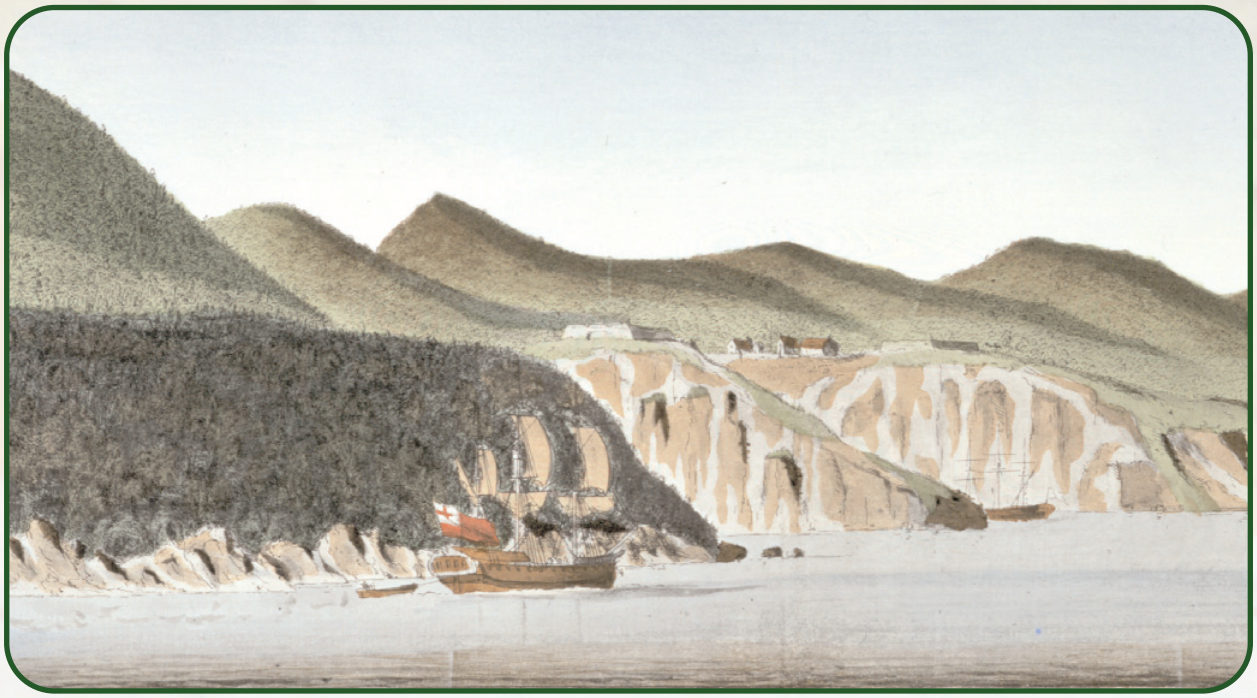
"The Most Advantageous Situation in the Highlands"

An Archaeological Study of Fort Montgomery State Historic Site



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Charles L. Fisher, Editor

With contributions by:
Gregory Smith, Lois Feister,
Nancy Davis, Christina Rieth, Jennifer Bollen,
Beth Horton, J. Scott Cardinal, and Lihua Whelan.

Prepared by the
Cultural Resources Survey Program
New York State Museum
State Education Department, Albany, New York

CULTURAL RESOURCES SURVEY PROGRAM SERIES NO. 2

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Abstract

A number of archaeological excavations have taken place at Fort Montgomery during the last century. The most extensive of these efforts was that of the Trailside Museum under the direction of John H. Mead. Between 1958 and 1971 he excavated entire buildings and features within the fort prior to a proposed reconstruction of this fort. Mead's work resulted in a large collection of artifacts, field notes, maps, and photographs. New York State Office of Parks, Recreation and Historic Preservation requested the New York State Museum Cultural Resource Survey Program prepare an archaeological report on these excavations as part of a renewed effort to stabilize and interpret Fort Montgomery in celebration of the 225th Anniversary of the battle fought there on October 6, 1777.

The main objective of this study was the archaeological description of the fort, the buildings, and the activities of the occupants. This information was acquired from seven buildings and two features of the fort. When combined with new historical research this will provide a detailed account of the fort and the daily lives of the soldiers there. New information regarding the construction techniques, planning and organization were obtained that demonstrated the effort to construct a major, permanent fortification here. This is reflected in the section drawing across the North Redoubt and the construction details of the Grand Battery and the Powder Magazine. Stores were secured in cellars that had limited access and in a Storehouse that rested on three-foot wide foundation walls. Differences in the construction details of the Officers' quarters and the barracks of the enlisted men indicate architecture was used to maintain social distinctions within the fort.

The large ceramic collection demonstrated additional social distinctions within the fort. Creamware was associated with officers' quarters and represented meals of dry meat served on flat plates and consumed with the aid of knives and forks. In contrast, the primary ceramic type associated with the soldiers was hollowware of slip decorated lead glazed yellowware. These vessels were used to contain liquids and liquid based foods that were eaten with spoons or bare hands. Several spoons were recovered with initials and a variety of symbols that may have identified the individual owner.

Marked military buttons revealed the regiments present at the fort and lead shot indicated the weapons used. Buttons marked with *USA* may be some of the earliest known examples of the military use of these initials. The shot sizes varied among the structures and were most varied in the collection from the Officers' Barracks.

The large archaeological collection has additional significance in the limited occupation period represented, between early 1776 and October 1777. The British demolition of the fort in 1777 and the American decision not to rebuild the fort provides scholars with a collection of material items from the early years of the American Revolution that is unique.

Acknowledgments

This study resulted from the efforts of numerous individuals. The cooperation between the staff of the Cultural Resource Survey Program (CRSP) of the New York State Museum and the archaeologists at the Bureau of Historic Sites (BHS) in the New York State Office of Parks, Recreation and Historic Preservation was essential. Lois Feister, Joseph McEvoy, and Mary Albertin at the BHS gave up a portion of valuable real estate in their lab for this study and worked alongside the CRSP staff to complete the catalog and the process of checking field notes against the catalog. Lois Feister's numerous contributions throughout this study are greatly appreciated. Joseph McEvoy's excellent artifact photographs are a major contribution to this report and the long-term artifact documentation process. Joe interpreted the marked spoons and provided sketches of the marks to us. The CRSP staff that worked at the BHS included Tracey Thomas, Jennifer Bollen, Shane Lucey, Ben Kahn, Michael Bolye, Dana Holschuh, Rachel DeCrescenzo, Joel Ross, Lawrence Xinakes, and Victoria Schmitt. Upon completion of the catalog, J. Scott Cardinal and Lihua Whelan prepared the artifact plots and site maps from the electronic catalog information. Gregory Smith, Lois Feister, Nancy Davis, Christina Rieth, and Jennifer Bollen contributed chapters to this report. Beth Horton wrote the chapter on the faunal analysis.

Paul R. Huey (BHS), as usual, was generous with his knowledge. He was a source of excellent information about Fort Montgomery archaeology and provided his research notes on several historic artifacts in this collection. Paul also shared his recently completed bibliography of archaeology at Fort Montgomery (2002) with us. Gregory Smith contributed important references along with new interpretations of the historic record. Ed Lenik, along with Paul Huey, Lois Feister, Gregory Smith, Rich Goring, and John Lovell, provided useful comments on a draft of this report. John Mead and the staff of the Trailside Museum did an exacting job of excavation and curation that made this study possible.

The continued support of Clifford Siegfried, Director of the New York State Museum, and John P. Hart, the Director of Research and Collections for the New York State Museum is gratefully acknowledged. I want to thank Jack Skiba for his continued efforts in the publication of scientific reports for the New York State Museum. Dennis Bove (BHS) and Scott Cardinal of the New York State Museum provided the cover art, and Leigh Ann Smith produced the cover. The copy of the J. F. W. Des Barres aquatint of the view of Fort Montgomery is on the cover here through the courtesy of Jonathan Loring. The New York State Office of Parks, Recreation, and Historic Preservation provided the financial support for this study through an interagency agreement with the New York State Education Department.

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Chapter 1: Introduction

by Gregory Smith and Lois Feister

Archeological evidence dating back to the Archaic and Woodland periods indicates that Fort Montgomery was inhabited by Native Americans from at least 3,000 BC to the period of contact with Europeans. Artifacts were found incorporated into soils scraped up from the site for use as fill for fort features. The site also contains well documented rock shelters.

Construction of Fort Montgomery began on March 14, 1776, following the resolve of Congress on January 5, that a point of land on the north side of the Popolopen Creek quickly be fortified (Figure 1.1). The fort had river batteries and three landward redoubts connected by ramparts that followed the contours of the landscape (Figure 1.2). A wharf provided access to the fort from the river, while a bridge across the Popolopen connected Fort Montgomery with its sister fort, Fort Clinton. Inside Fort Montgomery, soldiers constructed a storehouse, bake house, guard house, powder magazine, two barracks, a commissary and officers' barracks, a soldiers' necessary, and a Grand Battery of six 32-pounder cannons. These remains are visible within the fort today, as are the remains of Putnam's Battery and an associated hut that were built after the rest of the fort was destroyed. Other buildings were constructed in the fort, but their remains are not visible or interpretable at present. An iron chain was stretched across the Hudson River as part of the fortifications.

On October 6, 1777, Lieutenant General Sir Henry Clinton led 2,100 Loyalists, Hessians, and British regulars overland to attack the landward defenses of Forts Montgomery and Clinton while British ships bombarded the fortifications from the river. Governor and Brigadier General George Clinton and his brother, Brigadier General James Clinton, defended the two forts with a combined garrison of fewer than 700 men. By nightfall, both forts had fallen. About 70 Americans died, 40 were wounded, and over 260 were taken prisoner (McDougall 1778; Hastings 1900 (2):623-4). British casualties were recorded as about 41 killed, 142 wounded, and five missing (Hastings 1900 (4):597-8). British soldiers occupied Fort Montgomery for a few days before destroying the powder magazine and the rest of the fort. For a while they garrisoned Fort Clinton, renamed Fort Vaughan.

Although Forts Clinton and Montgomery fell to the British, they played an important role in the ultimate failure of the British campaign to seize control of the Hudson River in 1777 (Johnson and Smith 2002). The forts and their river obstructions presented an imposing obstacle to British shipping, forcing Sir Henry Clinton to wait for reinforcements to his garrisons at New York City before he could undertake any venture up the Hudson River. When he did finally attempt to assist Lieutenant General John Burgoyne's army, Clinton had to spend valuable time preparing for and then executing the assault that captured the forts. The day after the forts' capture, Major Gen-

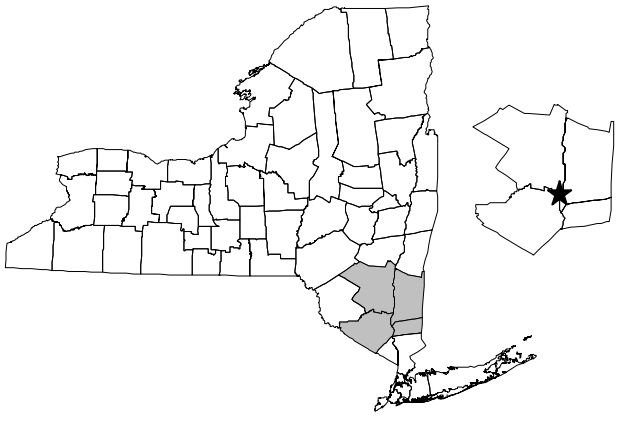

Figure 1.1. Location of Fort Montgomery in New York State.

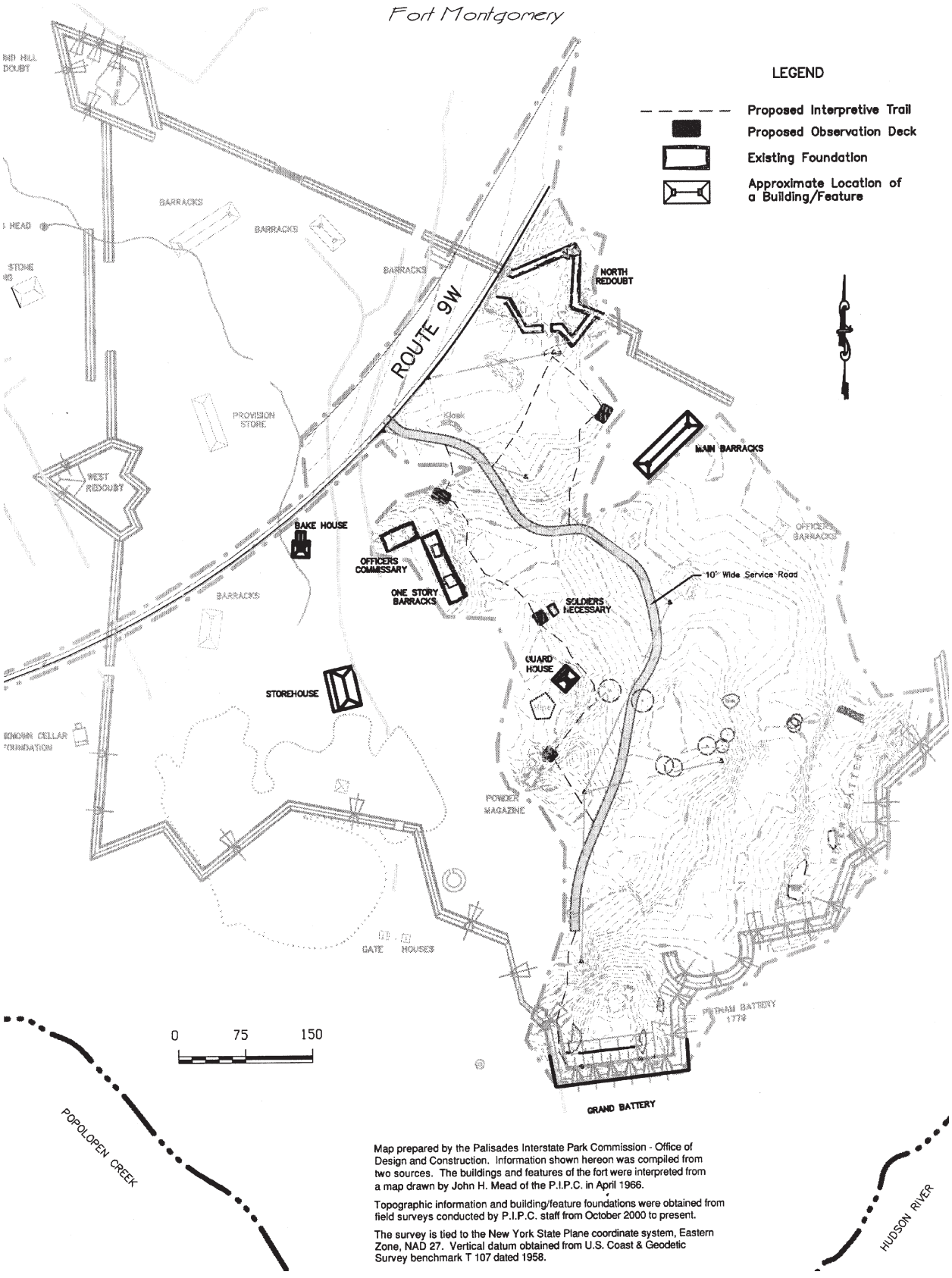

Figure 1.2. Map of Fort Montgomery National Historic Landmark. Structures included in this report have darkened outlines. (Office of Parks, Recreation and Historic Preservation and Palisades Interstate Parks Commission).

eral Horatio Gates' Northern Army defeated Burgoyne's army in the Second Battle of Saratoga, Bemis Heights, and forced the British to surrender ten days later. Most historians cite this turn of events as the turning point of the Revolutionary War because the French became America's allies and other nations aligned against the British, converting the conflict into a world war.

Exploratory iron mining was the most significant use of the Fort Montgomery site in the nineteenth century. The shafts and spoil piles of several test mines are still visible on the site today. A small house built in the early 1800s and a 1920s summer cottage are the only residences known to have existed within the confines of the fort east of Route 9-W. The construction of this highway and other road construction projects in the twentieth century had a significant impact on the remains of the fort and the appearance of its landscape.

Fort Montgomery was part of the property acquired by the Palisades Interstate Park Commission in 1910 to create Bear Mountain State Park. The Palisades Interstate Park Commission soon recognized Fort Montgomery as an important historic resource.

Archeological exploration of the Fort Montgomery site occurred periodically after 1910 (Huey 2002). The first systematic exploration of the site was from 1916 to 1918, when Reginald Pelham Bolton and Edward Hagman Hall attempted to find the ruins of Forts Clinton and Montgomery. Archeological exploration by Trailside staff in the mid-1930s uncovered the Soldiers' Necessary and other structures. Efforts to find the ruins of the forts in 1916 and the archeological work of the 1930s resulted in the publication of Twin Forts of the Popolopen and the construction of the historical building at Trailside to interpret the forts (Carr and Koke 1937).

Exploration of the site continued in 1958 and culminated in the archeology done by Jack Mead from 1967 to 1971. This comprehensive exploration of the site recovered many thousands of artifacts. Jack Mead's work is the focus of this report.

Formed in 1997, the Fort Montgomery Battle Site Association has been a strong advocate for the fort and battlefield and has worked with the State of New York to enhance the preservation and interpretation of the site. Now New York State Parks and the Palisades Interstate Parks Commission are working to stabilize the remains of the fort, analyze the archeological resources recovered from the site, preserve the remaining archeological evidence, and expand the interpretation of the fort's history. Today, the remains of Fort Montgomery's buildings and earthworks are still evident more than 100 feet above the river. The site is designated as a National Historic Landmark because of the important role the fort played in the Revolutionary War.

Interpretation of the design and construction of Fort Montgomery will include the siting of the fort, the geographical and topographical context of the site, the various "visions" for the fort expressed by its engineers, the evolution of the fort's design, the actual construction of the fort, descriptions of the individual structures, and the living conditions of the soldiers and laborers in the fort during the period of its construction. The fort's design and construction will be interpreted in the context of the plans for the defense of the Hudson Highlands, including Fort Clinton, the chain and boom, and the other defenses along the river. What has been learned through archeology will be included in this interpretation.

Chapter 2: Archaeological Study

by Charles L. Fisher

From the outbreak of hostilities, both sides recognized the importance of controlling the Hudson River corridor. In May of 1775, the Continental Congress passed a resolution and ordered the New York Provincial Congress to establish batteries in the Hudson Highlands to prevent the enemy from using the river route northward. The initial sites selected were in the vicinity of West Point, where the narrowest part of the river could be readily protected from positions in the heights on both sides. Early in the fall of 1775, Bernard Romans, the engineer sent to build the river fortifications recommended the construction of a battery "…at Pooploop's kill, opposite to Anthony's nose" where there "is a very important pass" (Carr and Koke 1937: 10).

Disagreements between the engineer and the provincial government led to the formation of another committee, sent to inspect the construction in progress. Francis Nicoll, Joseph Drake, and Thomas Palmer reported back to Congress in December of 1775 that the works at Fort Constitution, near modern-day West Point, should be abandoned and replaced by new fortifications about five miles to the south, on the high ground on the west side of the river opposite Anthony's Nose (Figure 2.1). This is the location of the modern archaeological site of Fort Montgomery. The fort was probably named early in 1776 after General Richard Montgomery who was killed in the attack on Quebec in the winter of 1775.

The commission reported their opinion to the Provincial Congress:

> *...that this is by far the most advantageous situation in the Highlands for a fortification, as one erected on this point would command the reach of the river downwards ... nearly 3 miles, and from the same point the reach upwards may be commanded as far, and is environed in its adjacent and contiguous situations with marshes and inaccessible mountains, which renders it impracticable for the enemy to land (Carr and Koke 1937:11).*

Romans continued to work on Fort Constitution until January of 1776 when he was ordered to stop. The timber for a barracks at Fort Constitution that was not built was reassigned for use at Fort Montgomery. The survey of the site was reported finished by March 1, 1776 and the proposed

Figure 2.1. Location of Fort Montgomery on a detail of a 1779 map (O'Callahan 1864).

Figure 2.2. Plan of Fort Montgomery drawn by Colonel Palmer, 1776 (Carr and Koke 1937). North is to the right.

fortifications were staked out on the ground (Smith 2002).

Thomas Palmer and Gilbert Livingston, with troops from Fort Constitution, were able to complete several buildings and begin work on the battery by March 28, 1776 when they reported their progress to Congress (Smith 2002). Their report included a map of the site that depicts the construction progress at the fort (Figure 2.2). This progress was made despite the threat of mutiny from the soldiers, due to the inadequate supplies. The works were advancing but at the same time, the Militia was threatening to leave.

In June of 1776, another committee appointed by General Washington reported on their inspection of the fortifications. A second map by Colonel Palmer is associated with this report (Figure 2.3). Major General William Alexander, Lord Stirling, described Fort Montgomery as

> *...situated on the west bank of the river, which is there about half a mile broad, and the bank one hundred feet high; on the opposite shore is a point of land called Anthony's Nose, which is many hundred feet high, very steep, and inaccessible to anything but goats...[The works at Fort Montgomery were] open lines, and all lie on the north side of a small creek called Pooplopen's Kill, on the south side of which is a point of land which projects more into the river... (Hastings 1899(I):134-135).*

Lord Stirling recommended constructing another fort on the high ground at the south side of the creek so that the combined fire from these two forts would create an insurmountable obstacle to any attempt to navigate up the river. These two forts, Clinton and Montgomery, were in such an

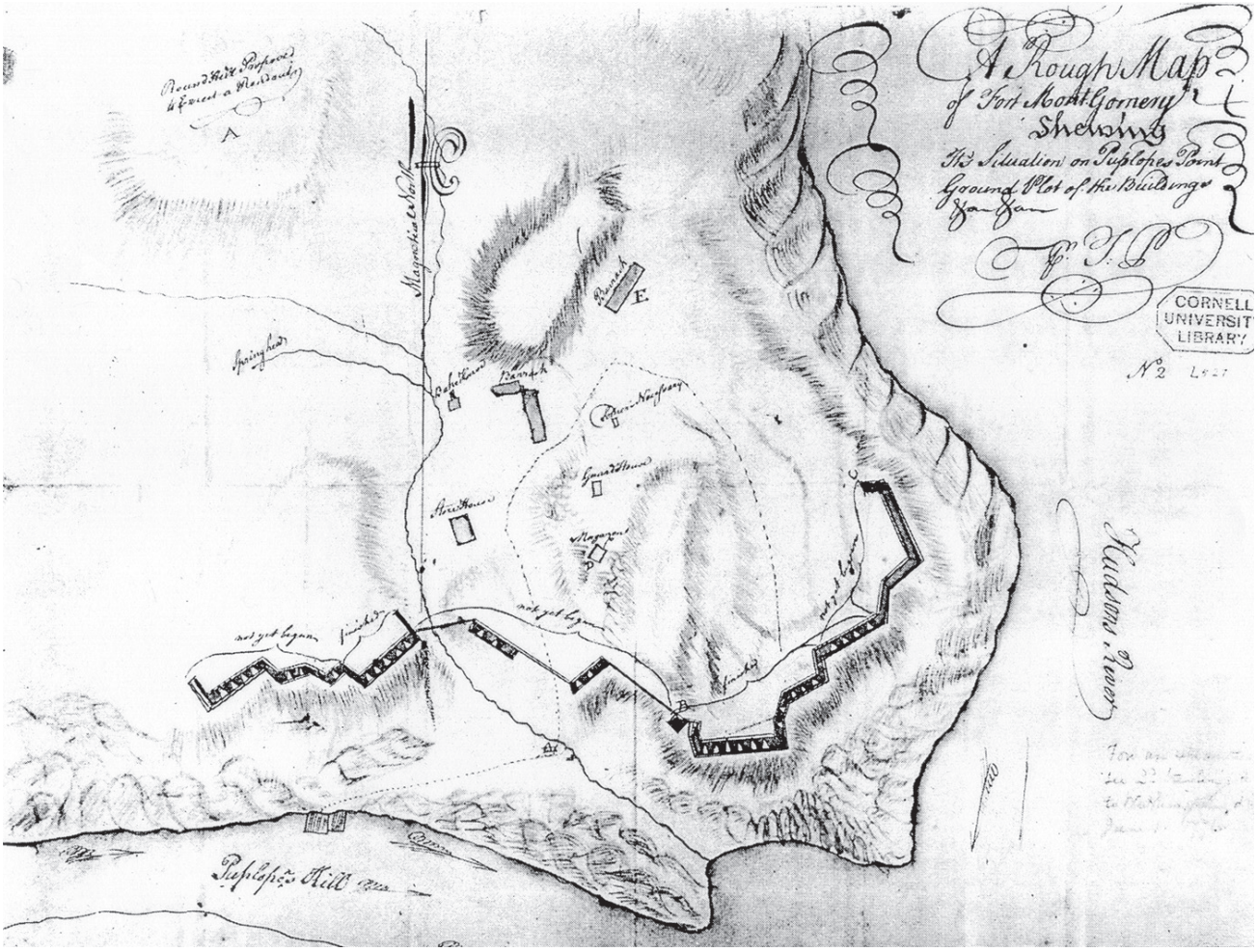

Figure 2.3. A Rough Map of Fort Montgomery ... (Carr and Koke 1937).

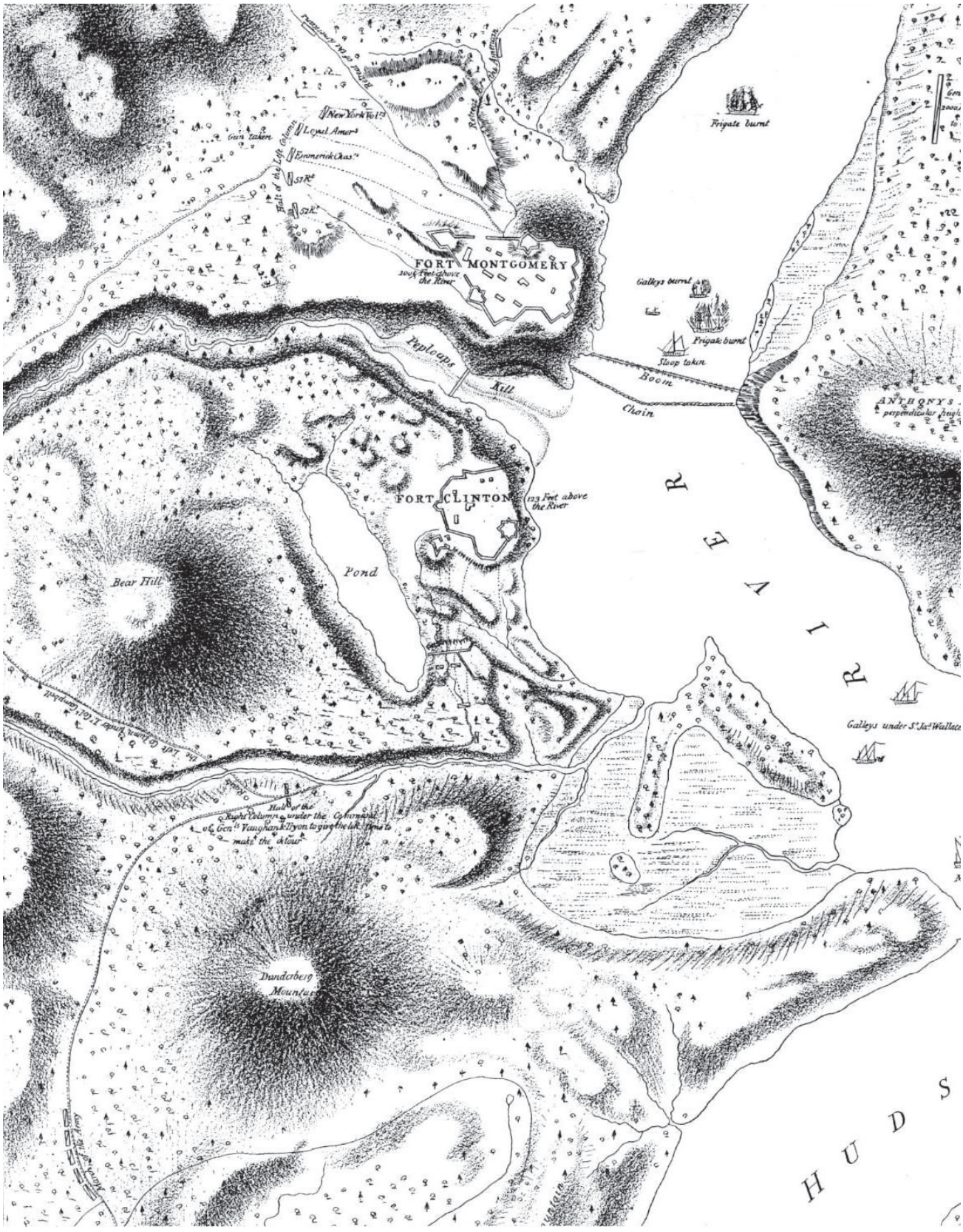

Figure 2.4. Detail of a map of the Battle of Fort Montgomery (Hastings 1900(II):381).

