden floor. The floor itself would have been supported on sub-floor sleepers presumably resting on the posts (in units A, H and K), which, set at the same height, would have served to level out the natural irregularities in the bedrock surface.

The occupation and abandonment of the structure, Period III, is represented by phase [10], a reddish brown sand deposit found throughout the interior with the exception of the west side adjacent to the fireplace where the bedrock is naturally higher. This layer contained a significant proportion of all artifacts recovered from the interior excavation. Items found in the building interior are varied and include construction materials (57 nails), building hardware (a hinge and L-bracket), gunflint fragments, two regimental buttons (the 80th and Royal Provincials), a brass thimble, food bone (over 400 small fragments of bird, fish and mammal), wine bottle shards, an etched glass stemware shard, several varieties of tableware ceramics, smoking pipe bowl and stem fragments (9 pieces).

The most informative artifacts recovered are the buttons and ceramics. The two pewter regimental buttons (Figures 33 and 34) serve to date the occupation of the building precisely to the period 1776 to 1783. The 80th regiment, also known as the Royal Edinburgh Volunteers, was



... one of the "loyalty" regiments, the cost of raising which was defrayed by public subscription during the American War of Independence. It was raised in Edinburgh, and arrived in New York in August 1779. It was sent to Virginia in April 1781, surrendered at Yorktown in October, and was disbanded after the peace of 1783. A subsequent 80th Regiment (Staffordshire Volunteers), formed in 1793 was never stationed in North America.

Figure 33. 80th regimental button.

Regarding the Royal Provincials:



Figure 34. Royal Provincial regimental button.

The King's American Regiment was raised at Flat Bush, Long Island, New York, on 12 December, 1776. . . The Regiment approached its full strength of approximately 500 men very quickly, and fought in campaigns in New York, Rhode Island, and in the Southern Campaign in South Carolina and Georgia. One of the finest of the Provincial units, the Regiment was designated the Fourth American Regiment in 1779, one of only five regiments to be so honoured. It was taken on the British Regular Establishment, effective 25 December 1782. The Regiment was disbanded in Saint John, New Brunswick, in the autumn of 1783, and several hundred officers and soldiers settled as Loyalists in what is now the Province of New Brunswick, Canada.

As with almost any historic period archaeological assemblage, the most diagnostic artifact class found during the excavation was the ceramics. Preliminary examination of the ceramic assemblage also supports the date provided by the buttons, as many of the varieties of waretypes and decorative types recovered were popular in the middle decades of the 18th century (Table 2). The latest types recovered, creamware and pearlware, provide a *terminus post quem* for the deposit - a date after which the deposit must have been formed - of 1760 to 1780. However, earlier ceramics such as tin-glazed earthenwares, common in the middle decades of the 18th century,



Figure 35. Trigger guard for flintlock pistol.

predominated in the assemblage. Several varieties of earthenware and stoneware also provide information on socio-economic status of the occupants and broader information on 18th century ceramic supply in Bermuda. For example, the sample of Chinese export porcelain had a significantly higher purchase price than other, more common earthenwares such as tin glazed and lead glazed wares, pointing to its use by officers rather than soldiers. Also, the variety of waretypes recovered (Table 2) points to a ceramic supply originating in England. This stands in contrast to 17th century sites in which a wide-ranging trade network involving several European countries is more usual (see Triggs 2004 for a discussion of types found at the 17th – 18th century residence of the Tucker family in Southampton parish).

Other high status items associated with officers include a trigger guard from a flintlock pistol (Figure 35) (precise identification pending),



Figure 36. Acid-etched, clear crystal stemware enhanced and tinted to show design.

etched glass stemware (Figure 36), and a decorative brass clothing buckle (Figure 37).



Figure 37. Brass clothing buckle.