Figure 2.5. 1916 photograph of excavation at Fort Montgomery (Office of Parks, Recreation and Historic Preservation).

advantageous location that Lord Stirling advocated their use as a major military storehouse and magazine of the Continental Army. General George Clinton, given a command in the Highland's Militia and Fort Montgomery, agreed with Lord Stirling. General Clinton began building a small fort and asked for help from General Washington. By July of 1776, General Washington sent Thomas Machin, an engineer, to aid in the construction. Building the river obstructions, the iron chain and cable across the Hudson, was another responsibility of this engineer.

The perceived strength of the Highland forts prevented the British from moving north in 1777 until reinforcements arrived in New York City. The loss of Ticonderoga to Burgoyne's army on July 8, 1777 quickly became a problem for General George Clinton.

> *The Militia which I ordered to this post and who come in with great expedition almost to a man according to custom begin to be extremely uneasy. They want to go home… (Hastings 1899(I):92).*

By the time the British army advanced up the Hudson River to aid Burgoyne it was too late. His army encountered serious opposition from the Americans at Saratoga. Although the British attack on the highland forts was successful, it did not change the situation in the north (Figure 2.4). The day after their victory in the Highlands, the British lost the second battle of Saratoga.

The British dismantled the chain across the river at Fort Montgomery and sailed up the Hudson where they burned the city of Kingston and the Livingston's home of Clermont. They returned to the Highlands and briefly occupied the forts while they systematically destroyed them. "Every combustible in both had been burnt; and what was not was extensively thrown down" (Hastings1899 (I):154). They undoubtedly took any valuable supplies left in the forts and destroyed whatever they could not carry away. This abandonment of the fort created the archaeological site that is the subject of this study.

Interest in the people, places, and the mate-

rial objects of the American War of Independence started before the revolution was completed. Archaeologists, however, usually consider the systematic investigation of this subject began with the work of the Field Exploration Committee of the New-York Historical Society in the early part of the twentieth century. This group of dedicated scholars was aware of the rapid loss of sites in the path of urban expansion, as well as the importance of this information for public education and enjoyment. They investigated Fort Montgomery and mapped it, in addition to excavating small portions (Mead 1992:np) (Figure 2.5).

At the same time, they acknowledged the study of the military origins of our nation was laden with social implications. In 1916, Reginald Pelham Bolton expressed a concern with the political use and abuse of archaeology that continues to trouble archaeologists today.

> *In these saddened days of world warfare and misery, it would indeed be a misfortune and one that the circle of workers would greatly deplore, if the results of their labor, and the interest evoked thereby should lead to any increased martial spirit or any approval of war as a means of settlement of even a righteous cause.*
>
> *To all true Americans we believe the vision that we have helped to open, of some of the events of the strenuous throes of our dear country's liberty, will be welcome not only as a reminder of our forefathers' determination and suffering, but as an illustration of the futility of warfare and oppression (Bolton 1916:5-6).*

Military sites have been described by archaeologists since Bolton as either places soldiers lived, such as forts, blockhouses, and camps, or places where they fought. Fort Montgomery is an example of both. This fort represents a major installation constructed by the American rebels in their effort to fortify the Hudson Highlands and protect the strategic river route. The fort was taken by the British in their attack on October 6, 1777, and then destroyed and abandoned after a brief occupation. The historical accounts of this conflict are available in primary and secondary sources that are not included in this report, which is concerned with the archaeological evidence of life at this fort.

Archaeological excavations carried out at this site were intended to obtain artifacts used by the soldiers and discover the various structures and fortifications. This research resulted in new interpretations of Fort Montgomery and the level of engineering, construction, and organization invested here by the rebels. This collection of material items and associated archaeological information provides a wealth of detail about this fort and the people who lived and fought there.

The general story of the construction and the subsequent effort to defend Fort Montgomery is known from historical sources and interpretations (Carr and Koke 1937). The archaeological evidence is another source of information about this fort that complements and conflicts with the familiar story. Documents and maps are associated with the specific individuals who created them and contain the rich details that a particular perspective provides. Archaeological analysis contributes to the description of the general conditions of daily life, especially those that were not considered important enough to write down by the people living at that time and place.

In building this fort, the soldiers constructed a social and political environment and then continued to change it through their daily activities. Fort Montgomery was a material object; an artifact that reflects the social conditions under which it was produced. As a material object, the fort contains ideas about time, form, and space. Archaeologists study material objects, their locations, and their associations in order to describe the concepts that organized daily life in the past.

Research Goals: What do we want to know?

The method of analysis of any archaeological collection is determined by the questions that we are trying to answer, as well as how we ask those questions. The objective of this study is the description of daily life at Fort Montgomery during the Revolutionary War. This is revealed

through the examination of the material objects, their locations, and their associations. Specifically, we have asked basic questions: who was there, what did they do, and where in the fort did they do it?

The archaeological evidence of the occupants of the site is usually observed in terms of group membership, often in contrast to other groups. Artifacts can be studied to determine if officers, enlisted men, Americans, or British soldiers are present at particular places. Specific activities evident in the artifacts are another indication of the skill, knowledge, and wealth of the people, who created, consumed, lost, or discarded them. Once identified, the location of these activities will provide the structure and organization of the site.

This orientation requires a spatial analysis of the artifacts and groups of associated artifacts. Social groups and their activities can be identified by the material objects recovered and their locations within the fort. Each of the objects in the collection was assigned to a general class or functional group that could be interpreted in terms of activities or tasks that were performed at this site. In addition, the placement of these groups within the site reveals the location of the activities represented, or the location where the waste material generated was discarded. This approach risks the understatement of activities, since many objects have multiple functions and meanings dependent upon their context. In this way, the archaeological evidence is described in terms of people, their actions, and the place of those activities.

Methodology: How was the information collected?

The material conditions of life at Fort Montgomery during the Revolutionary War are examined here through the major buildings and structures archaeologists have excavated. These buildings include the Main Barracks, L-Barracks (both the Officers' Commissary and Enlisted Men's Barracks), Storehouse, Bakehouse, Guardhouse, Necessary, and Powder Magazine. Each of these buildings has been subject to extensive excavations, with the exception of the Bakehouse. In addition, the North Redoubt and Grand Battery were investigated in the field and are included in this study.

The archaeological information was obtained through field excavations and laboratory studies that were informed by historical research. The excavations that were carried out at Fort Montgomery have been described previously in several summaries and written versions of oral presentations. Basic techniques employed by John H. Mead in his work involved establishing permanent datum locations and base lines for the archaeological grid, removing the surface vegetation, using hand tools to carefully excavate soil layers, and sifting the excavated soil through hardware screen. Artifacts were placed in bags marked with the excavation designation so they could be related to the location where they were found (Mead 1992). The artifacts are an important part of any archaeological study, but the interpretation of their use depends upon the recording of the information associated with these objects. The observations and records related to the position and associations of these artifacts are critical to this study.

Mead established a master grid over the entire fort.

> *[T]he system first divides the Fort Montgomery area into 100' square SECTIONS with number designation. The SECTIONS are then broken down into sixteen 25' square BOXES with letter designations (omitting the letters I and O), and then the BOXES into twenty five 5' SQUARES with number designations" (Mead 1992:np).*

At the same time, he employed a coordinate system that enabled a direction and distance location for any feature or item.

Although he attempted consistency in his excavation and recording methods across the entire fort, there were differences in the basic square size among the various buildings excavated over the many years of fieldwork. The primary system involved 5-foot squares, but the Main Barracks was excavated in 4-foot units and the Guard House was investigated with 3-foot squares. This is not a problem for the analysis of individual excavations, but may create difficulties if comparisons of artifact density are attempted across the site. The smaller

excavation squares also may provide finer scaled interpretations since they enable artifacts to be more closely associated with the location where they were found.

The field records consist of forms for each excavation square that ideally contain a plan view and a profile for each level of each square. In addition, observations about the excavation, artifacts, and features encountered may be noted on the form. Examples of these forms are provided in Mead (1992). Photographs in black and white and color slides are available for most of his excavations.

The excavations were conducted in stratigraphic levels, with artifacts kept separate by soil types, depths below the surface, and features within each square. In this report, however, the stratigraphic distinctions in the buildings excavated did not consistently separate modern from Revolutionary War artifacts. This is not surprising since the main occupation of the fort was within a very short period of time from 1776 to the fall of 1777 and then burned and destroyed by the British. An archaeologist who participated in the excavations used Fort Montgomery as an example of the complicated stratigraphy encountered in forts. Especially challenging were the North Redoubt and Grand Battery where the "soil levels were mixed, often producing 'false' levels and making it difficult to find and follow the original surface" (Lenik 1977:50).

With a few exceptions that are noted in the specific structure reports, modern objects were found in the upper and lower levels of the excavations, indicating that the different levels were not an appropriate unit of analysis in most cases. Modern items and artifacts manufactured after the destruction of the fort have been eliminated from this preliminary study, but not the database. This enabled the current investigation to focus on the material world of the Revolutionary War period and maintained the later material in the site documentation for future examination.

Although pearlware has been associated with Revolutionary War sites, the 222 sherds recovered in the excavations at Fort Montgomery have been excluded from this analysis (Fisher 1987). The presence of transfer printed pearlware indicates early nineteenth century activities at this site may be the source of the entire pearlware collection. Some of this pearlware, especially the blue hand painted sherds, may be associated with the occupation of the Fort. The small number of pearlware sherds and the difficulty of assigning specific sherds of pearlware to either 1776-1777 or the post-Revolutionary War period resulted in their exclusion from this study. Additional research is needed to resolve this problem.

In addition to modern artifacts, the archaeological excavations at Fort Montgomery recovered Native American items that predate the Revolutionary War era. These artifacts were excluded from the current study, which was directed at the investigation of the fort. The presence of these artifacts indicates a long occupation history at this location, which should be the subject of future analyses. The archaeological locations of these items are presented in Appendix V to this report. These locations were altered by the fort construction and occupation and may not represent the specific places of Native American activities within this site.

This study began with the construction of a data base from the artifact list prepared by Mead and the catalog developed by archaeologists at the Bureau of Historic Sites, New York State Office of Parks, Recreation and Historic Recreation. The catalog assigns a number to each unique collection made in excavation, or each level within each square within each site. This catalog, however, had to be linked to the list of artifacts and their location. At the same time, the artifact list was checked against each artifact bag in order to determine if the items were present and correctly identified. Since the time of the Fort Montgomery excavations, our knowledge of historical artifacts has increased considerably.

Artifacts from the excavations have been grouped into general artifact classes, as well as identified as specific items. These general groups are based on broad functional interpretations to provide a basis for comparisons of activities across the entire fort. The designation of a specific item as either a member of the food/drink, personal, structural, or miscellaneous artifact groups assumes

a single function for each item, which may not have been the case for many objects at this site. Objects are identified further by their material, such as bone, ceramic, glass, metal, stone, or related activity, such as clothing parts, gun parts, tobacco smoking, etc. In addition, each artifact type was recorded along with descriptive comments and the quantity.

Methodology: How was the collection studied?

The collection from each building was evaluated with several questions in mind. Who occupied the site? What did the building or structure look like? What material items did the occupants have? What activities were carried out there? What can be learned of the site structure?

Upon deriving the general nature of the occupation at each location, the next step was the refinement of the activities represented and the location of these activities, if possible. Artifact types that can provide information about the occupants and their group affiliation, such as regimental buttons and lead shot sizes, were selected for additional study. Within the Food/Drink category, for example, ceramics are sensitive indicators of social status and food consumption and, therefore, were carefully examined.

The location and spatial distribution of artifacts and groups of artifacts were the main tools employed in this study for the description of life at the fort. Plan maps of specific items and groups of items at each location were prepared to answer questions regarding the material remains of the building, the function of areas within each location, and the structure of activities on the site. Some of these figures are included here as supporting documents that summarize aspects of the material culture at Fort Montgomery.

The Spatial Distribution Plots

The spatial distributions of selected artifact types were plotted for six of the sites investigated at Fort Montgomery. A detailed description of this method is presented in Appendix I. Distribution plots were generated using Geographic Information Systems (GIS) software linked to a relational database of proveniences and artifact inventories for all excavations of the site. Spatial distributions of artifacts were plotted if it was felt that such graphic representation may likely illuminate possible patterns in the spatial clustering of artifacts within the area excavated. For the structures plotted, only catalog numbers that could be identified to specific, single excavation units are included in the spatial distribution plots. For each excavation unit, all stratigraphic levels were combined into the artifact totals.

Distribution plots were created using ESRI ArcView® v3.2a, AutoCAD® 2000, and Microsoft Access97®. The catalog for the Fort Montgomery collection was entered into a database by archaeologists at the Bureau of Historic Sites, Office of Parks Recreation and Historic Preservation. The proveniences of each catalog number were correlated to map excavation units and added into the database. The artifact inventory was then classified in order to facilitate analysis according to *Artifact Class, Artifact Type,* and *Artifact Sub-type* based on the artifact descriptions provided. Queries were designed for each structure and artifact type of interpretive interest. These queries are passed directly from the database (MS Access) to the GIS software (ArcView), and plotted in the corresponding map locations.

Two types of distribution plots were generated: graduated color scale and dot pattern. Most of the graduated color scale plots represent artifact counts across the site area with each change in grouping based on natural breaks in the counts per unit. A second type of graduated color plot based on standard deviation rather than artifact count was used in some situations. Standard deviation scales were used where artifacts were distributed across the majority of the site area or where subtle variations in the concentrations of an artifact type might be more informative.

The second type of distribution plot – dot pattern – was used in cases where the number of artifacts per unit was low or not widely distributed by area. Symbols on these plots represent a given number of items per symbol and placed randomly within the map squares. Note: *The location of these symbols does not represent point proveniences*!

Symbols are placed randomly on the map indicating only the density of the artifact type within an excavation unit, not the specific location where an artifact was found.

Results: What was learned about the fort?

The approach employed here varies from other archaeological studies as a result of the objectives of the initial excavation. Since the excavations were conducted to provide details about life at this fort and direct accurate reconstruction of the structures, the study is focused on the buildings. There was little excavation between buildings so the fort was examined as separate structures, which enabled comparisons among the buildings and made interpretations specific to building locations.

Details of the structures built by the American Army during the Revolutionary War were recovered during the excavations. A large collection of artifacts used by the soldiers has been recorded and described, and with these, new information on everyday life at the fort may be the most important result.

Archaeological excavations have provided the details of the fort's construction, which indicate it was planned and constructed to be a major, permanent fortification. The skill and knowledge of the men who selected the site and designed the fort are apparent in the remains. The fortifications were built to the standards of eighteenth-century military engineer's manuals, as evident in the section across the parapet of the North Redoubt. The Powder Magazine and the Grand Battery were constructed similar to those at the primary military installations of the day. The Storehouse was built on a large stone foundation and contained stores in interior spaces that were guarded by officers who controlled access to them.

Archaeologists observed that the conditions within the fort reflect a level of military discipline and order not generally expected of the young American Army. For example, the Soldiers' Necessary in the central area was used sparingly during the early period of fort construction. Apparently, exterior necessaries were constructed for regular use. Also the barracks were kept clean and trash removed to specific places where it was buried on a daily basis. These places were adjacent to the barracks, but out of the way from the regular routes of travel across the fort.

The large quantity of material items recovered in excavations indicates a wealth of supplies and goods not usually associated with the American Army of the Revolution. Domestic artifacts, for example, were especially plentiful. The ceramic collection exhibited a wide range of ware types and vessels. Particularly important is the evidence they provide that officers and soldiers lived in separate social worlds within the fort. They not only ate off different wares but also ate in different ways. They had unequal access to food, which was prepared in different ways. Meals were consumed in separate places with the use of distinct types of ceramics and utensils.

Military items were present throughout the fort, but marked by considerable variation from place to place and within specific structures (Figures 2.6, 2.7, and 2.8). This suggests that the American Army was not as successful at supplying standardized equipment to the soldiers as the soldiers were at acquiring domestic material. The exception to this variation was found in the North Redoubt, which exhibited a large proportion of lead shot in the same size categories. This may be a result of the British occupation of this feature during the destruction of the fort. The limited archaeological evidence of the battle appears to have been recovered from the North Redoubt as well. Flattened lead shot, bayonets, and rifle shot at this location are products of specific events related to the battle.

Various buildings within the fort were described with names reflecting specialized functions, such as the Bakehouse, Storehouse, and Guardhouse. Although these buildings may have functioned in these ways, archaeological evidence indicates they had multiple purposes. Each of these structures contained at least one room that served as living quarters, possibly for a guard. Even the North Redoubt appears to have had some soldiers living there. In contrast, the Grand Battery, the Powder Magazine, and the Soldier's Necessary

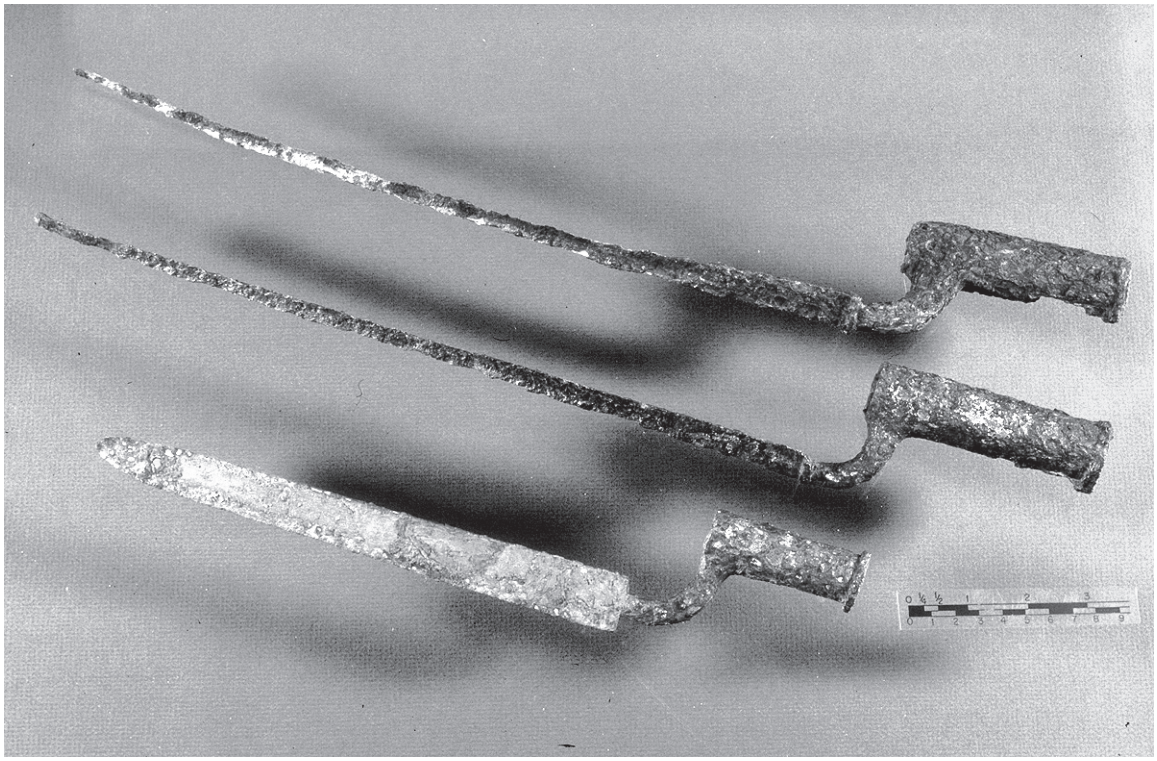

Figure 2.6. Bayonets from Fort Montgomery.

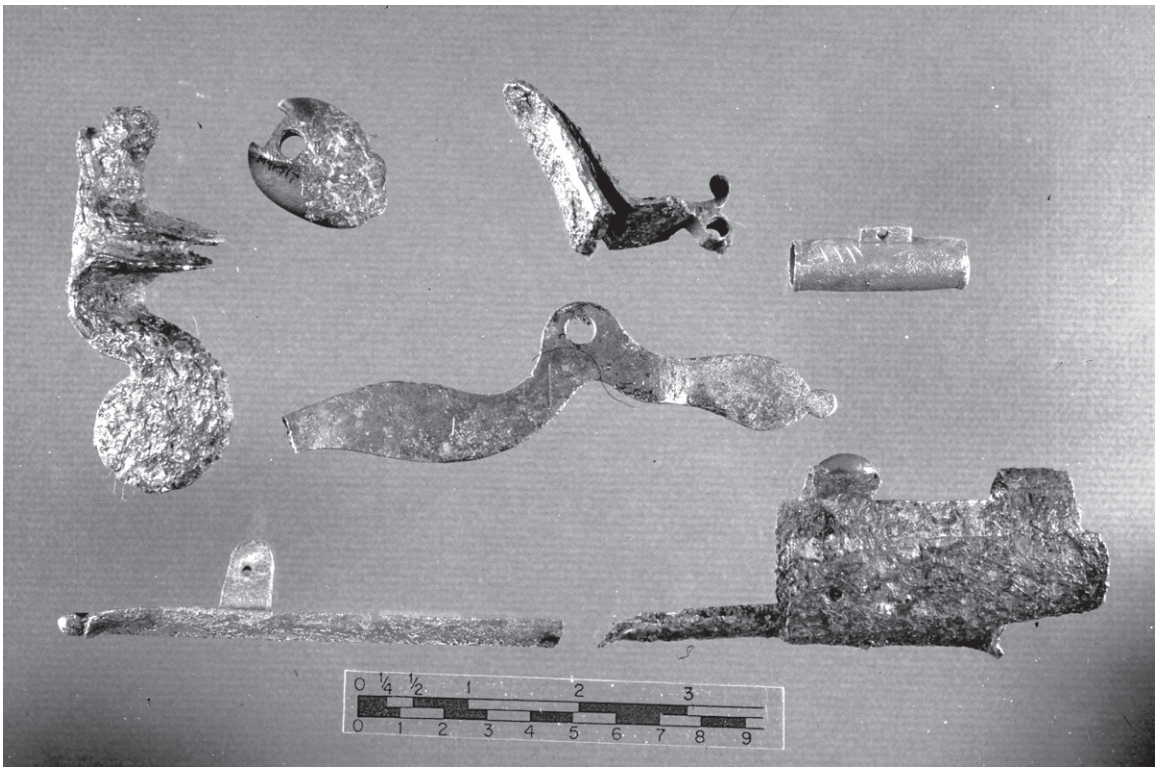

Figure 2.7. Gunparts from Fort Montgomery: hammer (left), jaw (top left), frizzen (top center), ramrod holder (top right), sideplate (center), nosepiece (lower right), and a portion of a trigger guard (lower left).

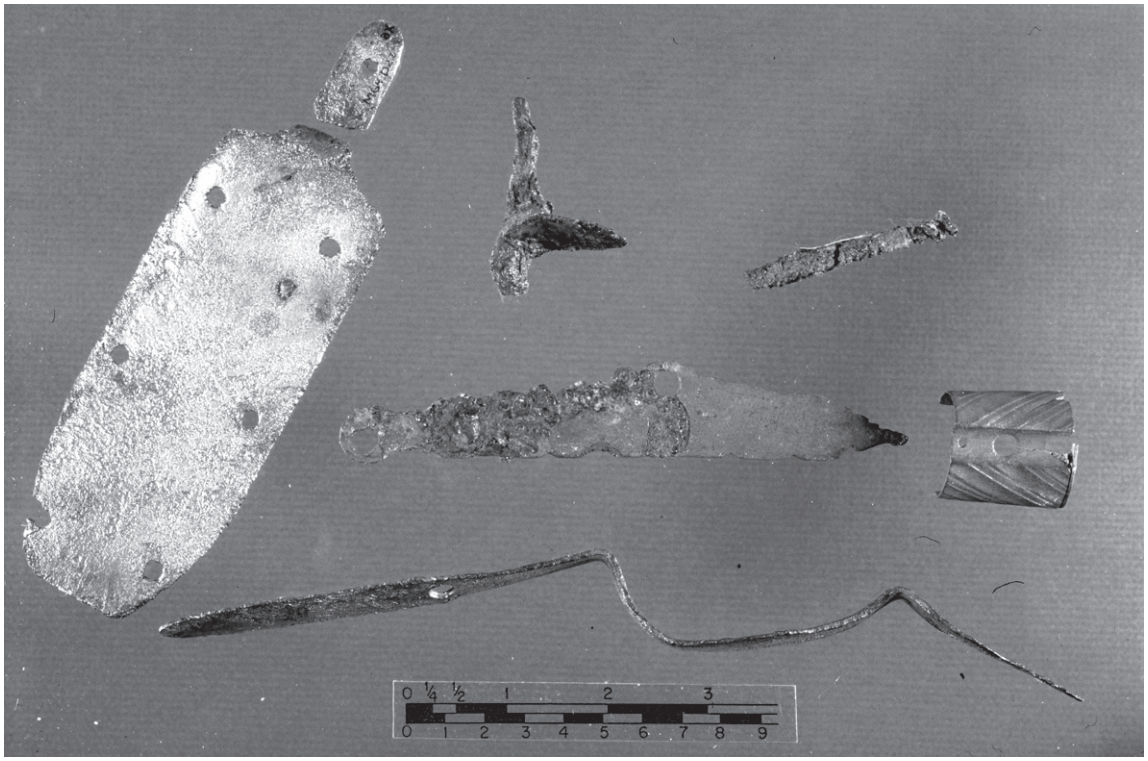

Figure 2.8. Additional examples of gunparts from Fort Montgomery: butt plate (left), hammer (top center), worm (top right), side plate (center), nosepiece from a rifle with an octagonal barrel (lower right), and a triggerguard (bottom).

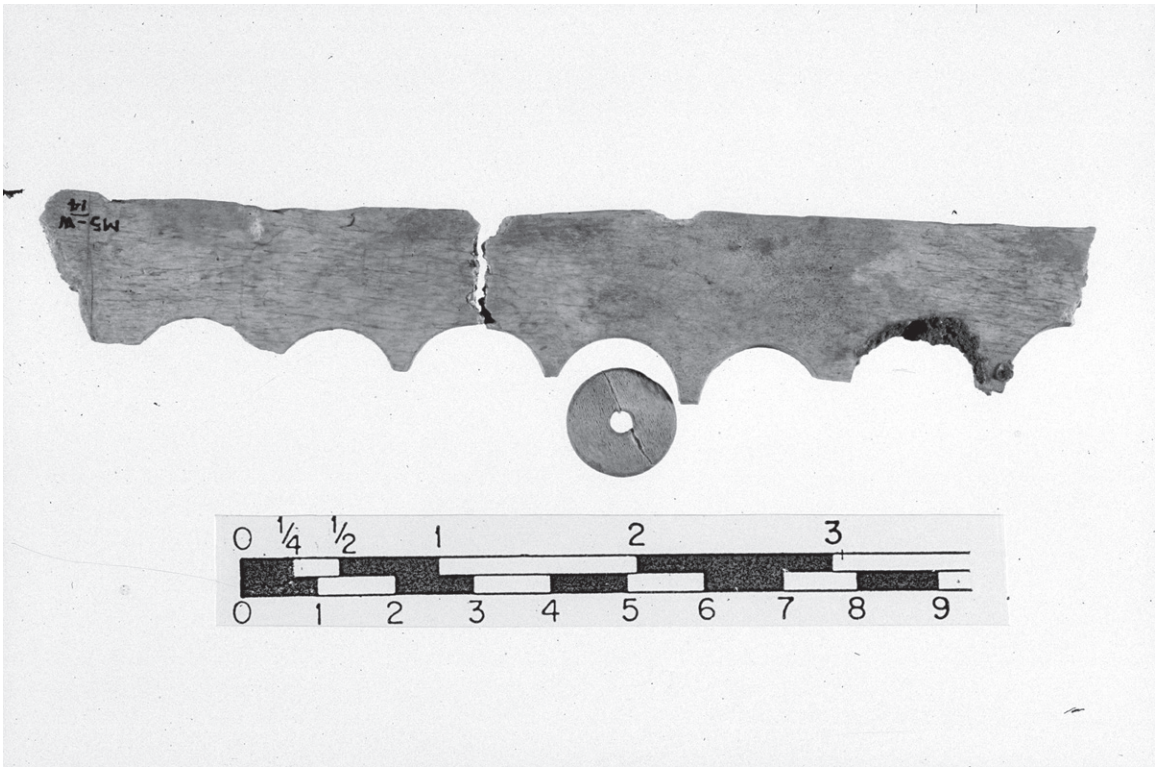

Figure 2.9. Bone button blank (cow rib fragment) and button manufactured from a bone blank.

Figure 2.10. Pewter spoon bowl with initials inscribed and highlighted for photograph.

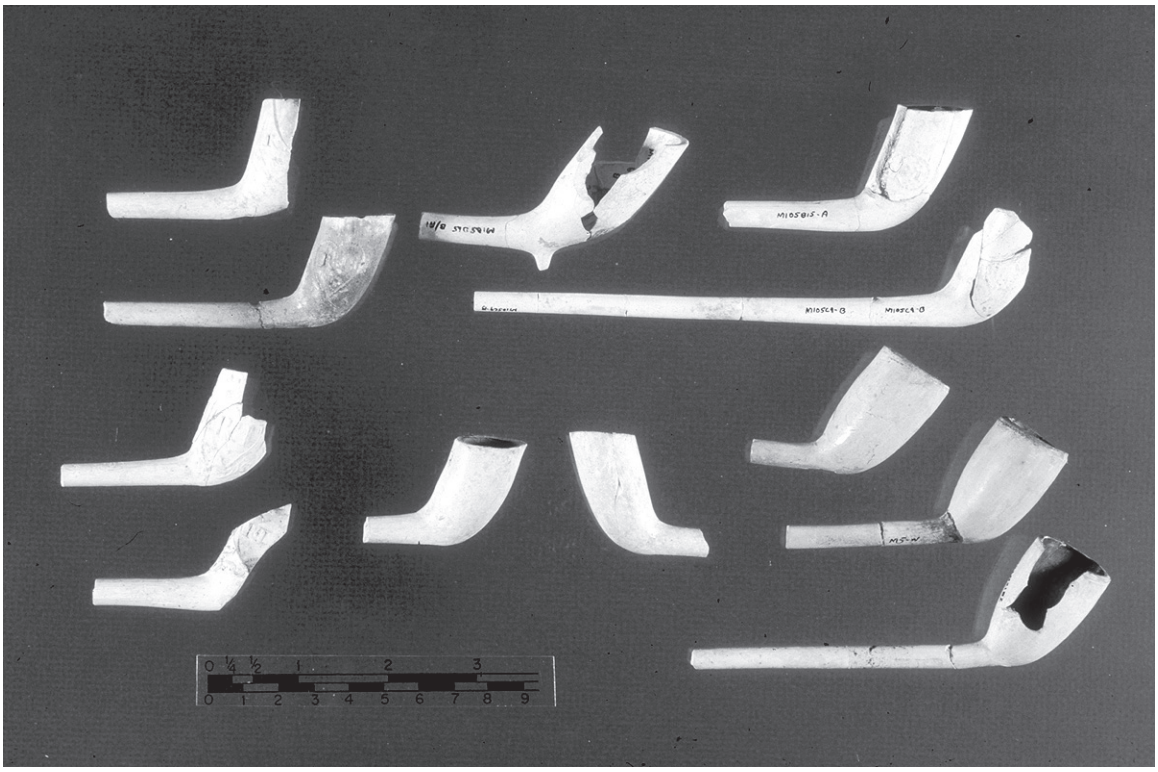

Figure 2.11. Examples of white clay tobacco pipes from Fort Montgomery.

lacked this evidence.

The many artifacts recovered reveal numerous activities and tasks of the soldiers. In addition to the construction activities and military duties that consumed most of their time, soldiers performed other tasks that left material remains. Butchered animal bones indicate that soldiers managed live animals either inside or outside of the fort as well as slaughtered and ate them. Soldiers made items out of horn, made buttons from bone (Figure 2.9), melted and poured lead for shot, scratched their initials and other symbols onto their spoons (Figure 2.10), mended their clothing with needles and thimbles, wrote with lead pencils and pens, smoked tobacco (Figure 2.11), took medicine, gambled, and drank tea and large quantities of alcohol (Figure 2.12). They fished and foraged to add variety to their diet and fed scraps to their dogs.

The archaeologist James Deetz (1977) has suggested that the Americans were more English, in terms of their material culture, at the beginning of the Revolution than previously. This seems to be the case in the artifacts recovered from Fort Montgomery. It is difficult to discern the brief British occupation of the fort. Standardization and diversity in the material remains may be more important to the identification of the British and Americans on this site than the material items themselves.

The soldiers at Fort Montgomery used a large quantity of British manufactured items. The most obvious example is the large number of mass produced ceramics. Creamware was the most modern of these wares produced, but local or American made wares, if present, represent only a small minority of the collection. The older ceramics present, especially the lead glazed and slip decorated buff earthenware or yellowware, were imported as well. The smoking pipes were most frequently marked with the initials of British pipemakers, and even British uniform buttons, and possibly the uniforms themselves, were used by the Americans.

Americans produced the food evident in remains on the site. They made shot, buttons, and probably some of the tools. A pewter spoon was recovered with the mark of a New York City maker. Local ironworks probably produced equipment, tools, and building supplies for the fort. In general, the colonial economy is evident in the small number of items manufactured in the colonies.

Figure 2.12. Wine bottle excavated at Fort Montgomery.

Chapter 3: the Main Barracks

by Nancy Davis

The archaeological excavations of the Main Barracks were done in stages by several different parties. As part of an effort to locate the ruins of Forts Montgomery and Clinton, the Main Barracks were reported by Reginald Pelham Bolton and Edward Hagman Hall in 1916, and located on a map drawn up by Hall. Apparently, there was some excavation of a refuse pit near the building in 1916 as per a brief note written by Hall.

The Trailside Museums at Bear Mountain were established in 1927, and under their auspices, archaeological work was done at Fort Montgomery and Fort Clinton. In 1935-36, several structures were uncovered and partially excavated, including the Main Barracks where seven excavations took place. Mead (1992) later summarized these, and a list of artifacts recovered with a map showing the locations of the excavations were included in his report.

In 1963 Marcus Reynolds, John Kenney, John Orth, and Jack Mead excavated a portion of the Main Barracks as the result of a large tree fall that revealed a large amount of material in the ground. This area was outside the west wall of the barracks and was illustrated in a plan map drawn by Mead showing three excavation squares. They measured 4 feet on a side according to the map. Fear of pothunters spurred the Trailside Museums to do a comprehensive survey of the fort remains and subsequently, extensive excavations took place at the Main Barracks along with many other of the fort's

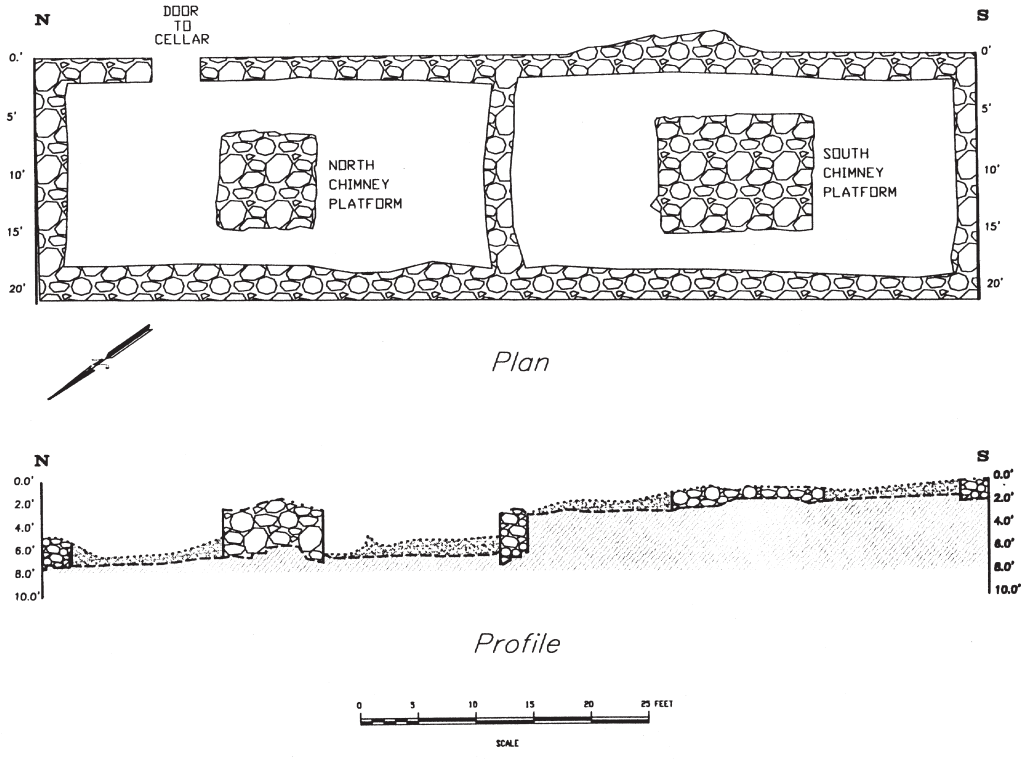

Figure 3.1. Main Barracks plan and profile.

structures during the period from 1967 to 1971.

Most of the individual fort structures were excavated within Mead's grid system but apparently, since a portion of the Main Barracks had been excavated in 4 feet square units in 1963, a 4 foot excavation grid was maintained for the rest of the Main Barracks ruin. The three 1963 excavation units were relabeled from letters (A, B, and C) to numbers (1, 2, and 3) and were incorporated into the 4-foot grid.

Structural Remains

Jack Mead's excavation notes and papers from as early as 1963 were used as the basis of the Main Barracks interpretation. The building was two stories high according to historical description, and measured 20 feet by 80 feet, oriented northeast to southwest (Smith 2002) (Figure 3.1). The foundation was stone construction. It had a dividing wall located midway between each end of the building and had two brick chimneys that rested on stone platforms centrally located within each half of the building. It had a storage cellar in only the north half of the structure and there was an external cellar entrance on the east side of the foundation (Figure 3.2). The cellar part of the foundation was on average 6.4 feet deep. It appears to go down to bedrock or solid soil but this was not definitely established. Each floor was divided into 20 by 40 foot rooms with back-to-back fireplaces and was designed to house 160 men. The staircases to the second floor were on the inside of the building (Mead nd:11).

Mead did a scaled sketch of the floor plan of one of the rooms in this barracks and labeled it as "tentative." It shows the northernmost room, with two windows, the outside entrance and two sets of stairs leading to the second floor, the fireplace, bunks along the walls, and a table and chairs in the center of the room. The source of this sketch is unknown, although the fireplace and room size is based on the archaeological excavations (Mead nd:11).

Foundation

The main foundation wall varied in thickness from 26 to 30 inches and was constructed of coursed rubble stone. The vast majority of the stones are very irregular in shape - only a few were squared and these primarily used at corners. The

Figure 3.2. View west of the cellar entrance.

walls were laid dry (without mortar) in fairly regular courses. Through stones were used to tie the wall together, as is commonly done in dry-wall construction. Rarely did one stone span between the interior and exterior face. Gaps between the stones were densely packed with stone chips (Flagg 2001). The exterior of the wall was pointed with mortar in ridge type pointing both horizontally and vertically. Ridge pointing consists of mortar placed between the stones to form a beveled edge. The mortar itself was composed of lime and soil, free of sand. The mortar used on the interior of the cellar, though, was mixed with sharp sand and troweled flush with the walls so that they were perfectly straight and smooth.

Stone Chimney Platforms

The stone platforms for the chimneys are different sizes: the northern platform outer dimensions measure approximately 8 by 8 feet while the southern platform measures 13 by 10 feet, indicating that the northern chimney, hearth, and apron were smaller than the southern one. The construction of the north platform consisted of a shell of stone with a thin veneer of mortar and the interior filled with soil. The southern platform was a stone base mortared together evenly on the outside surface, much like the foundation walls, but the interior was filled with large unmortared stones. The smaller size of the northern chimney and base creates an offset possibly to accommodate a stairway from the cellar to the first floor, or from the first floor to the second floor on the inside of the building (Mead nd: 12).

Brick Chimneys

From the archaeological evidence, the two chimneys resting on the stone platforms were made of mortared brick. Large sections of the northern fireplace and opening were found intact on the ground where the chimney fell, and were excavated by Mead et. al. in the 1960s (Figure 3.3).

They found remains of the outside edge of the northern chimney and the interior side of the fireplace opening. Exactly five feet to the east they found traces of the other side of the fireplace opening indicating it was 5 feet wide. Based on the number of bricks found mortared together, the west side of the fireplace was only 1 1/2 bricks thick, while the east side was at least five bricks thick. This indicated that the fireplace opening was offset from the center of the platform.

Figure 3.3. Collapsed chimney found in situ during 1967 excavations.

The hearth was made of brick rather than stone. The fireplaces were back-to-back with three bricks separating them at the back. There was a brick arch at the top of the fireplace openings, and many of the bricks in the fireback were glazed. The dimensions of whole bricks used measure 7 7/8 by 3 5/8 by 1 7/8 inches.

Building Entrances

It was evident from the heavy deposit of trash in the uneven ground on the west and south sides of the barracks that the doors to the barracks were on the opposite side (east) where the ground was

Figure 3.4. Door hardware and nails from the Main Barracks.

level and relatively free of trash and stones. The finding of two door pintles and a hinge just inside of the east foundation wall further strengthens this belief. Also, there were four nails found near the hinge and pintles that were clinched over 1 3/4 inches from the ends. These could be from a door, indicating the door thickness, or similarly, from a window shutter (Figure 3.4).

Frame Structure

The building, according to documentary evidence, was of frame construction with board siding. This is supported archaeologically by the fact that roughly 5,000 nails and spikes were recovered at the site.

The recovery of window glass fragments during excavation of the building indicates that there were at least some windows. Based on the location of the fragments, the windows were present in the east, west, and south sides of the building, but not on the north (Figure 3.5).

Refuse Pit

Mead excavated an area outside the west foundation wall in 1963 as the result of a large tree fall near the structure. It revealed an area extending out approximately six feet that was used as a garbage pit. It was full of bones along with a variety of other trash from the occupation of the fort in 1776 and 1777. Interspersed with the bones were layers of ash and partially burned or melted objects, though none of the bones showed any evidence of being burned or charred. However, they were broken to obtain the marrow, which may indicate this is where animals were butchered and distributed to the men, or else this is where a central cooking area existed. Mead described the pit area as appearing that the ground had been dug out next to the foundation, either for the construction of the wall, or by a later removal of soil to create the pit for refuse. Recent examination of the bones from the Main Barracks shows no evidence of rodent gnawing (Horton, this volume) indicating that the trash was purposely covered with soil. The artifacts recovered during Mead's more extensive excavations showed that this densely concentrated refuse deposit extends all along the west wall and around the south end of the building. Figure 3.6

Figure 3.5. Distribution of window glass fragments.

shows the distribution of all the non-structural artifacts found at the Main Barracks, which shows the dense concentrations. The densest concentrations are represented by the darkest shades.

Artifacts

Excavations at the Main Barracks produced 20,738 artifacts from a grid of 222 unique squares laid over the entire foundation along with a large, irregular-shaped area along the outside west wall of the foundation (1963 tree fall), and in 28 miscellaneous locations around the Main Barracks area (Figure 3.7). Relatively few of the artifacts found were either prehistoric Native American or nineteenth and twentieth century in origin. This discussion regards only the Revolutionary period artifacts. The Native American and the nineteenth and twentieth century materials are not analyzed here.

The artifacts were catalogued into four main classes as follows: Food/drink, Personal, Structural, and Miscellaneous. For interpretive purposes and for description, these classes have been broken down into artifact types, and then further broken down into subtypes based on association or use (Table 3.1). For example, within the Personal class of artifacts, there is a type associated with military/defense, and one associated with clothing. These are discussed separately from other artifacts in the Personal category.

Structural Artifacts

Artifacts related to the structure are numerous and consist of nails, brick, mortar, window glass, and hardware. By far the largest proportion of artifacts in this group is the hand wrought nails and nail fragments, over 2,974. These were probably used mainly for board siding, roofing, and wood flooring inside the structure. Beyond these, there were over 1,500 nails that were corroded enough to be unidentified by type. These were likely also hand wrought nails. There were however, 46 hand wrought spikes and spike fragments as well as seven cast iron nails found during excavation. Cast iron nails were found within a residence in the Storehouse, where they were used to attach lath to the walls. The seven nails here are insufficient to represent plastered walls.

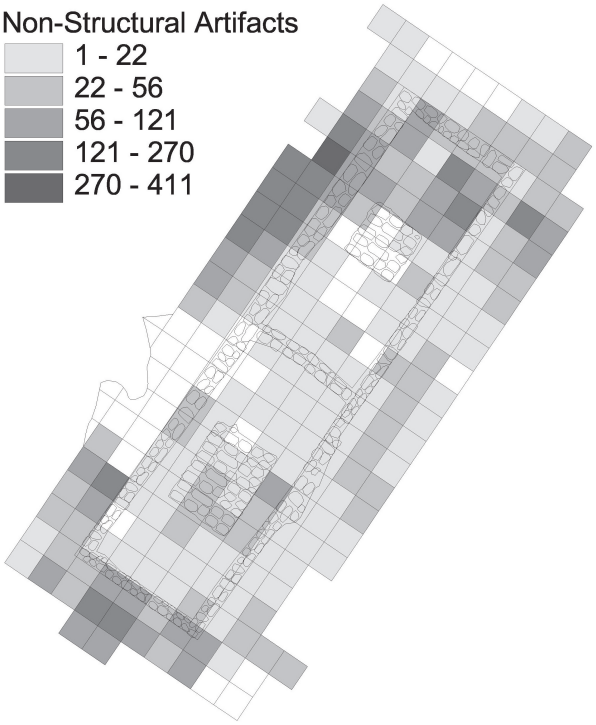

Figure 3.6. Distribution of nonstructural artifacts showing refuse areas.

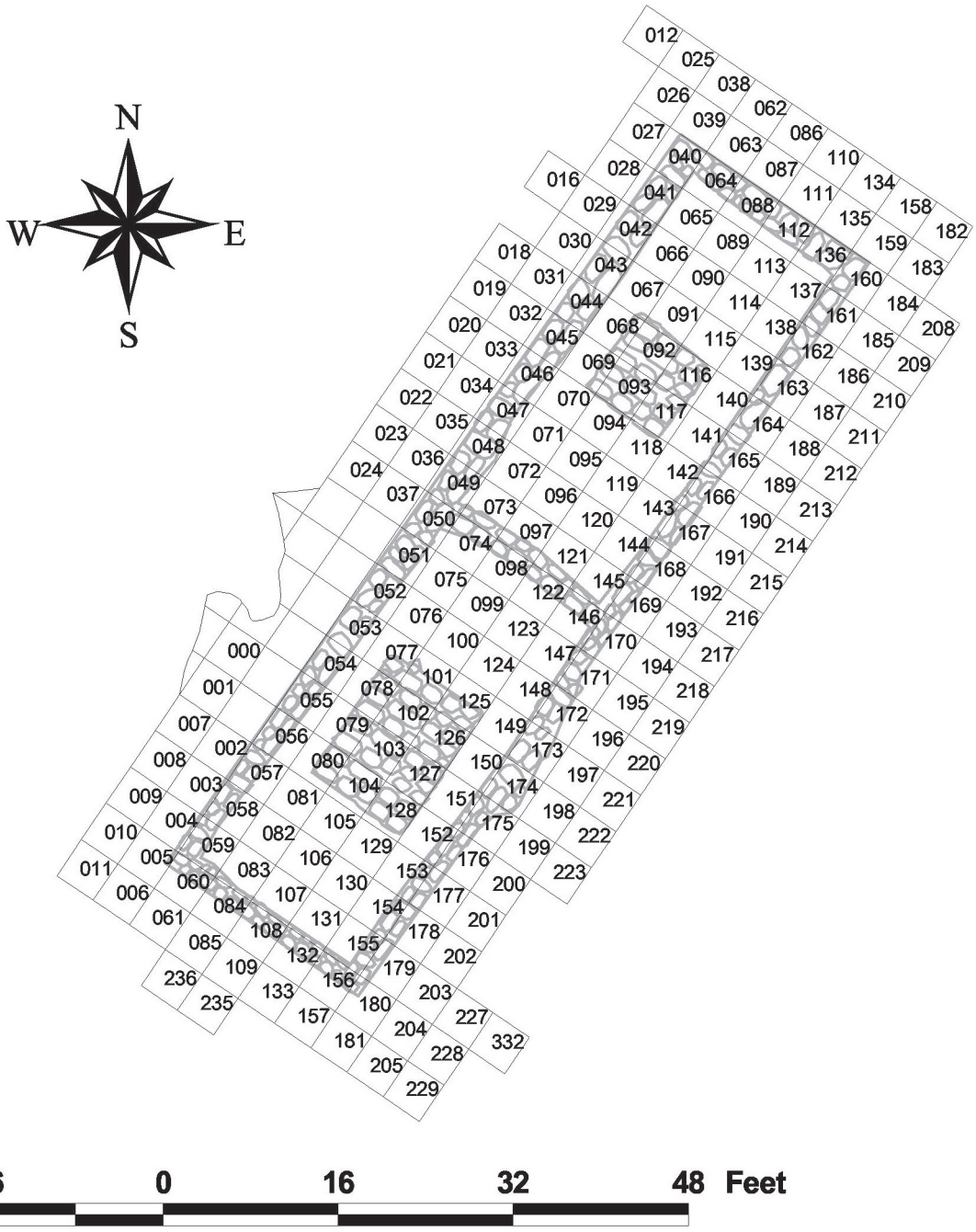

Figure 3.7 Plan of excavation grid with numbered squares.

There were only 120 fragments of glass identified as window glass, but there were also 328 pieces of unidentified melted or burned glass recovered that may well be from windows. The window glass distribution suggests the locations of windows in the building (Figure 3.5). The map shows that there were windows along both the west and east walls, probably one in each room. There was no glass along the north end of the building but there was a concentration at the south end where there was likely a window. The window locations seem to correspond to the locations of the trash middens on the west and south sides, whereas, the lack of trash and window glass on

Table 3.1. Summary of artifacts from the Main Barracks.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Buff Earthenware	24
		Creamware	542
		Delftware	116
		Ironstone	12
		Jackfield-type Redware	544
		Pearlware	16
		Porcelain	187
		Redware	214
		Stoneware	138
		Whieldonware	161
		White Salt-glazed Stoneware	471
		Whiteware	4
		Yellowware	1,610
		Other Ceramic Sherds	21
		Unidentified Ceramic Sherds	39
	Ceramic Sherds Total		4,099
	Glassware	Bottle Glass (other)	147
		Bottle Glass (wine)	2,076
		Case Glass	55
		Lead Glass (stem and tableware)	396
		Milkglass	1
		Other Glassware	2,378
	Glassware Total		5,053
	Other Food/drink	Containers	2
		Cookware	1
		Cutlery (pewter)	10
		Cutlery (other)	23
		Kettle	51
		Tin Cups	2
	Other Food/drink Total		89
	Refuse	Botanical	10
		Faunal	1,927
		Shell	88
	Refuse Total		2,025
Food/drink Total			11,266
Personal	Clothing	Buckles	104
		Buttons (bone)	23
		Buttons (brass)	85
		Buttons (iron)	3
		Buttons (pewter)	47
		Buttons (silver)	15

Table 3.1.(continued) Summary of artifacts from the Main Barracks.

Artifact Class	Artifact Type	Artifact Subtype	Total
		Buttons (other)	33
		Clothing Fasteners	2
		Cuff Links	38
		Pins	4
		Textile	1
		Other Clothing Items	4
	Clothing Total		359
	Equestrian	Harness/Tack	1
		Horseshoes/Nails	7
	Equestrian Total		8
	Furnishings	Furniture	20
		Lighting	2
		Trunk	11
	Furnishings Total		33
	Glass	Medicine Bottles	2
		Other Glass	3
	Glass Total		5
	Metal	Other Metal	4
	Metal Total		4
	Military/Defense	Bayonet	4
		Canteen	1
		Firearms/Parts	13
		Gunflint	189
		Iron Grape Shot	3
		Lead Buck Shot	9
		Lead Musket Shot	65
		Other Lead Shot	26
		Other Shot	6
		Shot Making	6
		Ramrod	2
		Sword	2
		Uniform Related	4
		Other Military/Defense	2
	Military/Defense Total		332
	Personal Items	Beads	2
		Coins	5
		Grooming	2
		Knives	1
		Medicine Bottles	483
		Other Personal Items	1
	Personal Items Total		494

Table 3.1.(continued) Summary of artifacts from the Main Barracks.

Artifact Class	Artifact Type	Artifact Subtype	Total
	Tobacco Related	Kaolin Pipe	1,311
	Tobacco Related Total		1,311
	Tools	Axe	2
		Drill	1
		Screw Driver	1
		Shovel	1
		Whetstone	13
	Tools Total		18
	Toys	Marbles (clay)	2
		Marbles (other)	1
	Toys Total		3
	Writing	Inkwells	8
		Lead and Slate Pencils	7
	Writing Total		15
Personal Total			2,582
Structural	Hardware	Door Hardware	15
		Electrical	3
		Hardware Fasteners	10
		Iron Strap	21
		Other Hardware	2
	Hardware Total		51
	Masonry	Bricks	85
		Mortar/Plaster	1,292
		Other Masonry	2
	Masonry Total		1,379
	Nails	Cast Iron Nails	7
		Wrought Nails	2,974
		Other Nail	50
		Unidentified Nails	1,583
		Wrought Spikes	3
	Nails Total		4,617
	Structural Samples	Wood Samples	4
	Structural Samples Total		4
	Window Glass	Window Glass	123
	Window Glass Total		123
Structural Total			6,174
Miscellaneous	Debris	Chert	14
		Coal	36
		Lime	5
		Limestone	3
		Melted Glass	363

Table 3.1.(continued) Summary of artifacts from the Main Barracks.

Artifact Class	Artifact Type	Artifact Subtype	Total
		Mica	3
		Quartz/Quartzite	10
		Sandstone	2
		Slate	1
	Debris Total		437
	Samples	Charcoal	27
		Soil Samples	8
		Wood Samples	11
	Samples Total		46
	Unidentified Objects	Unidentified Brass Object	10
		Unidentified Iron Object	18
		Unidentified Lead Object	74
		Unidentified Pewter Object	4
		Unidentified Stone	6
		Other/Unidentified Metal	88
	Unidentified Objects Total		200
Miscellaneous Total			683

the north end of the building suggests that window openings were a convenient portal for refuse disposal. However, for a two-story building there is a surprisingly small amount of window glass present. This may suggest either that there were not very many windows in the building, the windows were very small, or that they were covered only with shutters.

There was a shutter pintle found on the outside of the west wall. Additional building hardware includes door hinges and pintles, a door hook, and several clinched nails found near the door hinge and pintles. The location of the door hinge and pintles is along the east side of the building in the southern half where there was no cellar.

A considerable amount of lime mortar was found at the barracks site, associated with the chimney and the foundation. Plaster was absent, generally, from the barracks. This suggests that the walls inside the barracks rooms were not finished with lath and covered with plaster.

Food and Drink

Artifacts related to food and drink at the Main Barracks include ceramics, glass, cutlery, fireplace cooking, storage, and food remains.

Ceramics

There was a large quantity of ceramics represented at the site as listed in Table 3.2. The majority of sherds were found in the trash middens or sheet scatter on the west, south, and east sides of the building. Several of the ceramic types found are associated with post Revolutionary War periods such as the white earthenware, the pearlware, and the ironstone, but these represent a very small proportion of the ceramics found. By far the ceramic type found in largest proportion (40 %) was yellowware, which is lead-glazed buff earthenware with slip decoration. This is followed, at a distant second, by creamware and Jackfield-type redware, both 13 %, and then white salt glazed stoneware (12 %). The other ceramic types amount to 5 % or less of the assemblage for each type represented.

For the most part, the small size of the majority of the ceramic sherds recovered prevented a distinction of the types of vessels used there by the soldiers. Those that were identifiable include porcelain tea bowls and saucers, white salt-glazed stoneware teapots, teacups, a mug, and a lid,

Table 3.2. Main Barracks ceramic ware types and numbers of each.

Ware Type	# of Sherds	Percent
Yellowware	1,634	40.0%
Redware	214	5.0%
Stoneware (gray, buff)	138	3.0%
Delft	116	3.0%
Creamware	542	13.0%
White Salt-Glazed Stoneware	473	12.0%
Porcelain	187	4.5%
Whieldon ware	161	4.0%
Jackfield-type	544	13.0%
Other Ceramics*	23	0.5%
Pearlware*	16	0.4%
Ironstone*	12	0.3%
Unknown Ceramic (burned)	39	1.0%
Total	4,099	

* Post Revolutionary War ceramic types.

Jackfield teapots and a bowl, and yellowware posset pots.

The spatial distribution of ceramic sherds (by type) shows that the trash middens and sheet refuse occurs just outside the building on the west, south, and east sides. There is a conspicuous absence of sherds inside the walls, and on the exterior of the north wall. This is clearly visible in Figure 3.8, a distribution plot showing a combination of all sherds of buff earthenware, delftware, Jackfield-type redware, porcelain, redware, and Whieldon ware ceramics.

Some of the ceramic ware types were found not only in the refuse areas outside the barracks, but also inside the northern half of the cellar. They include yellowware, creamware, white salt-glazed stoneware, and gray or buff stoneware. Most of the yellowware sherds were found in the northwest corner, while most of the creamware sherds were just inside the cellar door as were the white salt-glazed stoneware sherds. The other stoneware, mostly buff or gray bodied, clustered in the northeast corner of the cellar (Figures 3.9-3.12).