Table 2: Ceramic Types found in Kitchen/Barracks

Type	Date Range	Mid-Range Date	Country of Manufacture	Vessel Type
White Salt-glazed stoneware – basket weave pattern	1740-1770	1755	England	tablewares – cups, saucers, plates
Porcelain	Late 17 th -19 th cent.	common in 18 th century	China	teawares common
Scratch-Blue	1744-1775	1760	England	tablewares – cups, saucers, pitchers, punch pots
Bristol Slipware	1670s-1770s	1720s	England	wide variety of tablewares, utilitarian wares and decorative pieces
Astbury	1720s -1750s	Mid-1730s	England	teapots and cups, bowls, and coffee pots
Rhenish Stoneware – Armorial pattern ‘GR’ motif	1720-1760 George II	1740	Germany	globular bottles, jugs, tankards common
Rhenish stoneware -	Late 17 th -1770	ca.1730	Germany	globular bottles, jugs, tankards common
Tin-glazed – blue painted	1630s-1790s	ca.1710s	England	tablewares, teawares and apothecary jars most common
Sgraffito	1640-1720	1680	England	plates, mugs
English brown stoneware	1690-c.1780s	Mid-1730s	England	Drinking vessels/bottles, tankards and jugs common
Jackfield	1740s-1760s	1750s	England	tea and coffee services
Creamware	1762-c.1800	c.1780	England	all tableware forms, toiletry and decorative pieces
Pearlware	1779-1820s	c.1800	England	all tableware forms

Continuing with the structural history of the building, Period IV is marked by the destruction of the kitchen/barracks [12] and leveling of the north, south and east walls. Rubble resulting from the destruction of the building is found on both the exterior [11] and [13] and the interior [14]. On the exterior the deposition of this destruction debris raised the ground surface about 30-40 centimetres, thereby covering the lower courses of the wall. On the interior of the building the walls were razed to the level of bedrock and only a few pieces of isolated rubble were found rather than a continuous rubble deposit.

The final phase in the history of the building, Period V, is represented by the deposition of wind-blown sand [15] & [16], which in-filled the interior of the building eventually forming a level, grassed area that covered the north, south and east foundation walls.

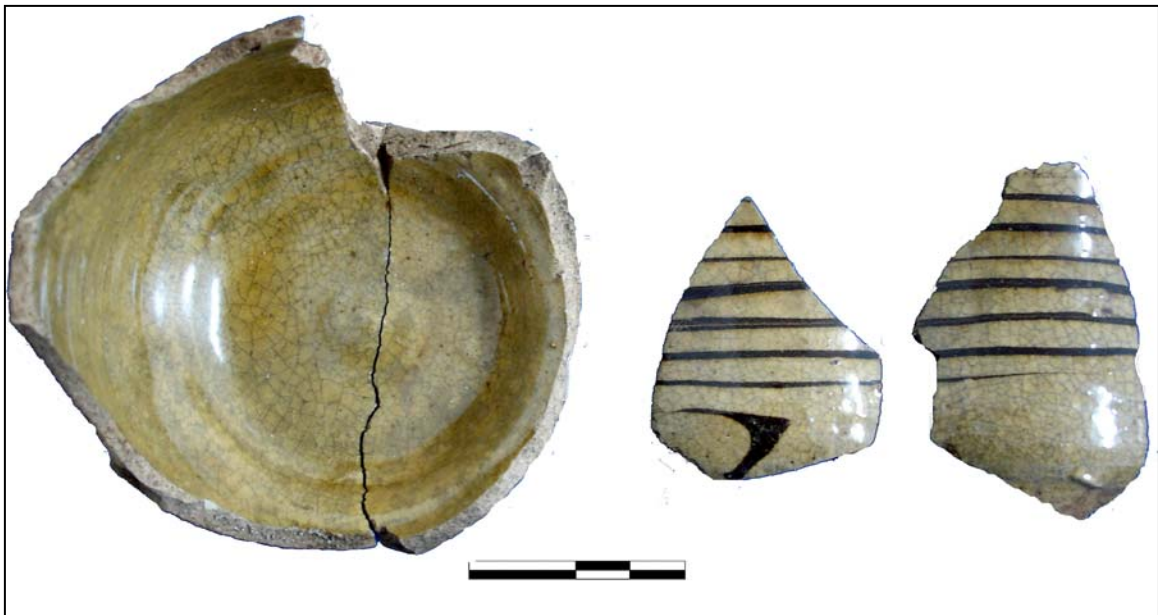


Figure 38. Mid-18th century Bristol slipware tankard fragments recovered from the kitchen/barracks excavation.