The doorway to the cellar along the wall north of the large stone chimney platform would have provided natural light on that end of the underground room, whereas the massive stone base would have blocked light from the area to the south side of the platform. The presence of ceramics in the cellar suggests that this was a storage place for foods kept in yellowware vessels or that there were a number of empty vessels kept in that part of the cellar.

Creamware and white salt-glazed stoneware vessels were not used as storage containers, rather, they consisted usually of decorative tableware: plates, cups, teapots, etc. Their presence suggests that either soldiers were eating meals inside the cellar, or table dishes were stored there. This is in sharp contrast to the distribution of most of the other ceramic types found. The barracks may have had a guard on duty in the cellar to protect the stores there, and that he ate in the cellar while on duty.

The soldiers at this building were using ceramics related to tea consumption. There were 270 identifiable teacup and teapot fragments recovered, primarily of Jackfield-type redware, but some were made of decorated porcelain and decorated white salt-glazed stoneware.

Glassware

Glassware related to food and drink included leaded table glass and bottle glass. There were

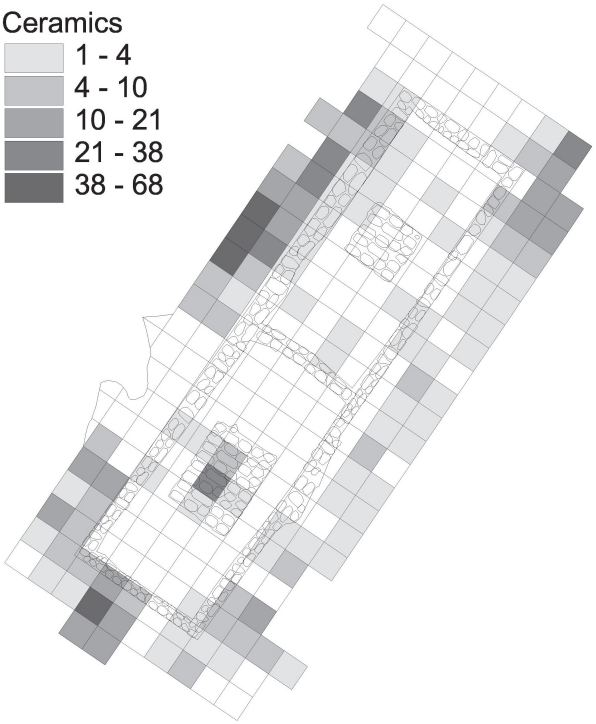

Figure 3.8. Distribution of ceramics excluding yellowware, creamware, white salt-glazed stoneware, and stoneware.

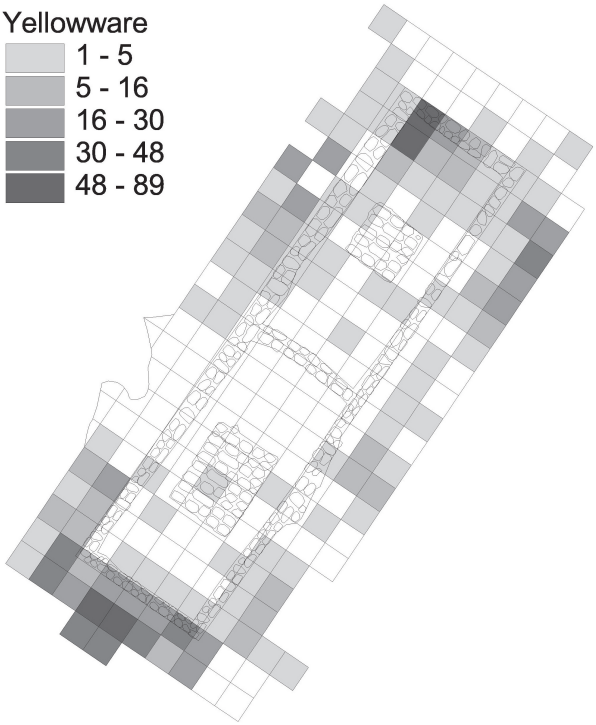

Figure 3.9. Distribution of yellowware sherds.

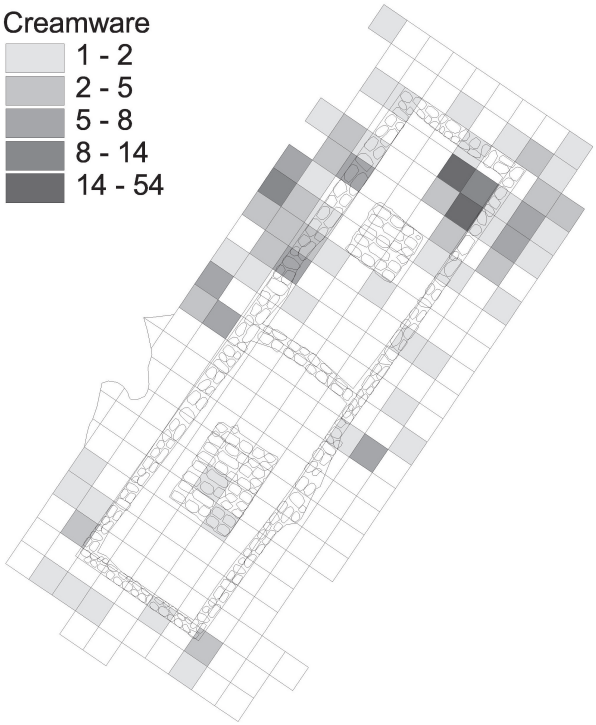

Figure 3.10. Distribution of creamware sherds.

Figure 3.11. Distribution of white salt-glazed stoneware sherds.

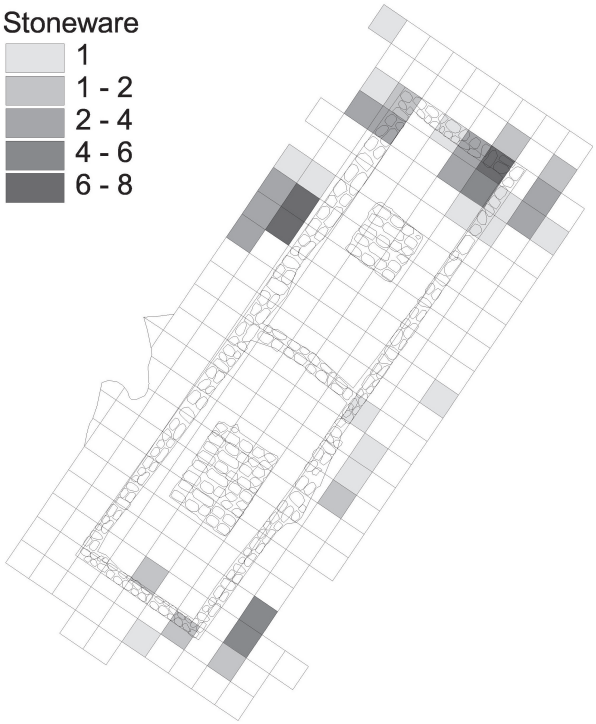

Figure 3.12. Distribution of stoneware sherds.

nearly 400 fragments of table glass, which was mostly clear leaded glass in the form of stemmed wine glasses, flasks, decanters with stoppers, and tumblers. The bottle glass included predominantly dark green colored wine bottles, over 2,000 fragments, but 228 fragments were clear curved glass, probably from bottles. There were also 55 case bottle fragments.

The bottle glass fragments were found all over the barracks area both inside and outside the walls. Of all the artifacts found during excavation, the wine bottle glass is the only artifact type found outside the north wall of the barracks. There is also a noticeable concentration of it in the north part of the cellar, which apparently was used for storage of wine or other liquids in glass bottles along with various other goods. The case bottle fragments were concentrated in the area excavated in 1963 where the hemlock tree fell along the southwest wall of the building. This large quantity of bottle glass is a clear indication that there was an ample supply of wine available to the soldiers and that there was very little recycling of the bottles.

Cutlery

At the Main Barracks there were four two-tine forks found and two fork handles, four whole table knives, five knife blades, two handles (one of bone), one folding knife, and one modern jack knife found. There were seven whole pewter spoons, two pewter spoon handles, and a pewter spoon bowl. Figures 3.13 and 3.14 show some of the forks and spoons found there. Almost all of the cutlery was found in the trash areas on the west side of the building but one knife blade was found inside the wall near the southern chimney platform.

Cooking

There were 52 iron cooking kettle fragments recovered. These were mostly body fragments but there were two legs and a handle included. Some of these fragments were found near the southern chimney platform but most were recovered from the trash area at the southern end of the building. There was also an iron pothook found.

Food

Food remains recovered at the Main Barracks included eggshell, animal bone, marine shell, and nuts. There were almost 2,000 animal bone fragments recovered from excavations including cattle, pig, sheep, chicken, duck, passenger pigeon, and fish bones. The bone total includes animal teeth, both pig and cow. The large sizes of some of the bone fragments suggest that there was butchering at or near this location and that the bones appeared to have been broken to obtain the marrow. There was very little evidence however, of gnawing by rats or dogs indicating that the trash areas around the building were probably buried (Horton, this

Figure 3.13. Forks found at the Main Barracks.

Figure 3.14. Spoons found at the Main Barracks.

volume).

There was a relatively small amount of marine shell found at the site; 81 fragments consisting mostly of clam and oyster shell, but there were three crab claws and five turtle shell fragments as well. Recovery of plant remains produced 10 nuts or nut hulls, seven identified as peach pits. Most of these had been burned.

Personal Artifacts

Military/Defense

Musket parts recovered include two brass trigger guards, three brass side plates, an iron side plate and one of unknown metal, a musket barrel, the lower jaw of a gun cock, two barrel fore-end caps, a brass ramrod pipe, a brass ramrod holder, a rear sling swivel and a sling screw, six iron cartridge liners, and a ring from a Grenadier case. There were three whole bayonets and a bayonet clip back recovered, as well. Related to swords, there is a silver braid sword sash fragment and a sword hand guard made of brass in the shape of a scallop shell. There also is a brass sword scabbard tip and a scabbard throat fragment.

One hundred pieces of shot were found in the excavations, most of it lead, in the caliber range of musket shot. There was also one piece of iron, some birdshot, buckshot, and grape shot. Many of the unknown caliber pieces were damaged or inferior in some way. One piece of lead shot was drilled suggesting it may have been used as a fishing weight. Table 3.3 shows the quantities of different measurable diameters of the shot found.

Table 3.3. Quantities of shot type by caliber at the Main Barracks.

Caliber	Quantity
0.30	3
0.35	2
0.40	3
0.47	2
0.60-0.65	18
0.67	1
0.69	18
0.70	11
unknown*	39
1.20**	3
Total shot	100

*Too damaged to be measured.
**Iron grapeshot.

Shot making was a common activity at the Main Barracks as reflected by the presence of melted lead fragments; 75 pieces were found scattered around the building. The majority was found along the outside west wall in a general trash area, but some was found on the inside of the foundation. Seventeen fragments were found in the south half of the foundation and six in the north half where the cellar is located. There was also a fragment of a lead gang mold for making shot found outside the east foundation wall. It is not obvious from the distribution of the melted lead that the activity of making shot took place near the fireplaces though these would be logical locations for this activity. It could have been done on fires outside though. If they were making it at their hearths, the relative cleanliness of the inside of the building, in contrast to the concentration of lead in the refuse disposal area on the western side of the building, suggests that the soldiers cleaned out the fireplaces regularly. There were also three lead strips described as melted balls, some folded melted lead, and a square piece of lead described as trimming found.

There were 189 whole and fragmented gunflints found at the Main Barracks. Again, most were found in trash areas outside the foundation walls on the western side of the building, but also along the south end and some along the eastern side. They were made of both amber and gray flint and many of them were burned. Two of the flints were identified as pistol flints based on their smaller size.

Clothing

There were numerous items related to clothing and uniforms found at the Main Barracks including buttons, cuff links, buckles, hook-and-eye fasteners, and pins.

Buttons

Many types of buttons and button fragments

were found - 209 in total. These consisted of 85 made of brass, 48 made of pewter, 22 of bone, and 15 made of silver. There were 39 made of either unknown material or iron, or a combination of materials like brass, silver, and bone. Of the buttons found at the site, 23 had regimental markings, 20 from American regiments and 3 from British (Table 3.4). There was also a mixture of plain and decorated buttons, several with paste glass gem inlays.

Table 3.4. Regimental buttons found at the Main Barracks.

American Regiments		British Regiments	
Reg. No.	**Qty.**	**Reg. No.**	**Qty.**
7th	4	19th	1
12th	1	22nd	1
14th	2	26th	1
16th	1		
17th	2		
24th	1		
NY	5		
*Proctor's	1		
Unknown Am.	3		
Total	20		3

* Identification as button fragment is tentative, may be base of tin inkwell

Cuff links

There were 38 cuff links and cuff link loops, mostly made of brass with various decorations. There were a few made of silver. Some had glass inlays and one had porcelain.

Buckles

There were 104 metal buckles and buckle fragments; almost 70 percent were fragments or parts of buckles. The majority was shoe buckles made of brass, though there were a few made of iron and one made of pewter. There were also quite a few knee buckles, mostly made of brass, along with two "stock" buckles. A stock is a wide band or scarf worn around the neck by men during the eighteenth century. Sometimes these would be fastened with a buckle in the front or the back (Newmann and Kravic 1975).

Fasteners and Pins

There were two eye parts from hook and eye fasteners, one identified as a coat fastener, and one made of brass. There were also four wire-wound straight pins recovered.

Personal Artifacts

Artifacts found that were categorized as personal were items either owned and supplied by individuals, or carried with them wherever they moved (except for weapon related gear discussed separately). These included: a rosary bead, two straight razors, and eight whetstones and fragments thereof, the remains of two tin cups, a metal canteen spout, and two fishhooks. There were four slate pencils and one lead pencil found in excavations. Eight colored glass fragments were possibly from an inkwell. The inkwell may not be from the eighteenth century but was found inside the north part of the cellar and could have been used by someone in the barracks. Hanson and Hsu (1975:131) reported that four inkwells were found at Fort Stanwix. One was made of a blown glass liner set into a brass jacket, and that report also mentions that a similar specimen was found at Fort Montgomery according to personal communication with Jack Mead.

There were also three clay marbles found and five coins including a 1732 British coin, a silver Mexican coin from the eighteenth century, a brass piece marked George III, a halfpence, and one unidentified coin made of brass. Neumann and Kravic (1975:195) point out that many European coins circulated prior to and during the Revolutionary War period, and that the fine quality of Spanish silver from Central and South America frequently caused the Americans to back their currency in Spanish milled dollars. This may explain the Mexican coin. They also mention that, because of the scarcity of coin, tavern owners and sutlers issued brass discs, which served as money.

Smoking pipes

Tobacco smoking by the soldiers at the Main Barracks is indicated by the large quantity (1,301) of white clay tobacco pipe fragments found in the excavations. Molded decorations are present on some of the pipe bowls, including 23 with the initials RT made by the popular eighteenth-century pipe maker Robert Tippet. There are several other

decorations represented as well but in small numbers; the initials TD, which were made in both the eighteenth and nineteenth centuries, and the name Dorni, and one marked with the name Gouda, which are both from the nineteenth century.

Medicine bottles

There was a total of 483 medicine bottle fragments found at the Main Barracks, made of both colored and clear glass. These could have been both medicine vials and bottles of different sizes that could have contained liquid medicines to be taken by the drop, in the case of small vials, or by the draught in the case of larger vials or bottles. Medicines in the eighteenth century were usually an herbal concoction mixed with flavored water or alcohol as a vehicle, and stored in different sized vials as necessary. Small doses were taken directly from the bottle. Darker colored bottles were used for substances sensitive to light (Jones and Smith 1985: 90). The distribution of medicine bottle glass shows a considerable number (49) of pieces in the cellar, which suggests that medicines may have been stored in the cellar. The remainder of sherds occurs in refuse areas on the outside of the foundation (Figure 3.15).

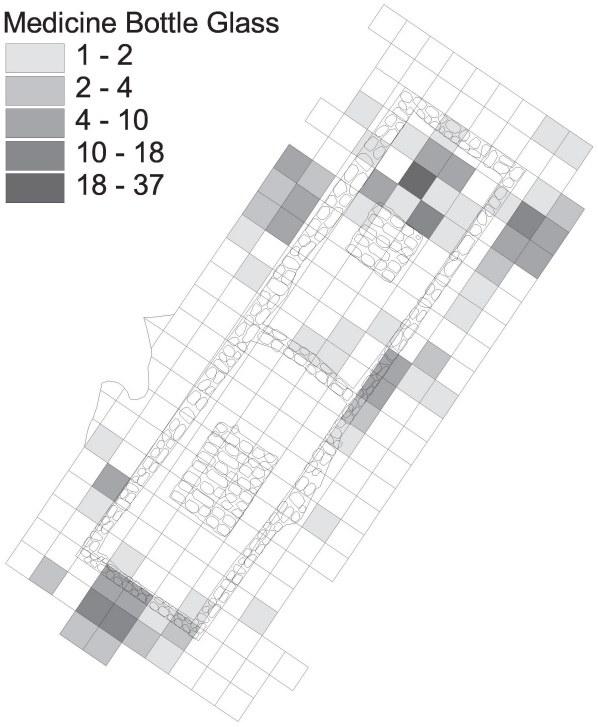

Figure 3.15. Distribution of medicine bottle glass.

Furniture

The presence of furniture in the barracks is indicated by a number of surviving parts of trunks and chests. There were 26 brass tacks from a trunk or chest, an iron trunk hasp, an iron fastener for a box lid, and a wear cap with 4 nails. This cap would have been attached at a corner of a trunk or chest. Medicines were often kept in a "kit" consisting of a trunk or chest made with compartments for storing liquids and powders along with glass bottles and vials. Based on the amount of medicine bottle glass found, there might have been a medicine chest or trunk in the barracks for use by the soldiers.

Miscellaneous Artifacts

There were a few tools found at the Main Barracks. A screwdriver tip, a broken rock drill (probably from the later mining operation), a belt axe, and a hatchet head were found. Evidence that horses were present consists of two horseshoes, and a horseshoe nail. A related artifact found there was a brass harness decoration. There were also two ox shoes found from the primary "beast of burden" at the fort.

A variety of debris-like artifacts were collected in low numbers, such as chert, coal, lime, limestone, mica, quartz sandstone, iron ore, and slate pieces. There were also some charcoal, wood, and soil samples taken. Included in this miscellaneous category is a considerable amount of unidentified metal; 200 objects or fragments made of iron, brass, lead, pewter, and silver.

Summary and Interpretation of the Main Barracks

It is clear from the evidence that the Main Barracks building was constructed for long term housing of soldiers at a permanent military installation. This was reflected in the substantial way the foundation was constructed; thick rock walls mortared on the inside and outside with a deep cellar in one half that had a doorway to the outside. Also, there are the remains of two huge stone chimney platforms and two fallen brick chimneys.

The building measured 80 feet by 20 feet and has been described historically as two stories, which is evident from the thickness of the foundation walls. Each floor would have been divided into four rooms large enough for 20 men, an open fireplace with hearth and apron in each room providing light, heat, and a place for cooking.

It is surprising how little window glass was recovered at this large structure. The window glass distribution suggests that there were windows in the north half of the building on the west wall, probably one in each room, and probably the same along the east side. Also, there is glass present at the south end of the barracks but none outside the north end.

The cellar has been described in historic documents as a place suitable for storing salt provisions, a critical food item during the war. Salt provisions were meat preserved in a brine of salt and water, packed in wooden barrels. In a time without refrigeration, this was a commonly practiced method of preserving and shipping food. A barrel hoop was found in the cellar excavations, which is archaeological evidence supporting this. At the same time, it would also have been a good place to store other foods that required cool temperatures, and supplies that would not be vulnerable to a damp environment, such as foods and beverages stored in ceramic dishware and glass bottles. This is evident in the amount of yellowware and stoneware found in the cellar. It is also likely that medicines were stored in bottles in the cellar since there was a considerable amount of medicine bottle glass found in the north part of the cellar. There were very few artifacts found in the south half of the cellar. This may be because the massive stone chimney platform would have blocked nearly all natural light coming from the door, or there was less breakage among items stored in the south part and away from traffic into and out of the cellar.

It appears that the building housed both local militia and regular continental soldiers, since there is a large variety of button types found there, including ones marked with a regimental New York insignia, and a wide range in the sizes of lead musket shot. The militias were usually made up of men from local communities who would be required to supply their own clothing and weapons, resulting in a variety of uniform buttons and musket ball sizes. This is especially true in the early stages of the war. It is well known that women, and even children, lived with or near military encampments and forts during the Revolutionary War. However, there is no clear evidence from the archaeological record that women lived in or near the Main Barracks at Fort Montgomery. There were some clay marbles found there, but these could have belonged to the soldiers and used in their spare time to play games or gamble. A variety of coinages was found, but the variety would be expected for the time since there was no standard mint.

The amount and variety of refuse found during excavation is an indication that the soldiers there were well supplied. Based on the quantity of animal bone present, they had a diet of fresh meat and fish, at least during part of the year. They also consumed a lot of wine and some amount of rum. Butchering of cattle, sheep, and pigs probably took place near the barracks. Cooking was done in the fireplaces; there would have been four on each floor. Some food, such as stews and soups would have been cooked in iron kettles; this consisting of fresh or salted meat, and eaten with spoons out of deep-sided ceramic vessels, like slip decorated earthenware bowls and pots. Most of the dishes found at the barracks were of this type. Some of the dishware was flat tableware though, which would have been used for eating roasted meats and dryer side dishes with forks and knives. These tablewares, including creamware and white salt-glazed stoneware plates, as well as the popular porcelains of the time, were found in fairly large numbers at the barracks, indicating that there were probably tables and chairs in the rooms. The presence of teapots and cups indicates that the consumption of tea was also common in the barracks.

For most of the artifacts represented here, there are two general areas of refuse disposal: outside the foundation wall on the west of the building especially concentrating toward the north half, and along the south end of the building. There are lesser concentrations of most artifacts along the east side of the building, but there is a general sheet

scatter along that side as well. Mead contended that the doors to the building were on the east side where the ground was level, and the refuse areas were on the west were the building was backed up against a slope. In clear contrast to this general pattern of dumping is the relative absence of refuse to the north of the building, except some around the northeast corner. There is a direct correlation between the location of the window glass found and the concentrations of refuse at the building. It appears that the soldiers threw their garbage out the windows along the west and south sides. There apparently were no windows on the north end of the building. This end of the building, particularly the northwest corner, is only about 25 feet from the fort wall (parapet) and there may have been a deliberate attempt to keep this area clean of refuse, or may be "cleaner" simply because there was no convenient window out of which to throw refuse.

The relative absence of artifacts on the inside of the building suggests that the soldiers living there made a regular habit of cleaning out the fireplaces and floors either by order of higher command or by their own volition. The former is more likely. It also appears that some meals were eaten in the cellar, just inside the door since there are creamware and white salt-glazed stoneware sherds concentrated in that area.

Personal hygiene was also practiced, at least in the form of shaving. The presence of straight razors and whetstones are evidence of this. There was a considerable amount of medicine bottle glass found at the site as well, which indicates that the soldiers had various ailments that were treated with liquid preparations, either supplied by the army or brought from home. A common practice among the soldiers in the barracks was tobacco smoking, which itself is a form of medication.

The archaeological evidence also shows that the men were melting lead to make musket shot in the barracks. This is a typical activity at other military sites of the time. Some had personal furniture in the form of trunks or chests, and there was some writing taking place since there was evidence of inkbottles and pencils. In addition, a rosary bead was found that signifies at least one man's connection with religious faith and observances.

Despite the intent for a long-term garrison, the British destroyed the fort after little more than a year of occupation. Archaeologically, it is clear that the Main Barracks was destroyed by fire given the amount of charred and melted debris found there. After the wooden structure was burned, it appears that the British forcefully knocked over both chimneys before they abandoned the fort since there are large sections still mortared together where they fell.

Chapter 4: the L-shaped Barracks

by Christina Rieth

The L-shaped Barracks is located in the central portion of Fort Montgomery, east of the Bakehouse. John Mead of the Trailside Museum initially excavated the structure between 1967 and 1971. For the purpose of this report, the L-shaped barracks includes a smaller Officer's Commissary and Barracks (OCB) and a larger Enlisted Men's Barracks, formerly referred to as the One-story barracks (Figure 4.1). With the exception of a few written descriptions of the L-shaped barracks investigations (Lenik et. al. 1999; Mead 1969, 1992), an extensive analysis of the structure and its contents has yet to be completed. The following section provides (1) a brief description of the excavations completed at each building and (2) a basic description of the spatial distribution of specific artifact classes across the structure.

The property on which the L-shaped barracks is constructed is part of the original eighteenth-century fort. Historic descriptions of Fort Montgomery indicate that the L-shaped barracks may have been one of the earlier buildings constructed within the boundaries of the fort (Smith 2002). The L-shaped barracks (as well as other buildings within the compound) may have been constructed from timbers gathered and shaped at New Windsor and transported to Fort Montgomery via the Hudson River, as reported by Col. Thomas Palmer to the Committee of Safety on January 25, 1776 (Smith 2002). Specific dimensions of the buildings and more general descriptions of the L-shaped Barracks are provided in the following pages.

Historic records suggest that the L-shaped Barracks was probably occupied by both officers and enlisted soldiers. According to Mead (1969), officers probably resided in the OCB. The structure may have also been used by servants assigned to the officers. Enlisted soldiers are believed to have resided nearby in the Enlisted Men's Barracks. It is not currently known how many soldiers occupied this barracks, or from which regiments the soldiers originated. The debris recovered within the building suggests that both buildings were completed and occupied before the 1777 British attack on Fort Montgomery.

After the British attack on the fort, the L-shaped barracks site remained unoccupied until the early twentieth century. A small cottage was built on the site during the early twentieth century and was situated across the walls of the L-shaped barracks. Although the building was not completely excavated by Mead, remnants of the foundation of the building were encountered during the excavation of both the OCB and the Enlisted Men's Barracks. The building was rectangular, measured approximately 16.3 feet wide, and was supported by a stone foundation. Artifacts, including diagnostic ceramics, were recovered from the property and further support the occupation of the property during this period.

Description of the Excavation

Excavation of the L-shaped barracks followed a master grid devised for excavations across the entire site (Mead 1992:np). Excavation of the L-shaped Barracks was confined to squares within 14 Boxes in Sections 91, 105, and 106 (Lenik et. al. 1999:18-19). Squares associated with the Officers Commissary Barracks were located within Boxes 91P, 91Q, 91R, 105B, 105C, and 105D (Figure 4.1). Squares associated with the Enlisted Men's Barracks were within Boxes M91R, M105D, M92N, 105H, 106A, 106B, 106E, 106F, 106J, and 106K (Figure 4.1).

The excavation techniques and cataloging system employed during the excavation of the L-shaped barracks are described in Mead's (1992) report. As discussed in this report each of the 5-

foot squares was hand excavated with the soil matrix screened through $^{3}/_{16}^{th}$-inch mesh hardware cloth. Field observations were recorded on individual level forms for each square. Plan and section drawings were completed and provide valuable information about site stratigraphy and the distribution of features across the site. Excavated units were further documented using black and white and color slide photographs (Figure 4.2).

The following pages provide a brief overview of the L-shaped barracks. For the purpose of this report, the OCB and the Enlisted Men's Barracks are discussed separately. General descriptions of the use and range of activities completed within the walls of these two buildings are also discussed. In the summary section, a comparison of the two buildings as well as more general description of the L-shaped barracks is provided.