Several artifacts recovered in the sand deposit probably reflect those items discarded during the demolition of the building. These include a wide variety of materials similar to those found in Phase [10] that serve to date the period of demolition and which also provide evidence for the function of the structure. First, the ceramics include 18th century wares such as Bristol slipware (Figure 38), white salt-glazed stoneware, tin-glazed, porcelain, pearlware and blue painted refined white earthenware. The latest type, blue painted refined white earthenware, was introduced after 1830 suggesting that the interior of the building may have been exposed as the sand deposit accumulated in the decades after abandonment. With the exception of this late variety most of the sherds recovered are similar to those found in the earlier layer [10] associated with the occupation of the

building. The absence of significant quantities of late 18th - early 19th century wares such as creamware and pearlware, suggests that the structure was abandoned in the late 18th century, probably before the 1790s, by which time these types had largely supplanted popular 18th century types such as tin glazed earthenware and white salt-glazed stoneware. The diverse artifact assemblage also includes food-related items such as dark green wine bottle glass, olive green case bottle glass and butchered animal bones in addition to the numerous ceramics. These materials support the idea that the building functioned as a kitchen. Other items such as gunflint flakes, lamp chimney glass fragments, a bone button, smoking pipe fragments, and a brass drawer pull suggest that the building may have functioned as more than simply a kitchen but also as a barracks accommodation for soldiers and officers. Certainly, the porcelain, brass drawer pull and etched glass stemware found in Phase 10, are high status items and indicate that officers probably used the structure. On the other hand, the regimental buttons are clearly not from an officer's uniform, and attest to the presence of soldiers in the structure.

Recovered architectural items further provide some clues as to the appearance of the building. The complete absence of window glass argues for some other type of window covering or none at all. Also, the recovery of a wrought iron door hinge and latch near the south wall of the building suggests that the door may have been situated along this wall. Further evidence for this may be indicated by a cut in the bedrock and the placement of several vertically laid stones adjacent to the middle section of the south wall (Figure 30). The recovery of dozens of wrought iron nails from the interior also provides substantial evidence for the presence of a wooden floor as mentioned above. Finally, the



Figure 39. Rhenish stoneware tankard with armorial pattern, probably G.R. II.

structure was probably a single storey in height with a gabled roof on the east and west ends as suggested by the remaining stonework on the west wall adjacent to the fireplace. Here the angle of two remaining cut stones on the upper course of the wall indicates that the pitch was 34 degrees.

Further support for the function of the building as a kitchen is found in a midden deposit on the exterior of the structure in Unit L. Located on the southwest corner of the building, close to the proposed doorway location on the middle of the south wall (Figure 2), a midden was found within a deep

natural declivity in the bedrock adjacent to the west wall. Here, below almost two metres of windblown sand (Figure 14b), an assemblage of artifacts was recovered that dates to the 18th century occupation of the building. Over 200 fragments of food bone, mostly fish, followed by almost equal numbers of bird and mammal, comprise the majority of artifacts found. Also of interest, are the shards of etched glass stemware and the Rhenish stoneware sherds that match samples found within the kitchen/barracks. The Rhenish stoneware fragments mend to form a large section of an armorial pattern tankard with a 'GR' motif (Figure 39). This probably denotes George II (r.1727-1760) rather than George III, as this imported armorial style was in decline by the 1770s. Other 18th century ceramic types include tin-glazed wares, and Derbyshire stoneware.