The Officer's Commissary and Barracks

Structural Remains

The remains of the OCB are located in Sections 91 and 105 of Fort Montgomery. The building was part of the L-shaped barracks and was situated along the northwest corner of the Enlisted Men's Barracks. Plan drawings constructed during Mead's 1967-1971 excavations suggest that the

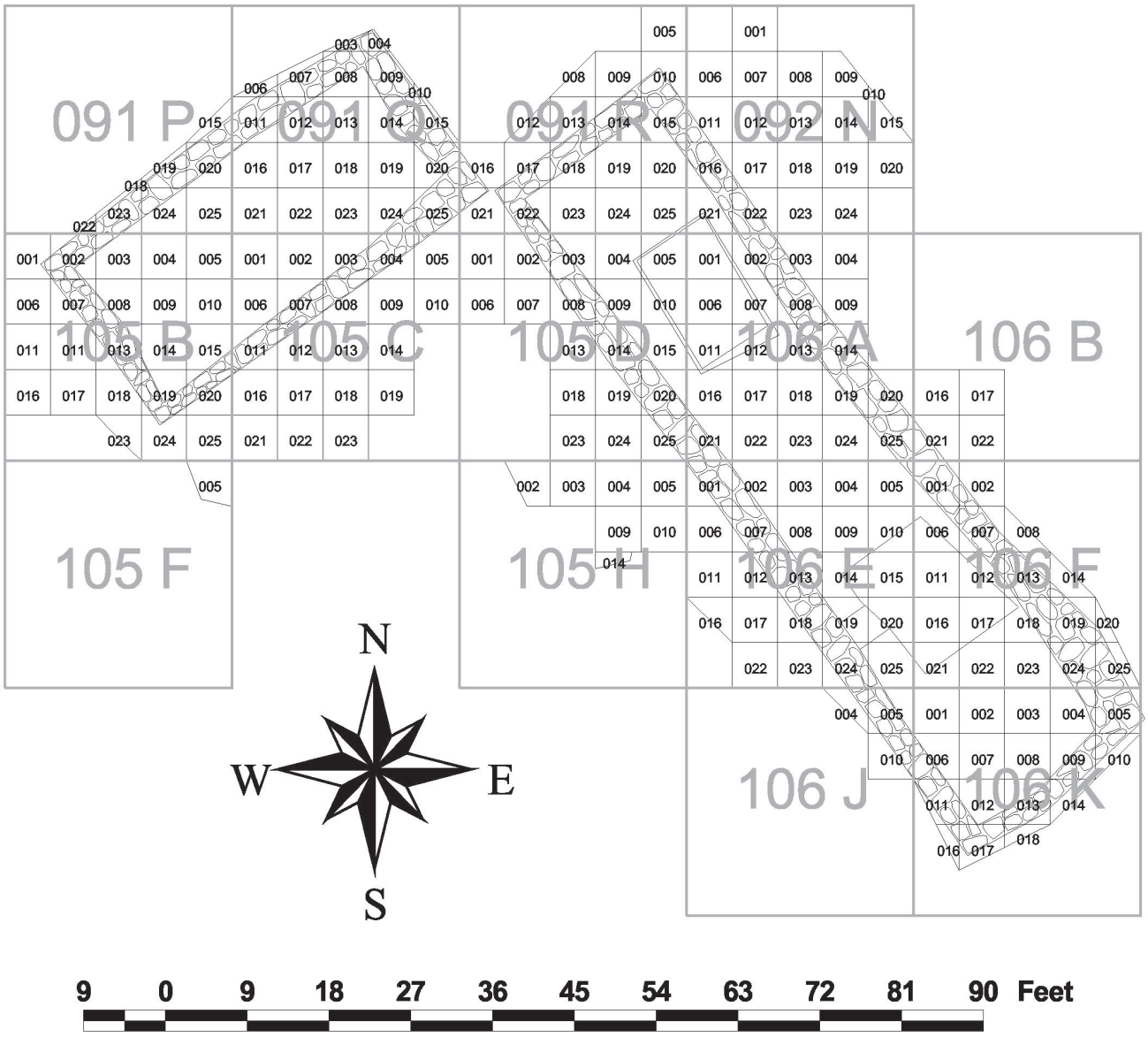

Figure 4.1. Plan of squares excavated within the OCB and the Enlisted Men's Barracks.

Figure 4.2. Looking across the Officer's Commissary and Enlisted Men's Barracks.

structure measured approximately 20 by 40 feet in size. These dimensions are consistent with similar information provided in historical documents. One early description of the building by Thomas Palmer also indicates that the planned dimensions of the building were 20 by 40 feet (Smith 2002).

The stratigraphy of the OCB was complex, and partially influenced by the later occupation of the twentieth-century cottage and iron mining (Figure 4.3). Three stratigraphic layers were identified by Mead during excavation of the OCB between 1967 and 1971. The first soil layer generally consisted of historic debris associated with the twentieth century occupation of the fort as the site of the cottage. Underneath was a yellow sand layer containing artifacts associated with the late eighteenth-century occupation of Fort Montgomery. In some areas, B1 and B2 soils (yellow sand) were encountered and might be associated with the Revolutionary War period modification of the landscape.

Archaeological excavation of the structure indicates that in the center of the building was a large chimney for two fireplaces (Figure 4.4). Mead's original field notes suggest that the fireplace was constructed of brick and was situated on a stone foundation. The bricks used in the construction of the fireplaces were laid in a diagonal pattern. Surrounding the fireplace were two brick hearths, or aprons, that respectively measured 8 and 9.2 feet wide. Entries in the same field notes allude to the fact that portions of the chimney may have been intentionally dressed. Fragments of mortar were identified underneath the brick and suggest how the brick hearths were constructed. This feature may have also contained openings on two separate sides suggesting that the building was minimally divided into two separate rooms.

Remnants of the original mortared walls were also identified by Mead (1969) and provide further evidence about the construction of this building. In his original field notes, Mead indicates that the "walls were extremely well laid up and nicely finished with mortar-it appears that even the face of the stones were coated approximately $^{1}/_{4}$" thick…" Unlike other buildings within the Fort

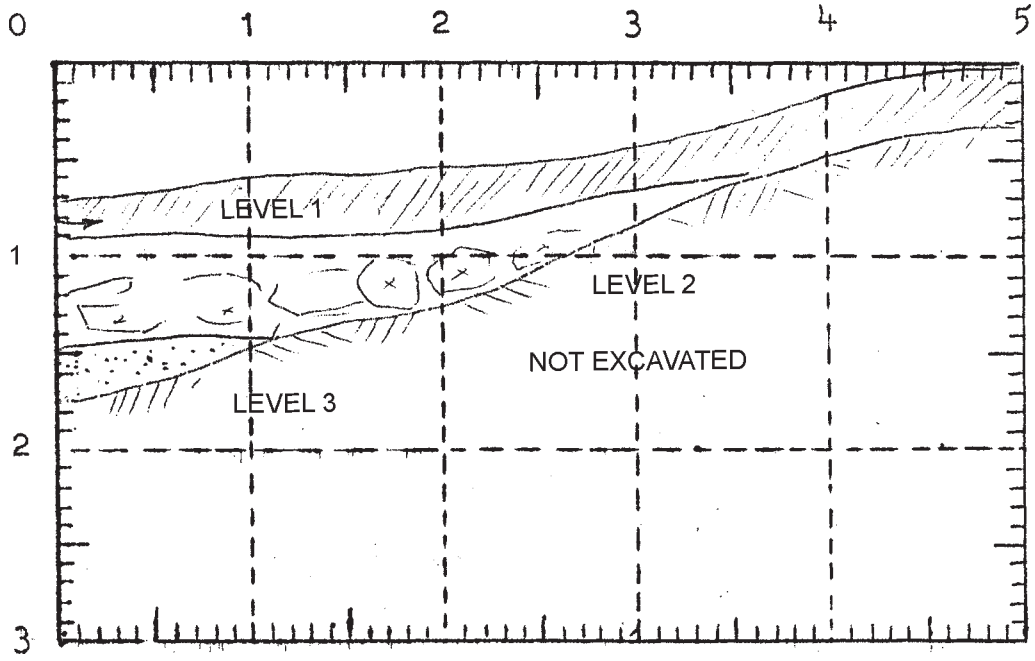

Figure 4.3. Wall profile showing stratigraphy of the OCB.

Montgomery Complex, mortar fragments do not reveal any evidence of painting or whitewashing.

Excavations at the OCB revealed the presence of a cellar underneath the main living floor. Mead indicated that the cellar probably contained a fireplace and a wooden floor. An entryway to the cellar was located along the southwest corner of the building. Construction of this entry would not only have allowed limited access to the building by servants but would have also facilitated access to refuse areas around the building.

Impressions of sleepers that supported a wooden floor were identified along the southern half of the OCB (visible in Figure 4.4). Field drawings of these floorboards indicate that the boards ran the width of the building. Remnants of one floorboard measured approximately $11^{7}/_{8}$ inch in size and contained wrought iron nails detailing how the floorboards were held in place. Wood charcoal was found in some of the squares and according to Mead may be related to the burning of the building by the British after their successful 1777 attack on Fort Montgomery.

Artifacts

Nineteen thousand seven hundred and eighty artifacts were recovered from the Officer's Commissary Barracks (Table 4.1). Eight thousand three hundred and fifty-six artifacts represent mid to late nineteenth-century and modern remains, such as whiteware and ironstone ceramics, machine cut nails, modern window glass, etc., associated with the occupation of the cottage and mining activities at Fort Montgomery. These artifacts post-date the Revolutionary War period occupation of the fort and are not considered as part of the present analysis. The remaining 11,424 artifacts represent eighteenth-century artifacts associated with the occupation of Fort Montgomery as a defensive and military location in the Hudson Highlands. These artifacts form the basis of the following discussion.

Four thousand seven hundred and five artifacts (41.1%) were identified as structural artifacts and include building materials (e.g. brick, window glass, mortar, and nails) associated with the construction of the OCB. Four thousand nine hundred and six (42.9%) artifacts were identified as food/drink related and include ceramic food storage and preparation containers, glass food and beverage containers, faunal remains, shell, iron kettle fragments, remnants of forks, knives, etc., and miscellaneous food items, such as fruit pits. Eight hundred and seventy (7.6%) personal artifacts were

recovered from the OCB, include such diverse artifacts as white clay tobacco pipe, and bowl fragments, buttons, buckles, thimbles, and pins. Also grouped within the category of personal artifacts are military artifacts associated with the defense of Fort Montgomery including pieces of lead shot, gunflints, gun parts, musket shot, and buckshot. Miscellaneous artifacts include 943 objects comprising 8.3% of the total artifact assemblage recovered from the OCB. The miscellaneous group includes unidentified fragments of iron, lead, pewter, as well as soil samples and samples of limestone and charcoal collected by Mead between 1967 and 1971.

Structural Artifacts

One of the largest artifact classes recovered from the OCB consists of structural artifacts associated with the construction of the barracks building (Table 4.1). These artifacts include but are not limited to wrought nails, window glass, brick, mortar, brass tacks, brass eschuteons, brass washers, spikes, screws, and other miscellaneous and unidentified iron fragments. Many of these artifacts were burned suggesting that the Officer's Commissary Building may have been (at least partially) destroyed by the British in 1777. As discussed above, similar evidence of this is also reflected in the charred floorboards excavated by Mead between 1967 and 1971.

Overall, the heaviest concentration of structural artifacts was identified along the northern half of the building in the vicinity of squares Q13, Q14, Q15, and Q18. The heavy concentration of structural remains in this area may be associated with the cellar constructed under the OCB. Overall, the least number of structural artifacts are found along the eastern wall of the barracks in Blocks B and C. As discussed below, the limited number of artifacts in these areas may be associated with the presence of a door and/or entryway through the building. Unlike other buildings within the Fort Montgomery complex, the large concentration of structural artifacts found within the walls of the building is curious and may suggest that the building collapsed inward on itself depositing most of the debris into the buildings foundation.

One thousand seven hundred and five wrought

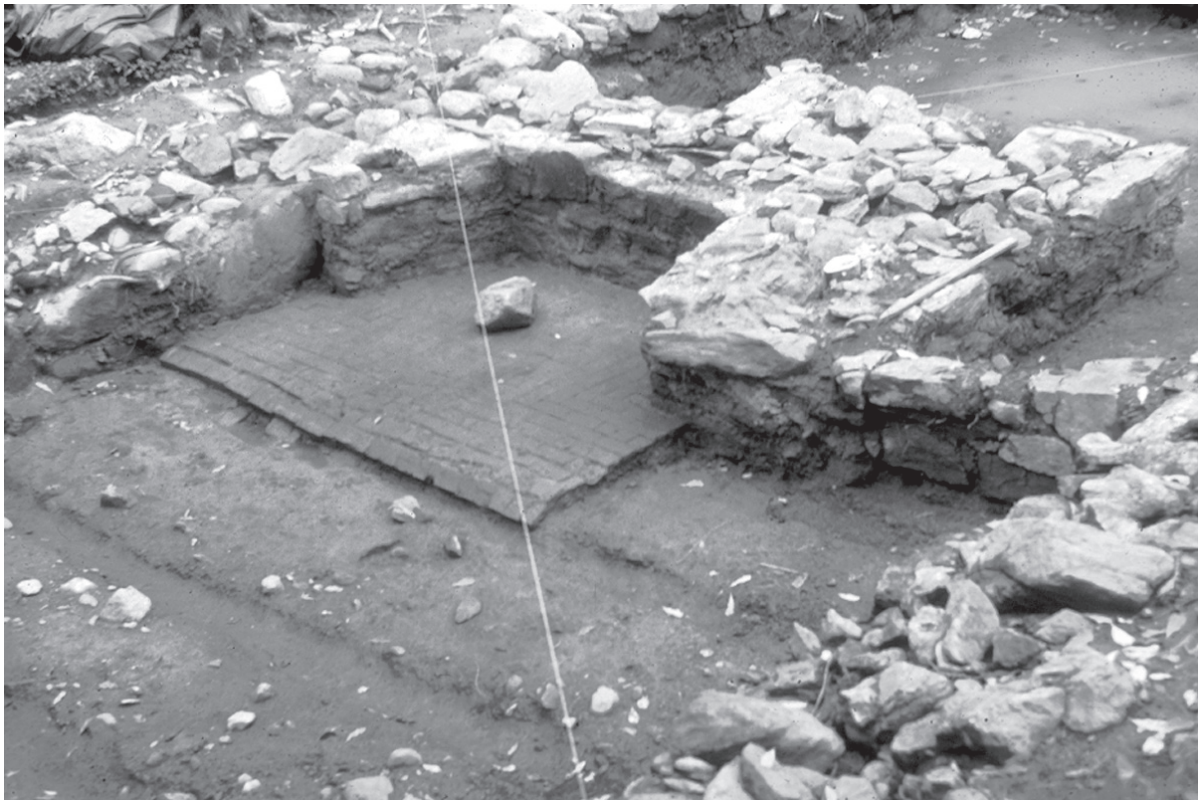

Figure 4.4. Looking towards the central fireplace in the OCB.

Table 4.1. Summary of artifact classes by building.

Artifact Class	Artifact Type	Artifact Subtype	Officer's Commissary	Enlisted Men's Barracks
Food/Drink	Ceramic Sherds	Creamware	796	631
		White Salt-glazed Stoneware	298	299
		Whieldon ware	88	176
		Redware	135	225
		Delftware	209	372
		Yellowware	447	5,249
		Jackfield-type Redware	69	201
		Other	85	512
		Unidentified	14	14
	Cutlery	Pewter Cutlery	3	23
	Glass	Bottle Glass (wine)	1,494	3,292
		Case Glass	-	31
		Lead glass (stem and tableware)	147	409
		Other	-	-
	Metal	Cookware	10	18
		Kettle Fragments	44	89
		Containers	19	31
		Other	7	37
	Refuse	Botanical	5	9
		Faunal	1,036	3,868
Food/Drink Subtotal			4,906	15,486
Miscellaneous	Metal	Unidentified Iron	566	2,809
		Wire	34	107
	Sample	Charcoal	338	174
		Coal	1	8
		Soil Samples	4	6
		Wood Samples	-	10
Miscellaneous Subtotal			943	3,114
Personal	Bead	Beads	8	46
	Buckle	Buckles	64	214
	Button	Bone Buttons	19	59
		Brass Buttons	36	135
		Pewter Buttons	37	52
		Silver Buttons	-	17
		Other Buttons	34	195
		Cuff Links	18	50
	Coin	Coins	7	29
	Glass	Bottle Glass (medicine)	36	41
	Jewelry	Jewelry	6	29
	Metal	Canteen	-	1
	Military/Defense	Bayonet	-	4
		Firearm Parts	10	21
		Gunflints	76	227
		Iron Grape Shot	2	10
		Lead Buck Shot	4	16
		Lead Musket Shot	34	194
		Other	3	4

Table 4.1.(continued) Summary of artifact classes by building.

Artifact Class	Artifact Type	Artifact Subtype	Officer's Commissary	Enlisted Men's Barracks
		Ramrod	8	9
	Sample	Wood Samples	-	2
	Smoking	Clay Pipes	386	1,363
	Writing	Inkwells	-	-
		Lead and Slate Pencils	28	87
		Other	1	1
	Tools	Whetstone	4	3
		Axe	2	5
		File	3	6
		Chisel	1	-
		Hammer	-	2
	Other	Other	43	82
Personal Subtotal			870	2,904
Structural	Brick	Brick	65	67
	Glass	Window Glass	1,421	4,100
	Mortar	Mortar	1,485	383
	Nails	Brass Nails	18	15
		Cast Iron Nails	5	-
		Wrought Nails	1,705	3,846
		Wrought Spikes	6	24
	Sample	Wood Sample	-	2
Structural Subtotal			4,705	8,437
Total Rev. War Artifacts			11,424	29,941
Total Non-Rev. War Artifacts			8,356	45,858
Total Rev and Non-Rev War			19,780	75,799

iron nails were recovered from the OCB. Approximately 10% of the total number of wrought-iron nails recovered from this building were burned and further document the eighteenth-century destruction of the building. Figure 4.5 shows the distribution of wrought iron nails within the walls of the building. As shown in this figure, quantities of wrought iron nails were identified within the interior of the building and may be associated with the construction of the floor and walls of the building. The largest distribution of nails was concentrated along the north-central portion of the building and may represent the location of a small stairwell or other architectural feature leading into the cellar of the OCB.

One thousand four hundred and twenty-one (12.4%) pieces of window glass were recovered from the OCB (Table 4.1). Most of these artifacts are described as colored window glass with some artifacts described as "melted" or "burned." Overall distributions of window glass are plotted in Figure 4.6. As shown in this figure, several "hotspots" are visible along the walls of the building. Identification of these areas along the walls of the building is currently interpreted as evidence of the location of windows in the building. Based upon these plots, there appear to be several windows in the OCB. At least two sets of windows appear to be located along the eastern wall of the building, while two additional sets of windows may have been located along the northern and southern walls of the building. Windows were probably not located in the vicinity of squares P20, P24, and Q11 since this area represents the location of a large brick fireplace situated within the walls of the building.

Food and Drink

Items designated as food/drink remains represent the largest artifact class (4,906 artifacts or

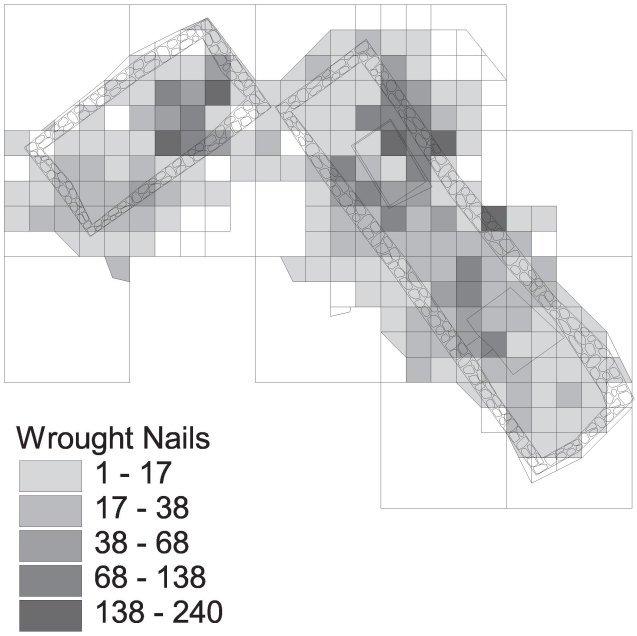

Figure 4.5. Distribution of wrought iron nails from the OCB and the Enlisted Men's Barracks.

42.9% of the entire artifact assemblage) recovered from the OCB (Table 4.1). Artifacts designated as food/drink related remains include but are not limited to the following artifact classes: ceramic food preparation and serving containers, faunal remains, pieces of clam and oyster shell, bottle glass (particularly from wine bottles), lead glass stem and tableware, kettle fragments, and other miscellaneous food and drink related artifacts (e.g. forks, knives, etc.).

Two thousand one hundred and forty-one (18.7%) ceramic sherds were recovered from the OCB and can be associated with the eighteenth-century occupation of Fort Montgomery (Table 4.1). These sherds are composed of the following ceramic classes: creamware (6.9%), delftware (1.8%), Whieldon ware (0.7%), white salt-glazed stoneware (2.6%), yellowware (3.9%), Jackfield-type redware (0.6%), unglazed and unidentified redware (1.2%), and other unidentified containers (0.1%).

The greatest number of ceramic sherds recovered from the OCB consists of refined earthenware and stoneware containers including creamware, delftware, Whieldon ware, and white salt-glazed stoneware. These artifacts comprise 65% of the total number of ceramics recovered from the Revolutionary War period assemblage and include both decorated (mottled, hand-painted, molded, etc.) and non-decorated vessels. Refined earthenware containers, unlike utilitarian wares, are commonly associated with more refined dining and include a variety of food consumption and serving containers. Specific forms identified at the OCB include plates, hollowware, flatware, handles, and cups. The presence of these artifacts suggests that the occupants of this building may have used newer (and more fashionable) types of dishes when compared with other buildings within the complex. These types of ceramic containers are primarily concentrated along the southern and northern walls of the building. The concentration of refined earthenware dishes in this area may either represent (1) utensils broken during the preparation of meals or (2) the consumption of foods (possibly by enlisted men or servants) in the cellar. The limited number of refined earthenwares in the northern half of the building may represent the storage of these containers in the cellar (Figure 4.7 and 4.8).

Four hundred and forty-seven yellowware sherds, lead glazed and slip decorated buff earthenware, were recovered from the OCB (Table 4.1). These artifacts represent 20.8% of the total num-

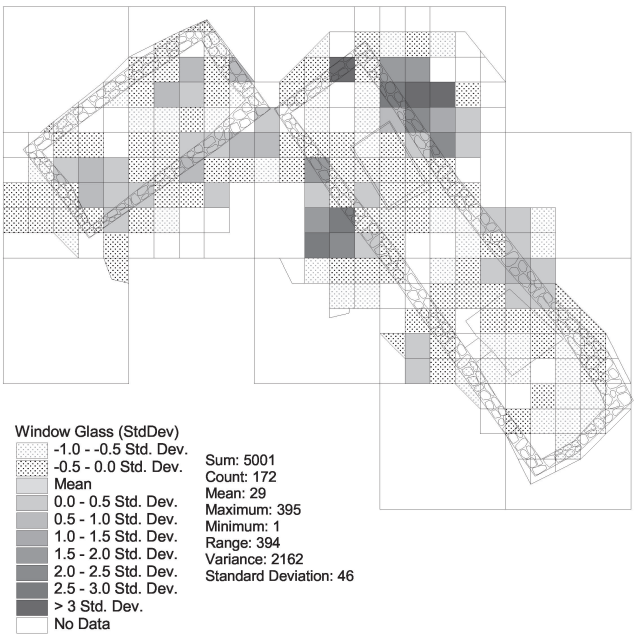

Figure 4.6. Distribution of window glass from the OCB and the Enlisted Men's Barracks.

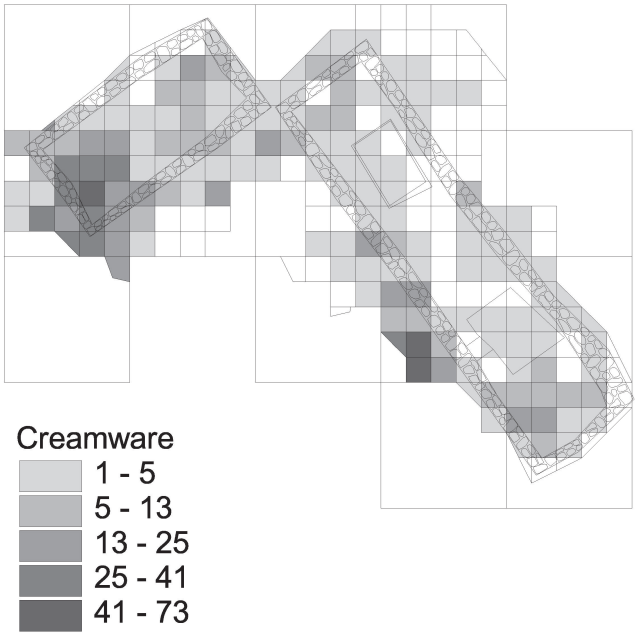

Figure 4.7. Distribution of creamware from the OCB and the Enlisted Men's Barracks.

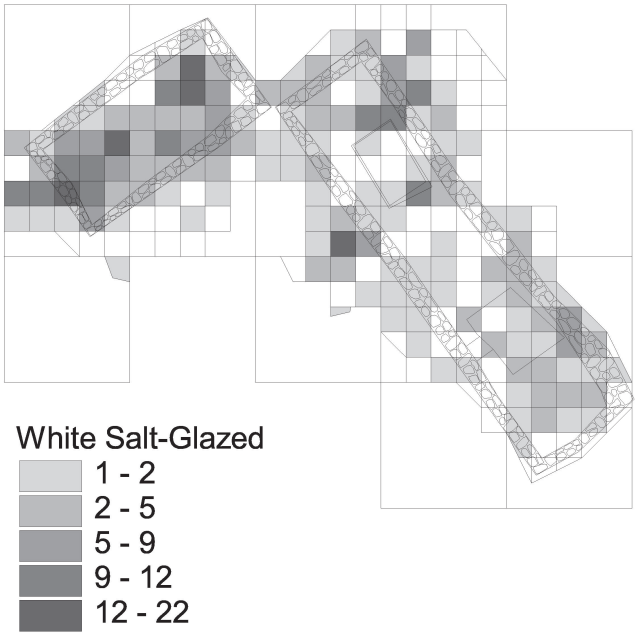

Figure 4.8. Distribution of white salt glazed stoneware from the OCB and the Enlisted Men's Barracks.

ber of ceramics and probably represent the remains of broken food preparation and food storage containers used by servants and others residing and working within the barracks. When compared with the Enlisted Men's Barracks (see below), fewer yellowware containers were recovered from the OCB suggesting that these types of containers may not have served as food consumption containers as may have been the case in other barracks (see also Chapter 3). Unlike creamware and white-salt-glazed stoneware containers, most of the yellowware containers are concentrated along the northern wall of the building (Figure 4.9). The presence of these artifacts inside the walls of the building suggests that these containers may have been used to store food.

Redware sherds represent 1.8% of the entire artifact assemblage recovered from the OCB (Table 4.1). Redware sherds are here grouped into two separate categories: undecorated/general redware and Jackfield-type redware. General redware sherds are represented by 134 sherds or 1.2% of the entire artifact assemblage. These sherds are found in a range of types and ceramic styles with glazed and unglazed containers represented in the collection. Due to the fragmentary nature of these artifacts, information about the overall form of these containers was generally not available. Of those vessels that could be identified by form, bowls, hollowware, flatware, and handled vessels were found in the collection.

The overall distribution of general redware containers is represented in Figure 4.10. As shown in this figure, the largest concentration of redware sherds was recovered along the southern wall of the building. When compared with the distribution of yellowware sherds shown in Figure 4.10, different patterns are visible. Differential distribution of redware and yellowware suggests that these containers may have had different functions. Redware was regularly used to serve and prepare food and was stored near a cellar cooking area and at a location readily accessible to soldiers entering through the southern entrance of the OCB cellar. Yellowware, on the other hand, may have solely been used to store large quantities of liquid or non-solid bulk foods (such as sugar and salt), and may have been intentionally stored in areas that were secured and located out the way of constant traffic. Another advantage of storing bulk foods along the northern wall of the building is that highly desired foods intended for officer's could be con-

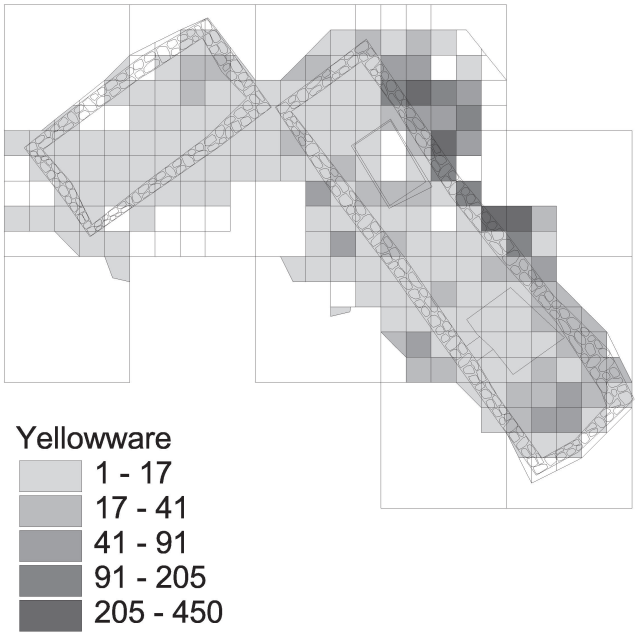

Figure 4.9. Distribution of yellowware from the OCB and the Enlisted Men's Barracks.

cealed or protected from lower ranking soldiers who entered through the southern door of the building.

Sixty-nine pieces (0.6%) of Jackfield-type redware were recovered from the OCB (Table 4.1). Most of these artifacts are believed to represent the remains of broken teapots that were discarded by the occupants of the building. As shown in Figure 4.11, Jackfield-type redware sherds were most commonly found along the northern half of the OCB. Very few Jackfield-type redware sherds were recovered beyond the walls of the OCB. The absence of these artifacts suggests that large garbage refuse areas may not have lined the walls of the building, as was the case at the Enlisted Men's Barracks. Instead, broken teapots (and other forms of garbage) may have been discarded elsewhere. One possible garbage dump may be located behind the Enlisted Men's Barracks as discussed below.

Eight hundred and thirty-six bone fragments (7.3%) were recovered from the OCB. Of these, the following species were recovered: 45 (5.4%) bird, 83 (9.9%) chicken, 14 (1.7%) fish, 1 (0.1%) miscellaneous jaw/tooth, 243 (29.1%) mammal, 87 (10.4%) modern, and 363 (43.4%) unidentified faunal. Analysis of the faunal remains by Beth Horton of the Cultural Resource Survey Program at the New York State Museum identified the following mammalian species in the collection: domestic cattle (*Bos taurus*), domestic pig (*Sus scrofa*), domestic sheep (*Ovis aries*), dog (*Canis familiaris*), and domestic chicken (*Gallus gallus*). Avian species including passenger pigeon (*Ectopistes migratorius*) were also identified in the collection. Although mammals dominate the assemblage, the large number of domestic chicken and bird species is unusual and suggests that alternate foods may have been consumed by officer's residing within the building (Horton, this volume).

Two hundred clam and oyster shell fragments were also recovered from the OCB. Clamshell fragments (58% of shell assemblage) outnumber oyster shell (42% of shell assemblage) fragments within the OCB. Possible explanations for these differences may be associated with access to these types of shellfish as well as the individual preferences of those residing within the barracks.

Forty-four (or 0.3% of the total number of Revolutionary War period artifacts) kettle fragments were recovered from the OCB (Table 4.1). In addition to these artifacts, possible handles, and

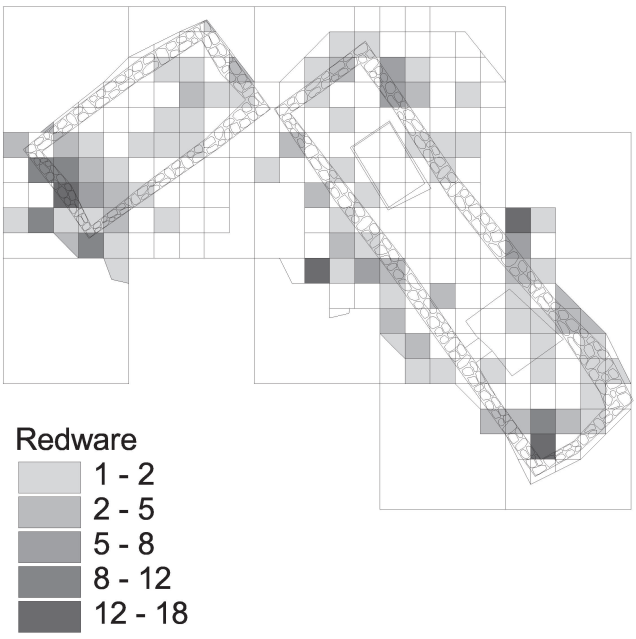

Figure 4.10. Distribution of redware from the OCB and the Enlisted Men's Barracks.

other types of cookware were also recovered from the OCB. Most of these artifacts are recovered from the northern portion of the building. Since it seems unlikely that these kettles were used by the officer's themselves, we can surmise that these artifacts were probably used in the cellar of the building for cooking activities by servants assigned to the Officer's Commissary Barracks.

Personal Artifacts

Personal artifacts including pewter, bone, and brass buttons, clay tobacco pipe fragments, slate and lead pencils, cuff links, brass buckles, clothing items, tools, and other miscellaneous artifacts were also recovered from the OCB. Among the more significant of artifacts was Revolutionary War period buttons. One hundred and sixty buttons (1.4%) were recovered from the Officer's Commissary Barracks. Thirty-four (0.2%) buttons were decorated and undecorated pewter buttons, 17 (0.1%) were undecorated bone buttons, and 27 (0.2%) were decorated and undecorated brass buttons. The remaining 82 (0.7%) buttons represent other unidentified buttons that were fragmented and/or other buttons that could not be identified by material.

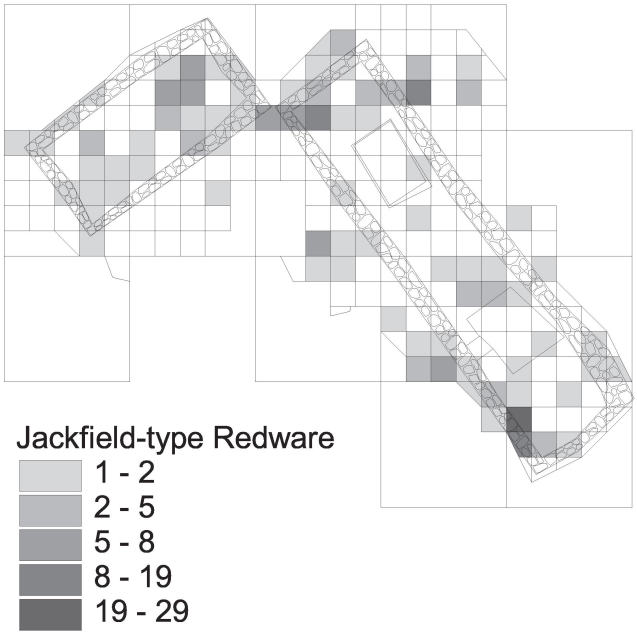

Figure 4.11. Distribution of Jackfield-type redware from the OCB and the Enlisted Men's Barracks.

The pewter buttons recovered from the OCB include both plain and marked objects. The marked buttons include those with the numbers 14, and 21, and suggest the presence of both New York and New England regiments within the complex. One example of this can be seen in the recovery of a "French Button" from the barracks. According to Calver and Bolton (1950), Connecticut regiments often wore these types of buttons. Troiani (2001:120) indicates that Massachusetts and other New England regiments may have also used these buttons. Three pewter "USA" buttons, first used in 1777, were also recovered from the OCB. According to Calver and Bolton (1950:83-84), these types of buttons can be found in a variety of sizes with some artifacts exhibiting beaded trim around the exterior edge of the artifact. Buttons exhibiting this beaded trim as well as plainer forms are also represented in the collection from Fort Montgomery.

Seventeen bone buttons were also recovered from the OCB (Table 4.1). These artifacts consist largely of one and two holed objects. Three examples of four-holed buttons were also recovered but may represent artifacts that are more recent. Most (5.7%) of these artifacts are broken and probably represent discarded objects. These artifacts contain few diagnostic features and unlike brass and pewter buttons can not be associated with a particular Continental regiment. Overall, the largest number of bone buttons were found outside of the walls of the OCB providing further evidence that these artifacts represent refuse and not portions of clothing lost during the British Attack on Fort Montgomery in 1777.

Twenty-seven brass buttons were also recovered from the OCB (Table 4.1). Most of these artifacts represent undecorated or indiscernible decorated artifacts. Unlike the bone buttons, most of the brass buttons recovered from this building represent whole artifacts. Two of these buttons exhibit a clear basket weave design. None of the brass buttons recovered from the OCB could be associated with a particular Continental regiment. Instead, these artifacts may represent the presence of the local militia within the barracks.

Other clothing related artifacts including 18

(0.2%) cuff links, 64 (0.5%) buckles (including both shoe and other garment buckles), and 8 (0.07%) beads were recovered from the Officers Commissary Barracks (Table 4.1). Many of the shoe buckles and cuff links were manufactured from brass and were decorated. The absence of diagnostic motifs on many of these artifacts prevents most of these objects from being associated with a particular regimental unit. However, the presence of such a large quantity of artifacts (combined with the brass buttons described above) at the OCB does suggest that the buildings occupants were probably not among the lower class members of society but may have belonged to a more affluent socioeconomic class.

Twenty-eight slate and lead pencils were also recovered from the OCB (Table 4.1). These artifacts are not unique to this building but were also recovered from other buildings within Fort Montgomery as well as other Revolutionary War period sites in New York (see Calver and Bolton 1950:232-234). Unlike other buildings at Fort Montgomery, no inkwells were recovered from the OCB. Such artifacts may be present in the collection but are currently not recognizable by function.

Gunflints, gun parts, and pieces of lead shot were also recovered and can be associated with military and defense activities at Fort Montgomery (Table 4.1). In total, 68 gunflints were recovered from the OCB. Most of these artifacts (over 70% of those identified) were manufactured from gray chert and exhibit evidence of burning. The remaining gunflints are manufactured from other miscellaneous materials. Approximately half (48%) of the gunflints recovered from the OCB represent fragmentary objects discarded as refuse. The remaining artifacts represent whole artifacts that may have been stored in the barracks prior to use. The general distribution of gunflints across the OCB shows a concentration of artifacts along the northwestern and southeastern walls of the building (Figure 4.12). The distribution of artifacts in this way further provides evidence for the assumption that broken gunflints were discarded while whole gunflints may represent stored or "individually cached" objects.

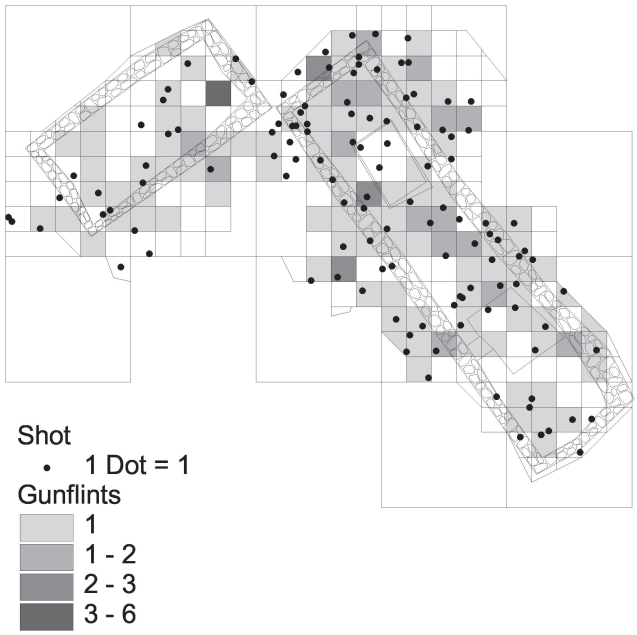

Figure 4.12. Distribution of gunflints and shot from the OCB and the Enlisted Men's Barracks.

Forty pieces of shot were recovered from the OCB. As shown in Table 4.1, 2 were identified as lead grapeshot, 4 lead buckshot, and 34 were lead musket shot. Of those pieces of shot that provided size measurements, measurements between .60 and .80 inch were recorded. Over 90% of the 34 pieces of lead musket shot recovered from the OCB ranged between .60 and .70 in. This pattern can be contrasted with the Enlisted Men's Barracks (see below) where the variation in shot size is much greater and suggests that a wider or different set of guns may have been used. The spatial distribution of these artifacts in the central part of the barracks resembles that of the gunflints (Figure 4.12) and suggests that some of the shot may represent a "personal cache" of artifacts within the building.

Miscellaneous Artifacts

Miscellaneous artifacts were also recovered from the OCB and represent approximately 8.3% of the entire artifact assemblage. Artifacts designated as miscellaneous remains include unidentified soil and wood samples, pieces of wood charcoal, and mortar and brick samples.

Summary of the OCB

John Mead completed excavation of the OCB

between 1967 and 1971. Excavation of this Revolutionary War period building has produced important information about the construction of the building and the range of artifacts that were used by the occupants of the building. As determined by the 1967 through 1971 excavations, the OCB formed the western half of the L-shaped Barracks. The building is believed to have contained two separate floors.

The upper floor probably contained the living quarters of the officers. Artifact and feature evidence suggests that the upper floor of the OCB was probably divided into at least two separate rooms with each room opening onto a central fireplace. Analysis of the distribution of window glass suggests that the upper floor of the building probably contained several windows. A doorway was probably located along the eastern wall of the building where it opened onto the southern wall of the Enlisted Men's Barracks. Excavation notes suggest that the upper floor of the building was well constructed with the walls being well mortared.

The second, or lower, floor consists of a cellar that was used for cooking and meal preparation. The cellar may have contained a doorway that opened onto a refuse disposal area located on the south side of the building. The chimney and fireplace that was present extended from the cellar. The distribution of nails across the OCB suggests that the stairwell leading to the cellar may have been located along the northern half of the building.

The distribution of ceramics (especially yellowware and redware) suggests that storage areas for food and other supplies may have been located along the interior walls of the cellar. This area may have served to store both utilitarian wares as well as their specific contents. This pattern is not only visible in this barracks but the segmentation of specific storage areas may also be present in other barracks (see Enlisted Men's Barracks and Main Barracks) at Fort Montgomery.

The officers who occupied the barracks were members of the upper class as evidenced by the high quality and ornate shoe-buckles made from brass, brass buttons, beads, and other artifacts recovered from the building. The diverse range of artifacts recovered also suggests that the occupants of the OCB were probably not wearing/using standard issue items but may have worn clothing items that were of their own choosing. Alternately, the presence of these items may also indicate the presence of one or more members of the militia in the building.

In addition to clothing items, the highest number of food preparation/consumption containers identified at the Officer's Commissary Barracks consists of high-quality creamware containers. These types of ceramics comprise 37.2% of the overall ceramic assemblage. The second highest ceramic class is yellowware, which constitutes 20.8% of the entire ceramic assemblages. As discussed in the following section, this pattern is different from that at the Enlisted Men's Barracks where yellowware constitutes over 68% of the entire ceramic assemblage. Overall, refined wares (including creamware, white salt-glazed stoneware, Whieldon ware, and delftware) constitute 65% of the entire number of ceramics recovered from the OCB. The remaining 35% of the ceramics represent utilitarian wares that were probably used for cooking and/or food preparation tasks.

The OCB may have also been more elaborately constructed than other barracks buildings within Fort Montgomery as evidenced by the well mortared and finished walls identified by Mead. In addition, Mead indicated that the central fireplace was dressed. This feature was not observed at the adjacent Enlisted Men's Barracks. Two brick hearths were also constructed around the fireplaces and contrast to the absence of such features around fireplaces in the Enlisted Men's Barracks. In addition to the physical characteristics of the building, the presence of a commissary in the cellar of the building was probably not coincidental but was probably undertaken as a convenience to the officers who resided on the first floor of the building.

The food consumption patterns of those individuals who resided in the building were represented by faunal remains from many different species. In the OCB, a large number of faunal remains were identified as chicken and fowl. The appearance of these animals suggests that the residents of this building may have consumed foods

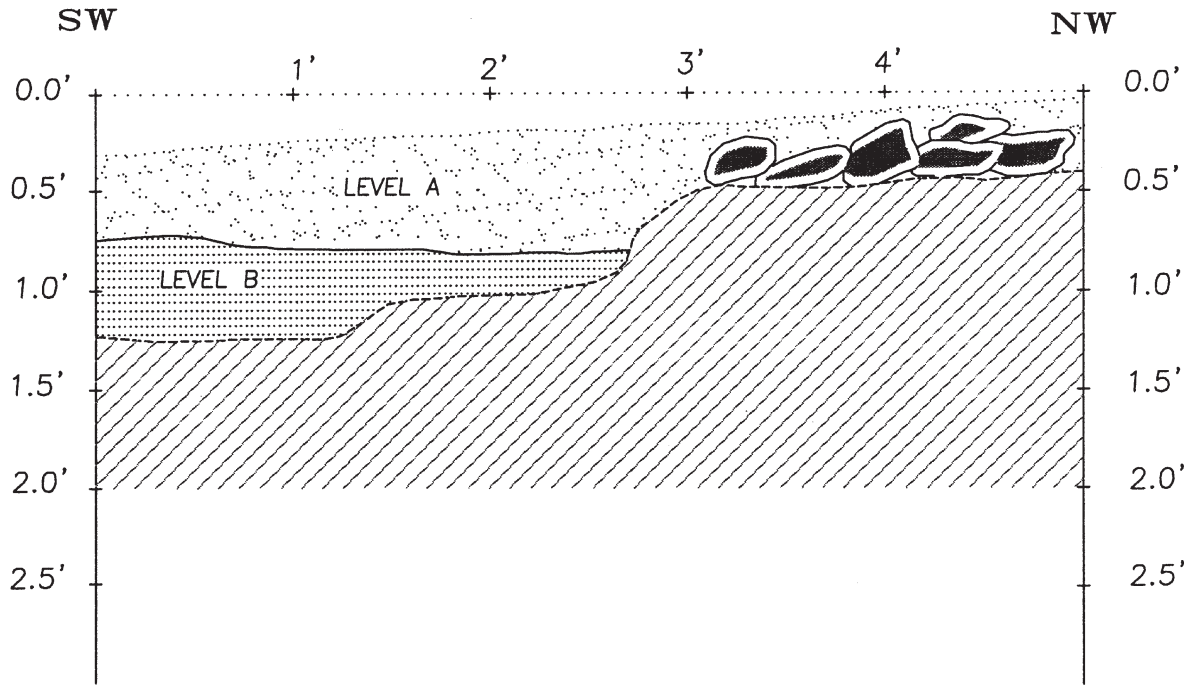

Figure 4.13. Wall profile of square M106E17 showing the stratigraphic arrangement of soils across much of the Enlisted Men's Barracks.

that were different or more varied than the soldiers residing in the Enlisted Men's and Main Barracks.

Wine bottles and leaded tableware were also recovered from the OCB as shown in Table 4.1. The majority of these artifacts were recovered from within the walls of the building and represent objects that were used by the occupants of this barracks. Although similar artifacts were also recovered from the Enlisted Men's Barracks, most of these objects were recovered from a garbage dump behind the building and may not represent direct use by the soldiers. Instead, as described below, many of these artifacts may represent refuse deposited in this area by soldiers assigned to the OCB.

The Enlisted Men's Barracks

Structural Remains

The Enlisted Men's Barracks is located in Sections M91, M92, M105, and M106 of Fort Montgomery. This building forms the eastern section of the L-shaped barracks and is situated along the northeast corner of the OCB (Figures 4.1, 4.2). It is at this point that the barracks intersect. Plan drawings by Mead indicate that the structure measured approximately 20 by 80 feet in size and contained a stone foundation. A small cellar was also identified within the walls of the building (Lenik et. al. 1999:18). At least one doorway appears to have been located along the south-facing wall of the barracks. The Enlisted Men's Barracks is first identified on Col. Palmer's early 1776 map of Fort Montgomery (Smith 2002). Like the OCB, the stratigraphy of the Enlisted Men's Barracks has been altered by the construction of the twentieth-century cottage and by nearby rock mining activities (Figure 4.13). Mead's field records indicate that across much of the site, two different soil layers were identified as shown in Figure 4.13. The first soil layer consisted of a brown sand layer and represented material deposited during the twentieth-century occupation/construction of the cottage. Intermixed throughout much of the layer were late nineteenth-century and early twentieth-century artifacts including pieces of ironstone and whiteware ceramics, pieces of clear and green window glass, nails, screws, clay tobacco pipe bowls, ceramic buttons, amethyst bottle glass, and other miscellaneous artifacts. Underneath was a yellow sand-silt layer that represented the Revolutionary War

period occupation of Fort Montgomery. Artifacts recovered from this soil layer include musket ball fragments, eighteenth-century ceramics, green window glass, wine bottles, charred and calcined faunal remains, horseshoes, tobacco pipe fragments, lead pencils, buttons, and other artifacts.

Two stone platforms were identified within the walls of the building and mark the locations of two large brick fireplaces. One of these platforms was identified at the north end of the building in Squares A1, A6, A7, A11, A12, D5, and D10 (Figures 4.1, 4.14). The second platform was identified along the southern half of the building in Squares E14, E15, E20, F6, F11, F12, F16, F17, and F21 (Figure 4.1). A section of the upper half of one of the two fireplaces was also identified in Squares A23 and E4.

Mead's excavation notes describe the building as a one-story structure with a cellar under part of the building. Recent reexamination of the maps and reports prepared by Col. Palmer concluded the building might have been two stories high. According to Smith (2002), Palmer's original map of the fort indicates that a structure "eighty feet by twenty feet, two stories high" was completed by the end of April 1776. This was thought to refer to the Main Barracks, although Smith (2002) has pointed out that the Main Barracks were unfinished in Palmer's report and map of June 1776. The two-story building described on Palmer's April map may have been the Enlisted Men's Barracks, rather than the Main Barracks.

The limited archaeological evidence available does not support a second story for the Enlisted Men's Barracks. The types of artifacts and their spatial arrangement across the site do not indicate a second floor was present. The portion of the collapsed brick chimney found in the center of the barracks measured only 15 feet high, not enough for a two-story building. Bricks may have been salvaged from this chimney following the abandonment of the fort and the 15 feet of chimney may be only part of what was the original chimneystack. The collapsed chimney was 4.29 feet wide at the top, where the bricks extended over the roof boards to keep water out of the barracks. In addition, the chimney was one brick thick, with evidence of a mortar coating on the interior recorded by the archaeologists.

Mead's field notes indicate the presence of a

Figure 4.14. Looking across the walls and fireplace of the Enlisted Men's Barracks.

cellar underneath the main living floor. Stairs leading from the west side of the building into the cellar were identified in the following squares: M105D7, M105D8, M105D12, and M105D13 suggesting that the stairwell was located along the western wall of the building. Plan and profile drawings of the steps in Section 105 suggest that one or two cut boards may have been placed over the stone staircase. Remnants of these boards were recovered in this square and measure less than a foot wide. Mortar fragments were also identified between the stairs and further document the construction of this barracks building.

Distribution plots of artifact concentrations confirm the presence of a large garbage dump along the northeast corner of the building. The dump is referenced in Mead's field notes and is shown as extending across an area measuring approximately 15-20 feet in length and extends from the northeastern wall of the building northeast toward the face of the nearby rock outcrop. While the soldiers that occupied the Enlisted Men's Barracks probably used this garbage dump, it also seems reasonable that much of the trash from the OCB may have also been deposited in this refuse area. As discussed below, evidence for this can be seen in the quantity and presence of more "affluent" artifacts in this assemblage.

Artifacts

Seventy-five thousand seven hundred ninety-nine artifacts were recovered from the Enlisted Men's Barracks (Table 4.1). Forty-five thousand, eight hundred and fifty-eight artifacts are believed to be associated with the twentieth-century cottage and modern use of Fort Montgomery. Artifacts associated with these occupations include but are not limited to the following objects: whiteware and ironstone ceramics, machine cut nails, modern window glass, plastic buttons, as well as modern medicine and food consumption containers. In addition to these artifacts, 13 prehistoric artifacts (consisting primarily of lithic flakes and pecked/ground stone tools) were also recovered from the Enlisted Men's Barracks. These artifacts pre- and post-date the Revolutionary War period occupation of the fort and are not considered as part of the present analysis. The remaining 29,941 artifacts represent eighteenth-century artifacts associated with the occupation of Fort Montgomery as a defensive and military location in the Hudson Highlands. These artifacts form the basis of the following discussion.

Eight thousand four hundred and thirty-seven structural artifacts were recovered from the Enlisted Men's Barracks. These artifacts include but are not limited to the following objects: wrought iron nails, mortar, brick fragments, pieces of green window glass, wrought spikes, screws, a latch bar catch, and bolts. Fifteen thousand four hundred and eighty-six (51.7%) artifacts were identified as food/drink related and included ceramic food storage and preparation containers, glass food and beverage containers, faunal remains, shell, iron kettle fragments, eating utensils (e.g. remnants of forks, knives, etc.) and miscellaneous food items (e.g. fruit pits). Two thousand nine hundred and four (9.7%) personal artifacts recovered from the Enlisted Men's Barracks include such diverse artifacts as clay pipe and bowl fragments, buttons, buckles, thimbles, and pins. Also grouped within the category of personal artifacts are military artifacts associated with the defense of Fort Montgomery including pieces of lead shot, gunflints, gun parts, musket shot, and buckshot. Miscellaneous artifacts include 3,114 objects comprising 10.4% of the total artifact assemblage recovered from the OCB. The miscellaneous group includes unidentified fragments of iron, lead, pewter, as well as soil samples and samples of limestone and charcoal collected by Mead from the excavation of the barracks between 1967 and 1971.

Structural Artifacts

Structural artifacts comprise 28.2% of the entire artifact assemblage and include architectural debris associated with the construction of the barracks (Table 4.1). As shown in Table 4.1, structural artifacts consist of four main artifact classes: nails, brick, mortar, and window glass. The largest number of structural artifacts consists of pieces of window glass. Overall, 4,100 (13.7%) pieces of window glass were recovered from the Enlisted Men's Barracks. The heaviest concentration of

window glass was recovered from the garbage dump located along the northeasterly corner of the building (Figure 4.6). Smaller concentrations of window glass were also identified along the walls of the Enlisted Men's Barracks and probably represent the locations of windows in the building. As shown in Figure 4.6, concentrations of window glass along the northeast and southwest walls of the building suggest that approximately four windows were present in the building. Two windows were located along the northeast wall of the building while two windows were present along the southwest wall of the building.

Three thousand eight hundred and forty-six wrought iron nails were recovered from the Enlisted Men's Barracks. These artifacts comprise approximately 12.8% of the entire artifact assemblage. The large number of nails recovered from the Enlisted Men's Barracks suggests that the building was probably constructed of wood. This is consistent with historic descriptions of the construction of other large barracks constructed at Fort Montgomery (Smith 2002). Figure 4.5 shows the distribution of wrought-iron nails across the Enlisted Men's Barracks. Concentration of wrought-iron nails in the northwestern corner of the building suggests that one or more staircases or other wooden features (possibly walls) may have been located in this area. A fairly significant concentration of wrought-iron nails was also recovered from the garbage dump located off the northwest corner of the structure. Smaller concentrations of nails were also recovered along the walls of the building and further document the presence of refuse disposal adjacent to the structure.

Pieces of mortar were recovered from units located along the walls of the building suggesting that the walls of the structure were further reinforced. Although we currently do not know the extent to which the walls of the building were reinforced, thickly mortared walls like those described for the OCB are not described in Mead's field notes. Unlike the storehouse, there is no evidence to suggest that the walls of the Enlisted Men's Barracks were painted or whitewashed. Instead, the walls of the building remained undecorated.

Food and Drink

Food/drink related artifacts were recovered from the Enlisted Men's Barracks and comprise approximately 51.7% of the artifact assemblage. Of the 15,486 food/drink related artifacts recovered from the site, the largest number of objects consist of ceramic vessel sherds. Utilitarian wares comprise the bulk of the ceramic sherds recovered from the Enlisted Men's barracks and include yellowware, a lead glazed and slip decorated buff earthenware, and redware containers. Stoneware containers are also present in the assemblage but are currently believed to be associated primarily with the later occupation of the site. Five thousand two hundred and forty-nine pieces of yellowware were recovered from this building. These artifacts comprise 17.5% of the artifact assemblage and represent the remains of broken food preparation, consumption, and storage containers. As shown in Figure 4.11, large numbers of yellowware sherds were recovered from the garbage dump identified along the northeastern corner of the barracks. Although the artifacts found in this area could not all be identified by form, several bowls and other pieces of hollowware were identified in the assemblage.

A significant concentration of yellowware was also recovered from within the southeastern portion of the Enlisted Men's Barracks (Figure 4.11). Concentration of artifacts in this area may represent utilitarian wares that were stored in the cellar of the building. Similar storage areas are visible in the cellar of the Officer's Commissary and Main Barracks. Smaller quantities of artifacts were recovered along the southwestern wall of the building and probably represent the refuse disposal activities.

Redware sherds represent 1.4% of the entire artifact assemblage recovered from the Enlisted Men's Barracks (Table 4.1). Redware sherds are here grouped into two separate categories: undecorated/general redware and Jackfield-type redware. General redware sherds are represented by 225 sherds. These artifacts represent a range of types with glazed and unglazed containers represented in the collection. Due to the fragmentary nature of these artifacts, information regarding the overall

form of these containers was generally not available. Currently, only three bowls and one handled-vessel have been identified in the collection. Like the yellowware sherds, the redware sherds were recovered from the garbage dump located along the northern corner of the barracks (Figure 4.7). Concentrations of redware were also recovered from the southern half of the Enlisted Men's Barracks and may represent artifacts stored in the cellar of the building.

Two hundred and one (0.7%) pieces of Jackfield-type redware were recovered from the Enlisted Men's Barracks (Table 4.1) and represent fragments from broken teapots. As shown in Figure 4.8, most of these containers were recovered from the garbage dump located along the northwest corner of the barracks. Smaller concentrations of Jackfield-type redware were also found within and along the walls of the Enlisted Men's Barracks.

Refined wares were also recovered from the Enlisted Men's Barracks and include the following forms: creamware (631), delftware (372), Whieldon ware (176), and white salt-glazed stoneware (176). These sherds comprise 4.5% of the total number of artifacts recovered from the Revolutionary War period assemblage (Table 4.1). These artifacts include both decorated (mottled, hand-painted, molded, etc.) and non-decorated containers. The spouts from pitchers, handled containers, pots, teacups, mugs, and one possible plate are identified in the artifact catalog. When compared with the number of artifacts found in the OCB, it appears that refined earthenwares were not as widely used by the soldiers assigned to the Enlisted Men's Barracks. Similar patterns are also found in the Main Barracks with refined earthenware containers being found in smaller numbers than utilitarian wares (see Chapter 3). Given that non-officers occupied both the Enlisted Men's and Main Barracks buildings, it is suggested that refined earthenware containers were reserved for higher status officers. Given the range of refined earthenware containers identified at the building it also seems reasonable that these containers were not standardized but rather may represent containers brought by members of the militia to Fort Montgomery.