CONCLUSIONS AND RECOMMENDATIONS

Several factors combined enhance the heritage value of Fort Bruere. Although deemed to be of dubious defensive value in 1783, this fort and its associated structures - the kitchen/barracks and powder magazine - today represent a unique surviving example of a rare type of construction - a fascined work – of which only one other example is known from this period.⁸ Perhaps because Fort Bruere was perceived by contemporaries as being ‘ill laid out and wers executed’, the archaeological features on the property have survived for more than two centuries in a relatively undisturbed state. The distribution of rubble from the deteriorated gabions visible on the brow of the hill, and the undisturbed state of the kitchen/barracks are evidence of this benign neglect. The fact that historical documentation on the fort is almost completely lacking, with the exception of the Durnford and Fraser descriptions in 1783, serves to increase the archaeological value of the site.

Questions which can be addressed with further archaeological investigations of the site are numerous. First, the gabion/fascine parapet on the hilltop requires further excavation aimed at delineating the full extent of the fort. Second, excavation on the interior of the fort, within the rubble parapet boundaries, should be conducted to determine details of gun platform construction and to recover other features and artifacts, including ordnance, which may be found below the sand fill. Lastly, excavation on the exterior of the kitchen/barracks should be carried out to address questions of function, dating, duration of occupation and time of abandonment.

To accomplish these goals it is recommended that excavation should be carried out on the hilltop with the intent of clearing as much of the area as possible, depending on time and personnel. Ideally, this would include lifting the existing patio stones to expose the parade or interior fort area, and also investigative trenching extending to all four cardinal points of the oval hilltop. This excavation could be carried out manually using large excavation equipment; i.e., shovels and mattocks, where possible and trowel excavation where necessary. Additional units on the east and north sides of the kitchen/barracks could be excavated in a similar manner as the hilltop although these would be less extensive in scope.

The excavations conducted to date indicate that artifacts and features are intact within 18th century deposits. In light of this, Fort Bruere has the potential to add to the small collection of archaeologically excavated material culture from other contemporary

⁸ The Paget Fascine Battery is mentioned in Andrew Durnford’s 1783 survey (Harris 1997:124).

Bermuda sites. Within a larger context, further investigation at Fort Bruere has the potential to contribute to our understanding of the development of fortifications in Bermuda during the transitional period between the close of American Revolution and the arrival of the Royal Navy when Bermuda served as the pre-eminent dockyard in the Western Atlantic beginning in the early 19th century.

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**APPENDIX A: STRATIGRAPHIC CORRELATION CHART FOR KITCHEN/BARRACKS
FORT BRUERE, BERMUDA**

Period Description	Period	Phase	Stratigraphic Unit Description	Unit							
				A	B	C	H	K	M	N	P
Post-deposition Aeolian deposition and disturbance	V	xvi	Vegetation and sand	1	1	1	1	1	1	1	1
	V	xv	Sand deposit - wind blown	3		2		3	3		3
Building Destruction	IV	xiv	Rubble	2		5	2	2	2		3a
	IV	xiii	Small rubble and stones on exterior			3		7			4
	IV	xii	HFI for wall foundation		2a	10a		10a		2a	10a
	IV	xi	Crushed stone and mortar on exterior			4		8			7
Sub-floor Occupation	III	x	Dark reddish brown sand	4		6		4	4		6
Construction	II	ix	Neatly laid rubble infilling depressions in bedrock and post holes	5				5	5		5
	II	viii	Builder's trench fill interior			9	4a	11			9
	II	vii	Grey sand on exterior of building - builder's trench fill			7		?			8
	II	vi	Wall foundation		2	10		10		2	10
	II	v	Builder's trench interface			11		?			13
	II	iv	Grey sand on interior			8					11
	II	iii	Stone quarrying features on bedrock		4	13	4			?	
Natural	I	ii	Natural white sand with grayish black upper surface			12					12,12a
	I	i	Bedrock	6	3	14	3	6	6	3	