Three thousand eight hundred and sixty-eight pieces of bone were recovered from the Enlisted Men's Barracks (Table 4.1). Most of these remains were recovered from deposits located outside of the barracks. Analysis of some of the faunal remains from the garbage dump located along the northeast corner of the building suggests that large (cows) and small (pigs) mammals were consumed by the building's occupants. Clam and oyster shells were also recovered from the same refuse midden and suggest that these aquatic specimens also formed components of the soldiers' diets (Table 4.1). Noticeably absent from the assemblage are large quantities of fowl. This species is found in large quantities in the OCB and suggests that the soldiers residing in the Enlisted Men's Barracks may have consumed a restricted number of food items.

Three thousand seven hundred and thirty-two (12.4% of the total artifact assemblage) pieces of bottle glass were recovered from the Enlisted Men's Barracks. Many (3,292 pieces) of these artifacts are believed to represent the remains of broken wine bottles. Overall, the number of wine bottle fragments is greater that that identified within the OCB. While this may be related to the breakage and discard patterns of bottle use among the occupants of the two buildings, it may also be related to the number of soldiers residing within the Enlisted Men's Barracks. Overall, the distribution of wine bottle glass is heaviest along the exterior eastern wall of the building and suggests that this area may represent the primary refuse disposal area for such items.

Eighty-nine kettle fragments were recovered from the Enlisted Men's Barracks (Table 4.1). In addition to these artifacts, possible handles, and other types of cookware were also recovered from the garbage dump located off the northwest corner of the barracks. Unlike the OCB, the kettle fragments that were recovered from the Enlisted Men's Barracks were probably used by the soldiers to cook their own food. While it is not known whether these artifacts represent kettles issued by the Continental Army, the recovery of such a large number of food cooking utensils suggests that tasks asso-

ciated with the preparation of meals were being completed within the building.

Personal Artifacts

Two thousand nine hundred and four personal artifacts were recovered from the Enlisted Men's Barracks including clay tobacco pipe bowls and stems, shoe buckles, slate pencils, buttons, coins, gunflints, lead shot, gun parts, and glass medicine bottles (Table 4.1). One thousand three hundred and sixty-seven clay tobacco pipe fragments were recovered from the Enlisted Men's Barracks. Most of these artifacts represent undecorated fragments and can not currently be associated with a particular maker or place of origin. The distribution of pipes indicates that most of the pipe stem and bowl fragments recovered were found outside of the doorway of the building. Several possibilities are suggested by this: (1) the pipe fragments were either discarded into refuse areas outside of the doorway, (2) the pipe fragments may represent pipes discarded by soldiers who may have stood guard outside of the buildings, or (3) the semi-enclosed courtyard created by the L-shaped barracks may have been an important gathering place for soldiers.

Twenty-nine coins were recovered from the Enlisted Men's Barracks (Table 4.1) including a 1737 halfpenny, 1740 George II halfpenny, 1757 and 1768 Spanish dollars, and two other eighteenth-century halfpennies. Overall, coins are more widely distributed in the Enlisted Men's Barracks than the OCB.

Three hundred and twenty buttons were recovered from the Enlisted Men's Barracks (Table 4.1). One hundred and thirty-five (22.9%) were brass buttons, 59 (7.8%) bone buttons, 52 (8.8%) pewter buttons, and 17 (5.2%) silver buttons. Most of these buttons were identified as simple brass and pewter buttons with limited or fragmentary decorations on the surface. All of these buttons were recovered from the garbage dump located along the northwest corner of the Enlisted Men's Barracks. Brass and bone buttons were also recovered from the Enlisted Men's Barracks. Many of the brass buttons were undecorated and could not be associated with a particular regiment or group of soldiers. One-holed bone buttons were commonly found at the site and were used to fasten clothing. The large number of cuff links indicates these were common elements of civilian clothing in this region by the time of the Revolution. An interesting example from the trash area, M106B16, had the word *"LIBERTY"* on it. Recently, Bedell (2001) has described cufflinks and decorative buttons as widespread clothing items among ordinary farmers of the late eighteenth century in Delaware. The range of buttons recovered from the Enlisted Men's Barracks suggests that the clothing worn by these soldiers was not standardized and may indicate that the local militia was occupying this barracks.

Forty-one (1.4%) medicine bottle fragments were also recovered from the northwest corner of the barracks in the garbage dump (Table 4.1). The presence of these artifacts at the site suggests that many of the soldiers may have been sick and/or contracted illnesses from living within the barracks.

Artifacts associated with the military/defense activities were also recovered from the Enlisted Men's Barracks (Table 4.1). These artifacts are pieces of iron grape and lead musket shot, gunflints, lead sheeting, gun parts, and other miscellaneous artifacts. Two hundred and four pieces of shot were associated with the Revolutionary War period occupation of the barracks (Table 4, Figure 4.12). Shot included the following two categories: iron grape shot (10), and lead musket shot (194). Of those pieces of lead musket shot that could be analyzed, 34 (17.5%) measured .60 inches and 95 (49%) measured .70 inches. The remaining artifacts ranged in size between .50 to .70 inches. The predominance of lead shot to be grouped as either .60 or .70 inches in size suggests that the occupants of the Enlisted Men's Barracks were restricted in the types of guns that they could use. Limiting the types of weapons that could have been used may have been important and may have been a means of creating uniformity among soldiers. When compared with the shot recovered from the OCB, the selection of guns may have been less restricted and may not have been subject to individual choice as occurred among officers. Spatially, the largest concentration of lead shot was recovered from refuse areas located along the

northeastern wall of the Enlisted Men's Barracks (Figure 4.12). Smaller concentrations of shot were also recovered along the northwestern wall of the barracks. This concentration may represent a storage area for shot within the building.

Two hundred and twenty-seven (0.8%) gunflints were also recovered from the Enlisted Men's Barracks (Table 4.1). Most of the gunflints consist of small artifacts manufactured from gray or brown chert. Several artifacts are broken and/or exhibit evidence of burning. Like the OCB, the presence of burnt artifacts at the site suggests that these artifacts were used and discarded. The distribution of these artifacts both within and along the walls of the Enlisted Men's Barracks is shown in Figure 4.12.

Miscellaneous Artifacts

Three thousand one hundred and fourteen miscellaneous artifacts were also recovered from the Enlisted Men's Barracks and represent approximately 10.4% of the entire artifact assemblage (Table 4.1). Artifacts designated as miscellaneous remains include unidentified soil and wood samples, pieces of wood charcoal, and unidentified iron and metal samples

Summary of Enlisted Men's Barracks

Excavation of the Enlisted Men's Barracks was completed by John Mead and members of the Trailside Museum between 1967 and 1971. The Enlisted Men's Barracks is located east of the OCB and represents one of the living quarters of the soldiers stationed at Fort Montgomery. Analysis of the artifacts recovered from within the barracks has produced important information about the construction and use of the barracks as well as the activities that were undertaken by the occupants of the building. The following discussion summarizes the results of this work and provides a general framework against which the results of this work can be compared with other structures at Fort Montgomery.

The Enlisted Men's Barracks contained a cellar and at least one living floor. A second living floor may have also been constructed but can not be discerned in the current assemblage. Mead's field notes dating to 1968 suggest that the entryway to the cellar was located along the western wall of the barracks and is marked by a series of stone steps leading into the basement. Two large fireplaces were identified within the walls of the barracks and extended into the cellar as evidenced by the presence of two stone platforms identified by Mead. The presence of artifacts in the central and southern half of the basement suggests that the cellar minimally extended underneath the central and southern portion of the barracks. Analysis of the artifact assemblage from these areas suggests that the cellar was used as a storage area for food and other necessary items.

The remaining floors of the building were probably used as the primary living areas for soldiers. Concentrations of wrought-iron nails suggest that rooms or other structural features may have been present within the barracks building. The spatial arrangement of window glass suggests that the barracks probably contained several windows along the east and west walls of the structure. Placement of windows in these areas was important and provided views across Fort Montgomery. In addition, the windows in the building also faced toward the North and West Redoubts, two key defensive locations within the fort. Placement of windows along the east and west walls of the structure may have also facilitated the disposal of refuse along the back side of the building.

Overall, the largest concentration of artifacts was recovered from the northeast corner of the building in squares 8, 11, 16, and 17 (Figures 4.5-12). Large quantities of food/drink, personal, structural, and military artifacts were recovered from these units and suggest the presence of a garbage dump behind the building. Smaller concentrations of artifacts were recovered from along the walls of the building and suggest that these areas may have been used as secondary refuse areas. The artifacts that were recovered from the garbage dump consist of a mixture of both expensive and non-expensive food/drink, structural, personal, and miscellaneous artifacts. The recovery of these artifacts from the same context suggests that the occupants of both the Enlisted Men's and OCB may have used the same dump. Soldiers responsible

for cleaning the Officers' Barracks discarded it behind the Enlisted Men's Barracks.

The distribution of ceramics (especially yellowware and redware) within the Enlisted Men's Barracks suggested that food and perishable storage areas may have been located along the eastern wall of the barracks. As discussed above in the OCB, the segmentation of specific storage areas was also present in other barracks (see Officer's Commissary and Main Barracks) at Fort Montgomery.

The soldiers that occupied the Enlisted Men's Barracks were probably not members of the social elite as evidenced by the plain and non-decorated brass shoe-buckles and buttons recovered from the building. The diverse range of artifacts recovered also suggests that the occupants of the Enlisted Men's Barracks were probably not wearing/using standard issue items but may have worn clothing items that were of their own choosing. The presence of these items also lends support for the assumption that the militia may have been housed within the Enlisted Men's Barracks.

Utilitarian wares represent the highest number (68%) of food preparation/consumption containers identified at the Enlisted Men's Barracks and may reflect traditional styles of food preparation and consumption. More expensive refined wares such as creamware, white salt-glazed stoneware, and Whieldon ware are present at the Enlisted Men's Barracks, but represent a smaller percentage of the overall assemblage. The range of forms of containers suggests that the refined wares may represent vessels that were individually chosen by soldiers and were not standard issue items provided by the Continental Army. As discussed above, members of the local militia may have brought these items to Fort Montgomery.

Unlike the OCB, the Enlisted Men's Barracks does not appear to have been as elaborately constructed. Archaeological evidence suggests that the Enlisted Men's Barracks was constructed on top of a stone foundation with a cellar located underneath the building. In the center of the building were two stone fireplaces that probably served as heating and cooking facilities for the building. In addition, unlike the OCB, no brick aprons were identified around the bases of the fireplaces. In addition, Mead indicates that the central fireplace may have been dressed in the OCB, a feature that is also not reflected in the fireplaces of the Enlisted Men's Barracks.

Information regarding food consumption provides a picture of the consumption patterns of these Revolutionary War period soldiers. Of the artifacts that remain, faunal remains are most numerous and are represented by 3,868 artifacts. The majority of these artifacts are pieces of beef or other large mammals. When compared with the OCB, the occupants of the Enlisted Men's Barracks may have consumed food that were less varied than soldiers residing in other buildings.

Wine bottles and leaded tableware were also recovered from the OCB (Table 4.1). The majority of these artifacts were recovered from the large garbage dump located behind the Enlisted Men's Barracks. Smaller quantities of wine and table glass were recovered from secondary refuse deposits located along the front and side walls of the barracks.

The overall spatial patterning of artifacts (Figure 4.15) within the Enlisted Men's Barracks suggests that the interior of the building was relatively

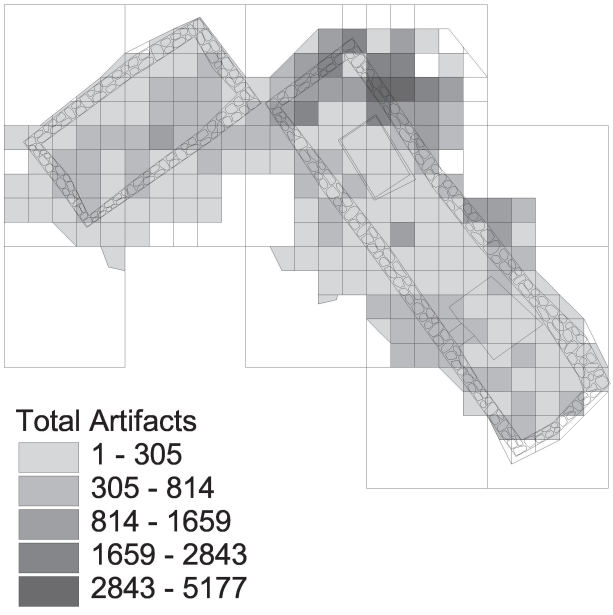

Figure 4.15. Overall distribution of artifacts within the Officer's Commissary and Enlisted Men's Barracks.

free of garbage with much of the soldiers refuse discarded in a small dumping area along the northeast exterior wall of the building. This area was probably selected as a refuse area since it was located in a low traffic area behind the building. This area would have also allowed the dump to be concealed from important visitors who may have frequented the OCB.

Summary of the L-Shaped Barracks

The L-shaped Barracks was excavated by John Mead of the Trailside Museum between 1967 and 1971. The building consists of a smaller OCB and a larger Enlisted Men's Barracks. The OCB was probably occupied by higher-ranking officers while the Enlisted Men's Barracks was probably occupied by soldiers that may have been members of the Continental Army and the local militia.

A comparison of the types of artifacts recovered from these two buildings reveals information about the types of activities and the social standing of the occupants of the buildings. As discussed above, the refuse disposal patterns of the occupants of these two buildings are quite different with the interior of the Enlisted Men's Barracks being largely devoid of artifacts with the buildings occupants using a primary garbage dump located along the northeast corner of the building. In comparison, the occupants of the OCB appear to have disposed of refuse along the exterior walls of the building. Charred artifacts within the OCB suggest that many other artifacts may have perished with the destruction of the building following the 1777 British attack on Fort Montgomery.

Overall, the artifacts recovered from the Enlisted Men's Barracks and the OCB suggest some differences in the occupation of these buildings. The most prevalent differences can be seen in the number and quantity of utilitarian and refined wares. At the OCB, the percentage of refined wares, such as creamware, Whieldon ware, and white salt-glazed stoneware, is higher than that found at the Enlisted Men's Barracks. These types of wares reflect a different style of food consumption that was new in the mid-eighteenth century. In contrast, utilitarian wares (especially yellowware) predominate at the Enlisted Men's Barracks and suggest that the occupants of the site may have been of a lower social and economic standing.

Evidence of differences in social class is found in the types and forms of personal items, such as decorated buckles and buttons, military and defense items, and food bone recovered from these two barracks. Overall, the artifact assemblage from the OCB contains a wider diversity and more ornate objects than that recovered from the Enlisted Men's Barracks. The artifacts recovered from the Enlisted Men's Barracks are often undecorated and constructed from less expensive materials.

Structural evidence suggests that the OCB was more carefully constructed then the Enlisted Men's Barracks. Evidence of this can be seen in the well-mortared walls and finished/dressed fireplace identified by Mead in the OCB. The structural features of the Enlisted Men's Barracks are not finished and are more crudely constructed as shown in the foundation and fireplace platforms found in this building.

Comparison of the OCB and the Enlisted Men's Barracks reveals important information about the use and social standing of the occupants of these two buildings. These patterns within Fort Montgomery reveal important information about the occupants' daily life at this Revolutionary War fort.

Chapter 5: the Storehouse

by Charles L. Fisher

The Storehouse was among the buildings located and excavated by The Bear Mountain Trailside Museum under the direction of John H. Mead between 1967 and 1971. The funding was provided by the New York State Historic Trust for the development of Fort Montgomery as an historic site. Mead stated "the primary purpose of the excavations was to locate all of the Revolutionary structures and ramparts east of the present day Route 9W highway, and to learn by excavation the details of their construction so that, along with documentary research, the fort could be accurately restored" (Mead 1992:np).

Mead established a master grid over the entire fort and the Storehouse explorations followed this mapping system described in his 1992 report. The excavation of the storehouse consisted of squares within 10 BOXES, labeled 118M, 118R, 119 E, 119J, 119K, 119N, 119P, 132D, 133A, and 133B. The limit of his excavation is shown on Figure 5.1. The excavation techniques and catalog system are described in his 1992 report. The separate soil layers within each 5-foot square were the basic units of excavation, which was done by trowel. The soil was sifted through $^{3}/_{16}^{th}$-inch mesh screen in order to provide a standard recovery system. The field observations were recorded on individual level forms for each square, including a plan and section drawing. Black and white and color slide photographs were taken during the excavation.

A trench 30 feet long and 5 feet wide was left unexcavated in the central area of the building. This provides a future reference for excavation if questions arise that could be resolved with specific field research at this site. Additional references to this excavation are present in the recent report by Lenik, Gibbs, and Cielo (1999) and an earlier paper by Mead (1969).

Structural Remains

By March 28, 1776, the Storehouse was completed after only 14 days of construction at Fort Montgomery (Livingston 1776). Although it was rapidly built, this was among the most difficult of the buildings in the fort for the archaeologists to locate. The ground water was very high and test pits quickly filled with water during his survey. The building was thought to have been 34 by 40 feet in size, so Mead initiated a series of test trenches 35 feet apart across the area to search for evidence of the Storehouse. Subsequent archaeological excavations determined the building was 34 by 50 feet.

The second trench encountered the remains of the northwest corner of the building. A large portion of the stone foundation was removed sometime after the destruction of the Storehouse. The remaining walls indicated a width of almost 3 feet for the exterior walls. Numerous bricks, however, were discovered in the south end of the building. This presented a problem to the excavators, since the remains of a chimney were not anticipated in the storehouse. The construction of a fireplace and chimney indicated that the building functioned in an unknown manner in addition to that suggested by the name "storehouse."

Following the west wall of the structure, archaeologists found the remains of the chimney platform. This stone platform extended almost 5 feet east of the west wall and was about 8 feet wide along the west wall (Figure 5.2). Upon removing the bricks, a 15-foot wide section of wooden floor was discovered. These charred boards were fragmentary but the largest board was 15 inches wide and oriented parallel to the long axis of the building, which turned out to be 10 feet longer than expected for a total size of 34 by 50 feet.

A second stone platform for a fireplace and

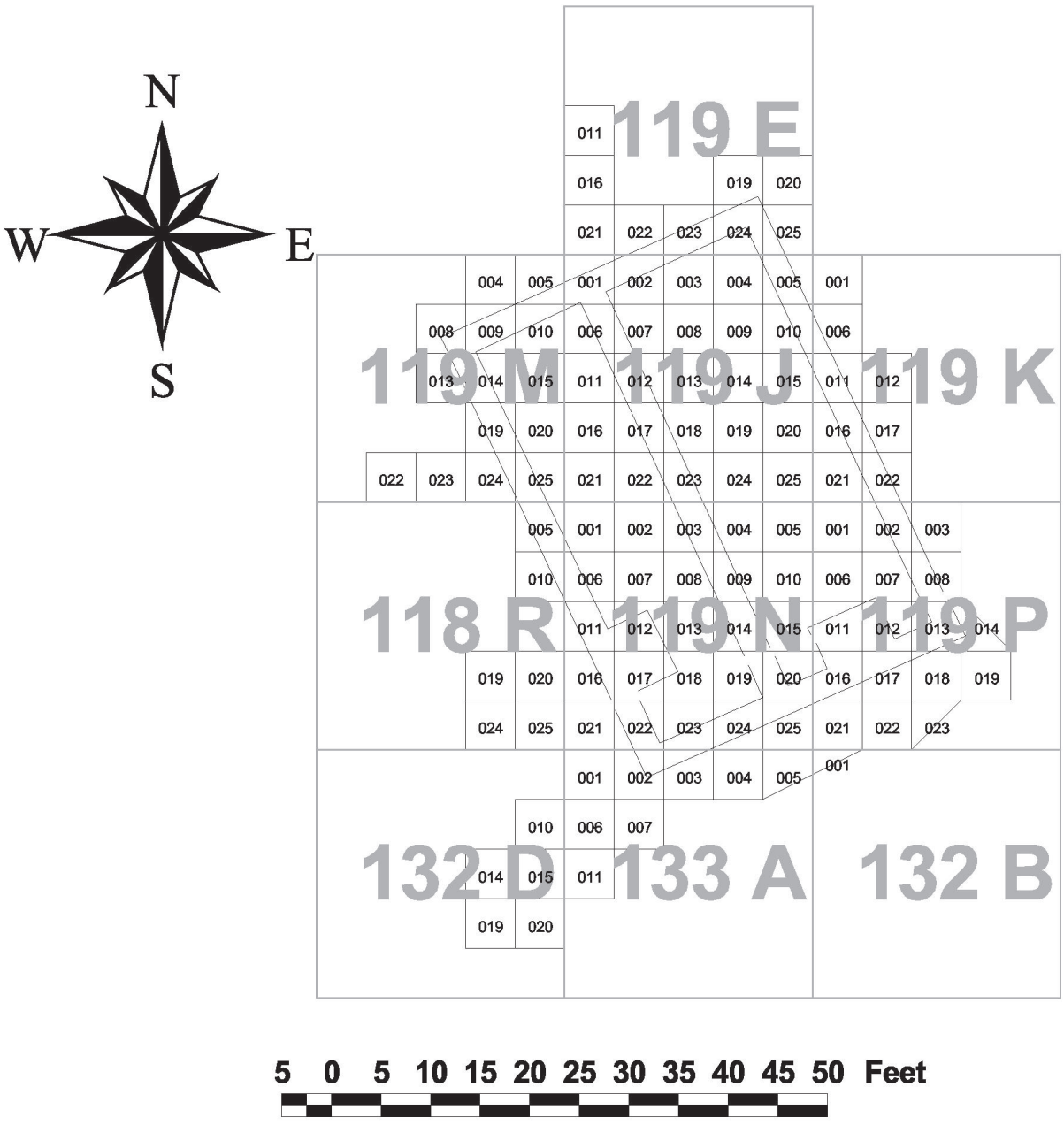

Figure 5.1. Plan of excavation units with outline of Storehouse walls and chimney platforms.

brick chimney was found along the south wall near the southeast corner of the building. This was about the same size as the one along the west wall, 5 by 8 feet. A dividing wall almost 2.5 feet wide was identified approximately 18 feet from the eastern wall, resulting in two long narrow rooms with the eastern one 15 feet wide, slightly wider than the western room, which was almost 11 feet wide. The storehouse, with two fireplaces, had a heat source for each of the two rooms present in the south end. The stone platform in the southeast room was located from 4 feet to 12 feet west of the interior of the east wall. The stone platform in the southwest room was between 5 feet and 13 feet north of the interior of the south wall along the west wall. These fireplaces are not placed in the typical central location so that a single chimney can service both rooms, or on the opposite ends of the structure so the heat may be dispersed throughout the interior. This resembles a building at Fort Independence described by Lopez (1978) that had the fireplaces in various positions within the structure.

Figure 5.2. Excavation of west wall of Storehouse, facing northwest.

The western room appears to have had a wooden floor while the eastern side, at least on the south half, may have had a brick floor. The archaeologists mapped a northern limit, or edge, of the bricks at approximately the center of the east room, 22 feet north of the interior of the south wall. In addition, this room in the southeast portion of the Storehouse contained small, cast iron lath nails and fragments of wall plaster. The remains of red paint were observed on the plaster, indicating the color of the interior and further distinguishing this room from the remainder of the Storehouse.

The two rooms in the south half of the Storehouse served as living quarters while the northern portion contained the stores. Artifacts appear to reflect the occupation of the south end of the building and the low numbers of items in the northern portion of the building indicate that the stores were removed before the fort was abandoned.

From the exterior of the southwest corner of the building, a drainage ditch was present that carried water away from the building. Apparently, the high water table present during the archaeological excavations was a problem during the initial construction and occupation of the fort. This ditch was about 12 to 15 inches wide, 14 inches deep and was followed by excavators almost 6 feet from the building corner. The former ditch was filled with a dark brown clay and fine sand that contained brick fragments, stones, and trash (Figure 5.3).

An area of trash disposal was encountered in excavations near the drain off the southwest corner and along the exterior south wall of the storehouse. It is not clear whether this trash area is a

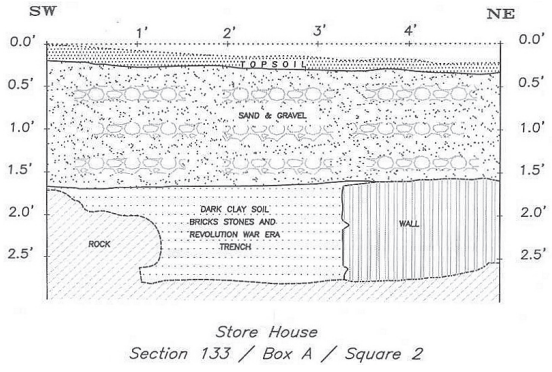

Figure 5.3. Section drawing of the drainage trench at the southwest corner of the Storehouse.

Table 5.1. Artifacts from the Storehouse excavation.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Creamware	859
		Delftware	97
		Ironstone	12
		Jackfield-type Redware	88
		Pearlware	153
		Porcelain	125
		Redware	11
		Stoneware	89
		Whieldonware	83
		White Salt-glazed Stoneware	27
		Whiteware	218
		Yellowware	153
		Other Ceramic Sherds	2
	Ceramic Sherds Total		1,917
	Glassware	Bottle Glass (other)	25
		Bottle Glass (wine)	3,444
		Lead Glass (stem and tableware)	73
		Milkglass	3
		Other Glassware	127
	Glassware Total		3,672
	Other Food/drink	Cutlery (pewter)	4
		Cutlery (other)	1
		Kettle	11
		Stove Parts	1
		Other	2
	Other Food/drink Total		19
	Refuse	Botanical	1
		Faunal	246
		Shell	25
	Refuse Total		272
Food/drink Total			5,880
Personal	Clothing	Buckles	4
		Buttons (bone)	2
		Buttons (brass)	6
		Buttons (pewter)	2
		Buttons (silver)	1
		Cuff Links	3
		Pins	1
		Suspenders	1
	Clothing Total		20
	Equestrian	Harness/Tack	1

Table 5.1.(continued) Artifacts from the Storehouse excavation.

Artifact Class	Artifact Type	Artifact Subtype	Total
	Equestrian Total		1
	Furnishings	Fireplace	1
		Furniture	1
	Furnishings Total		2
	Military/Defense	Bar Shot	1
		Cartridge Boxes	1
		Firearms/Parts	3
		Gunflint	45
		Iron Cannister Shot	1
		Iron Grape Shot	26
		Lead Buck Shot	14
		Lead Musket Shot	20
		Ramrod	2
		Uniform Related	1
	Military/Defense Total		114
	Personal Items	Medicine Bottles	363
		Medicine Pot	1
		Sewing	3
	Personal Items Total		367
	Tobacco Related	Kaolin Pipe	135
	Tobacco Related Total		135
	Tools	Drill	2
	Tools Total		2
	Toys	Marbles (clay)	2
	Toys Total		2
	Writing	Lead and Slate Pencils	1
	Writing Total		1
Personal Total			644
Structural	Glass	Other Glass	11
	Glass Total		11
	Hardware	Barbed Wire	4
		Chain	16
		Door Hardware	1
		Hardware Fasteners	5
		Iron Strap	3
		Plumbing	1
	Hardware Total		30
	Masonry	Bricks	42
		Mortar/Plaster	165
	Masonry Total		207
	Nails	Cast Iron Nails	506

Table 5.1.(continued) Artifacts from the Storehouse excavation.

Artifact Class	Artifact Type	Artifact Subtype	Total
		Cut Nails	1
		Wire Nails	2
		Wrought Nails	2,128
		Wrought Spikes	1
		Other Nail	4
		Unidentified Nails	169
	Nails Total		2,811
	Structural Samples	Charcoal	19
	Structural Samples Total		19
	Window Glass	Window Glass	521
		Window Glass (modern)	161
	Window Glass Total		682
Structural Total			3,760
Miscellaneous	Debris	Chert	13
		Coal	3
		Limestone	21
		Mica	2
	Debris Total		39
	Samples	Charcoal	145
		Soil Samples	11
		Wood Samples	2
	Samples Total		158
	Unidentified Objects	Unidentified Iron Object	13
		Unidentified Lead Object	41
		Unidentified Pewter Object	4
		Unidentified Stone	10
		Other/Unidentified Metal	157
	Unidentified Objects Total		225
Miscellaneous Total			422

result of an effort to fill a low, wet area or due to a nearby window or door that enabled the residents to discard their trash easily. In either case, it reflects a concerted effort to keep other areas around the Storehouse relatively free of trash.

Artifacts

Artifacts from the storehouse excavation have been grouped into general artifact classes, as well as identified as specific items. They are presented in Table 5.1. These general groups are based on broad functional interpretations to provide a basis for comparisons of activities across the entire fort. The designation of a specific item as either a member of the food/drink, miscellaneous, personal, or structural artifact groups assumes a single function for each item, which may not have been the case for many objects at this site. The artifacts recovered from the storehouse are associated with the construction and occupation of the building and in some cases were part of the military stores. The rapid evacuation of the fort in the dark by the Americans during the battle and the planned destruction and evacuation of the fort by the British

did not leave large quantities of stores behind for archaeologists to find. Small items recovered from the northern portion of the storehouse may indicate some of the materials that were stored here.

The group of structural artifacts includes material used in the construction of the storehouse. These are primarily bricks, nails, window glass, and mortar fragments. A single shutter hinge was recovered in excavations at this site. Items from the storehouse excavations considered in the food/drink group include the ceramic collection, bottle glass, food remains such as bone, shell, a peach pit, and an iron kettle and other cooking tools. The greatest range of artifacts is within the personal item group, which includes objects such as buckles, buttons, tobacco pipes, medicine bottles, pins, a thimble, and the entire collection of weapon related materials. Gun parts, gunflints, grape shot, buckshot, and musket shot are within this group, as well as the much older Native American chipped stone artifacts recovered in excavations. The miscellaneous group contains many unidentified fragments of iron, lead, and pewter along with samples of limestone and charcoal collected by the archaeologists.

Artifacts identified as modern, not related to the occupation of the fort during the American Revolution, have not been included in the following discussion. Similarly, artifacts that were not assigned to a specific location have been omitted, since their association with the storehouse cannot be established.

Structural Artifacts

Artifacts associated with the construction of the storehouse include bricks, nails, window glass, and mortar. The stone walls uncovered in excavation that provided the outline of the building were not removed by the archaeologists. Building stone and bricks may have been taken from the site for use in local construction, a situation the excavators noted for most of the fort. Pieces of mortar recovered exhibited a whitewash, while some fragments had a red paint on them. Lath impressions were observed on the mortar, indicating the building had a wooden frame construction. The red painted examples were recovered from the southeast room, with the greatest number of fragments from the vicinity of the fireplace and the interior dividing wall (Figure 5.4). In addition, the cast iron nails used in putting up lath for the plaster walls were associated with the eastern room (Figure 5.5). These nails have been identified and described by Lenik (1977).

Brick flooring may have been present in the southern half of the eastern room. There was a concentration of brick in the northern portion of the southeastern room, apparently useful bricks stacked for salvaging after the Revolutionary War. In contrast, burned wooden floorboards were found in fragmentary condition in the southwestern portion of the storehouse (Figure 5.6).

The large number of nails (2,128) indicates that the storehouse must have been a wooden structure. Although the building is believed to have been timber framed, the siding, roofing, doors, and windows required nails in their construction. The distribution of the nails is difficult to interpret beyond their importance to the entire structure. The 506 cast iron nails, however, are located within the southeast room. These 1 1/8-inch nails were interpreted as lath nails, reflecting the well-finished interior in this portion of the Storehouse (Cotter 1969; Mead 1969b; Nelson 1968).

The 521 fragments of window glass appear to have a distribution around the building that reflects the locations of windows (Figure 5.7). The destruction of this building resulted in a wide distribution of sherds of window glass, which were recovered from many of the excavated squares. There are a few locations, however, where the larger quantity of glass indicates the proximity to window locations. Windows were present on each side of the building, in each of the identified rooms. The north and south walls appear to have each had at least two windows, one in each room near the outer wall. This is supported by the discovery of a Dutch style shutter hinge, which was found on the south side of the southeast corner in Square 18 of Section 119, Box P. This was within an area with a large number of window glass fragments.

The window placement on the east and west walls is more difficult to establish. There was probably at least one window near the center of the

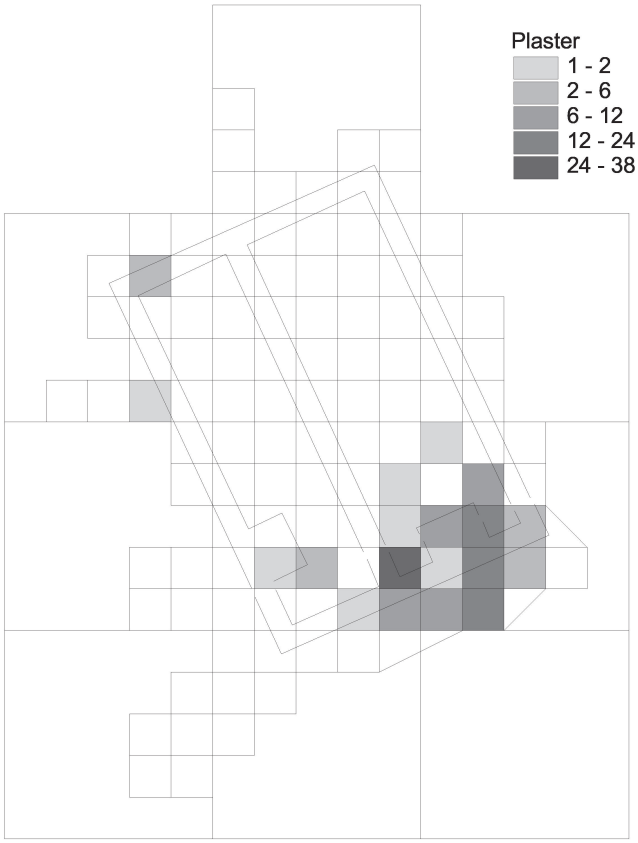

Figure 5.4. Distribution of red painted plaster.

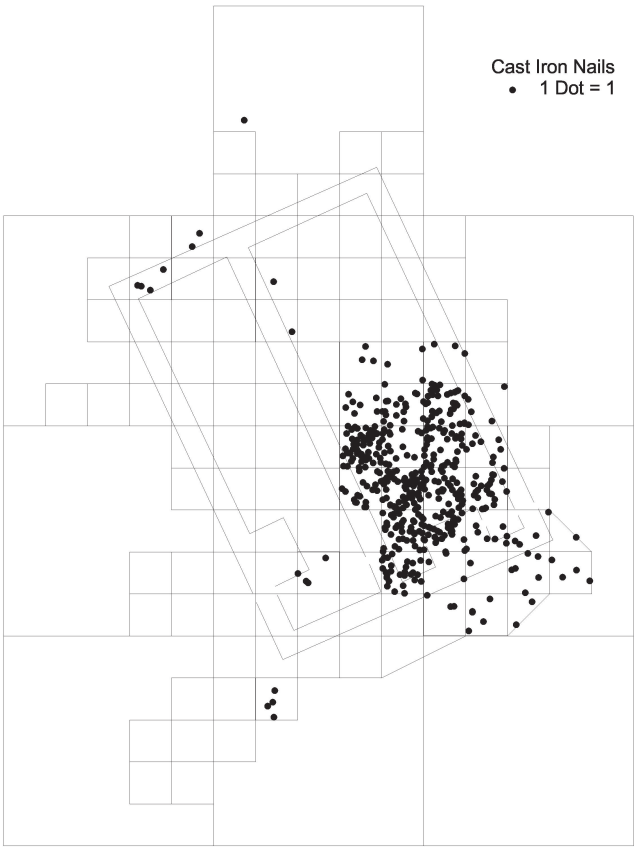

Figure 5.5. Distribution of cast iron lath nails.

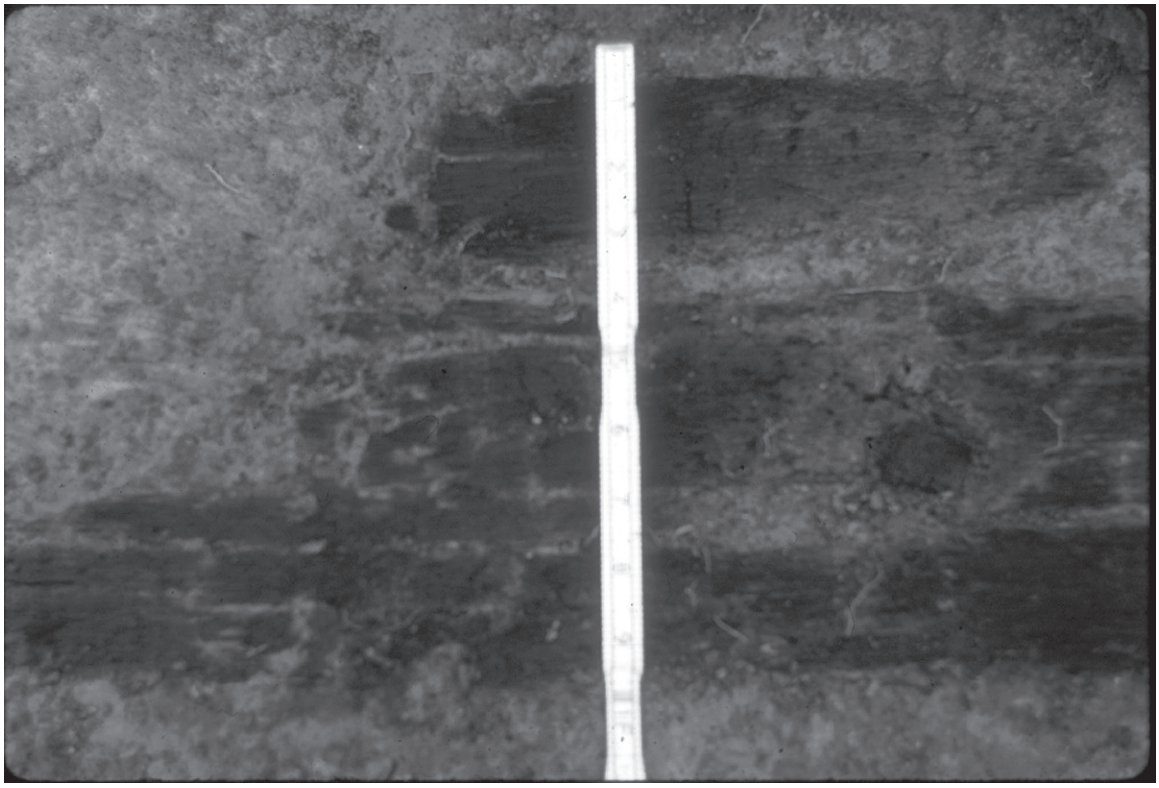

Figure 5.6. Burned wooden floorboards from southwest room.

west wall, or one in each of the two rooms along the west wall. There does not appear to be concentration of window glass along the east wall to indicate a window location. There is some window glass in the center of the south room and along the interior wall on the west side of the southern room. The most likely source of this glass would have been a window in the east wall near the center of the south room. There is a good chance that this window would have been slightly offset from the center since it was necessary to have had a door here as well to access the southeast room.

Archaeological evidence of doors for the storehouse may be inferred by the general patterns of artifact dispersal, along with the functional requirements of the building. The presence of four rooms and the interior division of the two living quarters in the south end of the building suggest at least two doors, one for each of the quarters. This would restrict access to the stores, an important part of maintaining them. The absence of window glass in the central portion of the east wall may have resulted from the door location for the southeast room. A door at this location would have prevented direct access to the stores in the northern half of the building, but required access through the quarters and of the occupants of the southeast room.

Similarly, the western portion of the building may have been entered through a second door on the west side of the storehouse or through the southeast room. The placement and orientation of the fireplace along the west wall may reflect the absence of a door on the west wall. The quantity of trash on the south side of the storehouse may have resulted from traffic patterns established by the location of a door on the south side, or the presence of windows on the south side that provided openings for the discard of refuse.

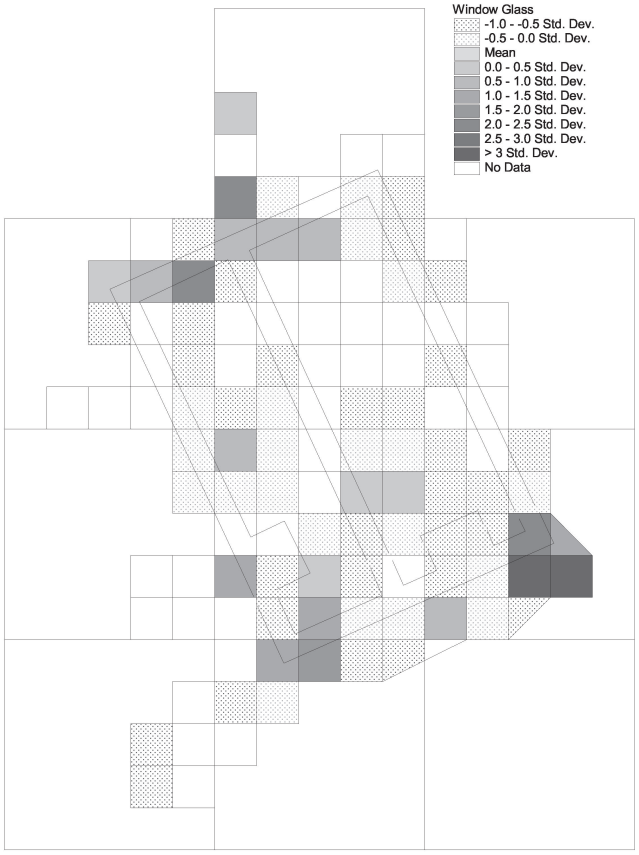

Figure 5.7. Distribution of window glass.

Food and Drink

Remains of food bone were recovered from the trash area on the south side of the storehouse and in the vicinity of the fireplaces. Fragments of bird and mammal bone were present, along with clam and oyster shells. A single peach pit was found as well. The evidence from other collections inside the fort is that the soldiers ate a variety of meat, poultry, and fish.

Metal objects in this group include fireplace tools, 11 kettle fragments, and spoons. A portion of a chain and a hook was found near the west fireplace, along with an iron dog, an iron stove poker, and iron kettle fragments to complete the equipment related to cooking. Four spoons, consisting of one handle and three complete specimens were recovered from the excavations.

Ceramics are the most numerous items in the Food artifact group. A total of 1,724 sherds were found that are associated with the Revolutionary War occupation of the fort. Another 383 sherds of ironstone, whiteware, and pearlware have been omitted from the following discussion because their initial manufacturing date is later than the occupation of the fort (Table 5.2).

Creamware (859 sherds) was the largest proportion of the ceramic collection and included plates and teapot sherds. Chinese export porcelain was the second most numerous ceramic (125

Table 5.2. Ceramic types and frequencies from the Storehouse.

Ceramic Type	# of Sherds	Vessel Types
Creamware	859	plates, teapots
Delft	97	plates, pots
Jackfield-type	88	teapots
Porcelain	125	flatware, hollowware
Redware	12	flatware, bottle, pot
Stoneware, coarse	89	hollowware
Whieldon ware	83	plates
White salt-glazed stoneware	27	plates, teapot
Yellowware	153	mugs, plates

sherds) in this collection. Usually associated with teawares, the sherds of handpainted porcelain represented plates as well. Ninety-seven sherds of delft, or tin-glazed buff earthenware, were decorated with hand painted and mottled purple designs. Both plates and pots were represented in the collection of delft. Eighty-eight sherds of black glazed redware, referred to as Jackfield-type, were identified as pieces of teapots. Only 11 sherds of redware were recovered. These included vessels of slip glazed and rouletted rims, a medicine pot, and a bottle.

Coarse gray salt-glazed stoneware is generally associated with use as utilitarian vessels for food transportation and storage. The anticipated large number of these sherds was not present in the storehouse. The coarse stoneware present was located in a small portion of the site associated with the southeastern room and the exterior trash area. In this case, the gray stoneware sherds may represent mugs, tankards, and jugs, although vessels were not identified.

The early form of creamware referred to as Whieldon was represented by 83 sherds. These appear to have been part of mottled brown, green, and yellow plates. A small number of sherds (27) of white salt-glazed stoneware were recovered. This ware was available in many forms and plates and a teapot were identified in the storehouse collection. These wares were decorated in molded patterns of feather edged and basket weave, as well as an example of overglazed, hand painted design.

Yellowware, or buff earthenware with a clear lead glaze and decorated with combed and dotted brown slip, was present. Vessels of this ware frequently were handled pots, mugs, tankards, and bowls. A mug and plate were identified among the 153 sherds from the Storehouse collection. In addition, handle fragments were present that may have been part of mugs, tankards, or pots.

The Food group includes seven wine glass sherds excavated from the Storehouse. These sherds included a portion of a wineglass stem, foot, and bowl. At least a single wineglass was used at the Storehouse. Another piece of glass in this collection was from a pickle, condiment, or sauce bottle.

A large number (3,468) of pieces of glass in this collection were parts of dark green wine bottles. As one of the most numerous artifacts at this site, wine/rum consumption and the subsequent breaking of the bottles must have been one of the major activities of the soldiers living here. Although drinking was seen as a problem for military discipline, it was frequently used as a reward and the quantity present at the Storehouse indicates that it was readily available. Alcohol was issued to the soldiers and was kept in the Storehouse according to the location of the wine bottle glass (Figure 5.8). Similar to the medicine bottle glass, the wine bottle glass was located primarily on the south side of the Storehouse but was present in every room.

Personal Artifacts

A single woodworking tool, an auger, was

found in Square 20 of 119J. This tool was very important in the process of timber framing that was used in the construction at this fort. While the Storehouse may have been the location of numerous tools used by the soldiers, they must have been removed prior to the evacuation of this fort. Another tool present was a folding knife, which served numerous functions.

Small pieces of melted lead were recovered in excavation. These were waste products from the manufacture of lead musket balls. The melted lead was found near the fireplaces on the south half of the Storehouse, indicating that the occupants of each room made musket balls in their quarters.

The soldiers clothing was reflected in the 4 buckles, 11 buttons, and 2 cufflinks recovered in excavation. The silver shoe buckle and cuff links may have been worn by wealthier militiamen or officers. Both American and British soldiers are represented by the two marked pewter buttons. The New York Regiment button was recovered from the southeast room and a British 63rd Regiment button was found in the southwest room. The 63rd Regiment was among the British troops in the attack on Forts Clinton and Montgomery. Other buttons were made of brass (6), silver (1), and bone (2). Evidence of button making in the Storehouse is present in a piece of bone, marked with the beginning of a cut to remove a button-sized disk. These artifacts are present on many military sites of the Revolutionary War era (Calver and Bolton 1950).

Another activity pursued by the residents of the Storehouse was the repair of clothing. A single straight pin was found in Square 21 of 119P and a thimble was found in excavation of Square 4 of 133A. A stirrup was excavated from the eastern room of the Storehouse. This item associated the occupants of the southeast room in the Storehouse with an aristocratic activity in the eighteenth century.

Tobacco smoking by the soldiers at the Storehouse is indicated by 141 tobacco pipe fragments in the collection (Figure 5.9). Molded decorations

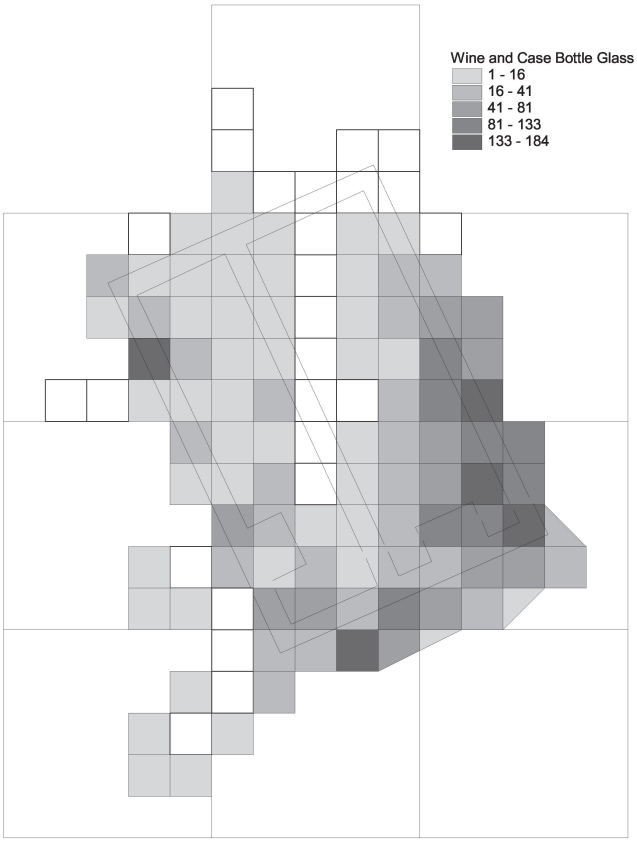

Figure 5.8. Distribution of wine and case bottle glass.

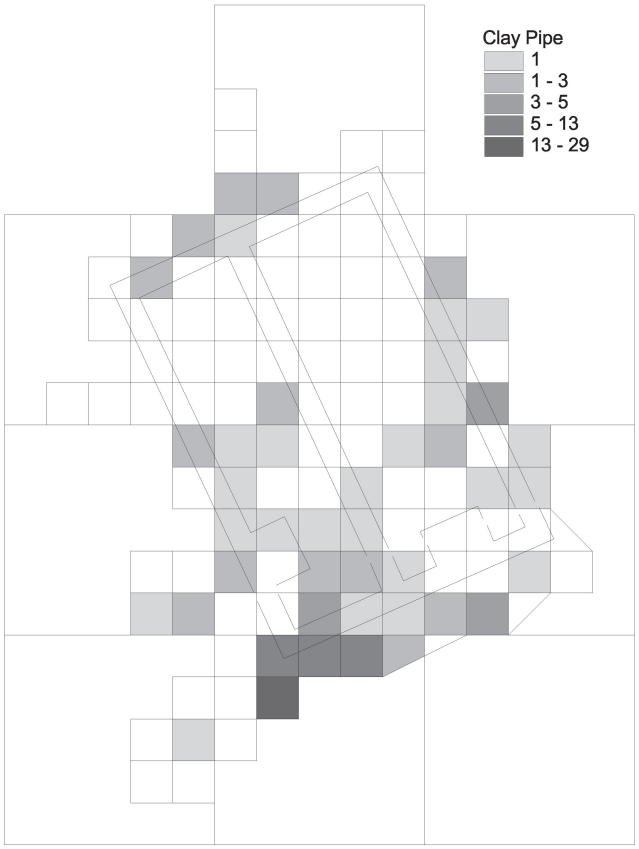

Figure 5.9. Distribution of tobacco pipes.

Figure 5.10. Distribution of medicine bottle glass.

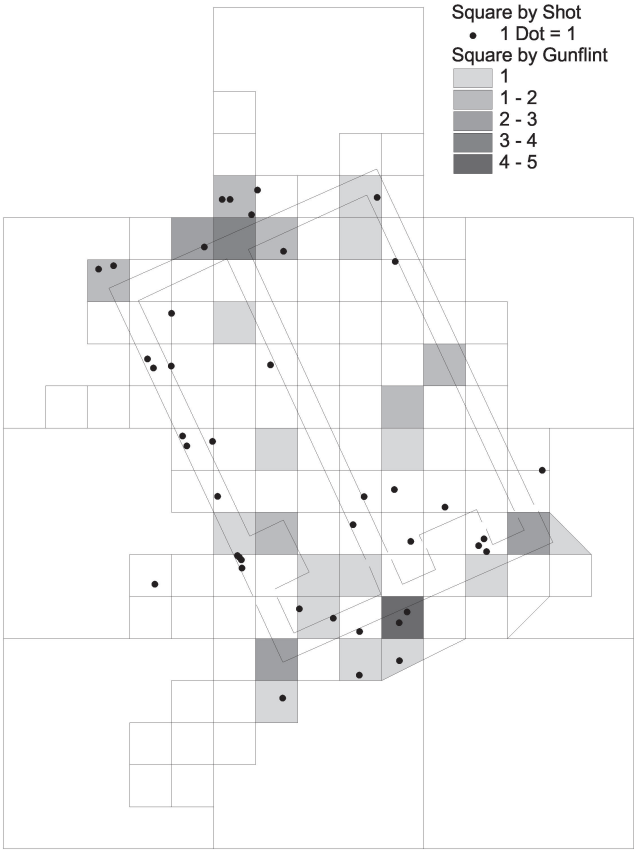

Figure 5.11. Distribution of shot and gunflints.

are present on some of the pipe bowls, as well as the initials of the popular eighteenth-century pipe maker, RT, which appeared on four different pipes. As expected, smoking is a social activity that took place primarily in the two rooms at the south side of the building. The majority of the pipes were found in excavations on the south side of the building, especially in the trash area outside the southwest corner. In addition, the tobacco pipe fragments were present in the storage space on the northern half of this building. It appears that smoking was a popular activity by soldiers all around this building while working at loading and unloading supplies.

Two clay marbles were found in the north half of the building. One was in the eastern room and one on the western side. Their presence on archaeological sites often reflects children's play, but it is more likely here that their use was in some form of gaming.

Medicine bottle glass was included in the personal items. Three hundred and sixty three sherds of medicine bottle glass were found in the excavation of the Storehouse (Figure 5.10). Whether these were military stores, or individuals' possessions, these were used on an individual basis in the fort. The large number of medicine bottles in this building indicates they were part of the military stores kept here. Although most of these bottle fragments were found at the south side of the Storehouse, medicine bottle glass was present in the northeast and northwest storerooms. There is only one building, the Main Barracks, which has more medicine bottle glass than the Storehouse. The Main Barracks had a storage cellar that may have been used in a manner similar to the Storehouse. The content of these bottles is largely unknown, since there were no labels or marks noted on these sherds.

The few artifacts related to weapons are considered as individual items. The small number of gun parts includes a brass trigger guard (AC2195), ramrod pipes, and the brass side plate from an officer's fusil. In addition, a brass scabbard clip and an iron cartridge box tube were recovered.

In contrast, the distribution of gunflints and shot across the entire Storehouse indicate they were among the stores (Figure 5.11). A total of 45 gunflints were recovered in excavation of the Storehouse, 15 were complete. The greatest number (7) were amber colored, while five were gray.

The shot found in the Storehouse excavations included 24 iron grape shot that ranged between .75 and 1.5 inches in diameter, 16 lead musket balls that were between .57 and .70 inch in diameter, and 11 pieces of buckshot that had diameters between .25 and .40 inch (Table 5.3). With the exception of five balls that measured .69 and .70 inch, most of the shot was smaller than that used in the standard British Brown Bess musket that had a barrel size of .75 inch. These smaller sized shot may have been used in a variety of weapons, including pistols. This variation may be a result of the American supplies kept in the Storehouse. The variety of shot sizes reflects the lack of standardization of weapons at the fort. This could be a reflection of the militia's presence here or the variation in the weapons of the Continental Army. The spatial distribution of the shot indicates these items were dropped and lost in the Storehouse.

Table 5.3. Lead shot sizes from the Storehouse.

Diameter*	# of Shot
0.57	1
0.60	9
0.65	1
0.69	2
0.70	3
Total	16

* Shot diameter in inches

Summary of the Storehouse Excavation

The most important result of the Storehouse excavation was the discovery of two separate living quarters in the south end of the building. This resulted in domestic refuse both within the south side of the Storehouse and in trash areas exterior to the building. The largest trash area was along the south side of the Storehouse and close to the occupants, although smaller concentrations of trash were present along the north and east sides of the Storehouse.

In addition, the two quarters in the south side of the Storehouse reflect important status differences that in the military are associated with rank. The interior of the southeastern room was brick floored, plastered, whitewashed, and a portion was painted red. The east room was larger and faced the interior of the fort where most of the other buildings were in sight. The small number of high status Chinese export porcelain was discarded along the east side of the Storehouse near the door into the southeast room. In contrast, the west room was slightly smaller, had wooden floors, and lacked the cast iron lath nails and painted plaster. The west side of the building required a drain and the large trash deposit outside the southwest room has lower status implications for the occupants.

During his excavations, Mead (1992) noted the finished interior of the southeast room and offered an explanation based on an analogy to another Hudson Valley fortification. The engineers responsible for the construction of Fort Montgomery may have taken up quarters in the Storehouse, following this practice at Fort Constitution. This possibility can not be evaluated with the current information. The rooms in the south side of the Storehouse may have served the engineers, but they may have remained in use beyond the initial construction. The presence of a British button in the southwest room suggests that soldiers continued to live here throughout both the American and British occupations of the fort.

The Storehouse location on the west side of the fort provided necessary proximity to the road that brought materials up to the fort from the wharf (Figure 5.12). At the same time, this location separates the Storehouse from the majority of the initial buildings on the east side of the entrance road. This reflects a measure of security for the stores within the fort. This is carried further by the substantial stone foundation walls, almost three feet wide, the interior divisions of the building, and the presence of quarters in the south side of the building. These features combine to provide a tightly controlled space, under the watch of resident officers and soldiers, for the valuables of the army.

Items guarded in the Storehouse included grape and musket shot, gunflints, medicine, and wine/rum.

The relative absence of material items from the north side of this building reflects the storage areas. Any useful materials left behind by the Americans must have been removed by the British before abandoning Fort Montgomery.

The general condition of the site suggests a degree of discipline was present at the fort. For example, the northern rooms of the Storehouse were very clean of refuse and artifacts that would be expected from daily use of this building. While trash was discarded in close proximity to the Storehouse, the majority of refuse was removed from the entranceways and placed in specific areas off of the usual travel routes and the associated sight lines across the fort.

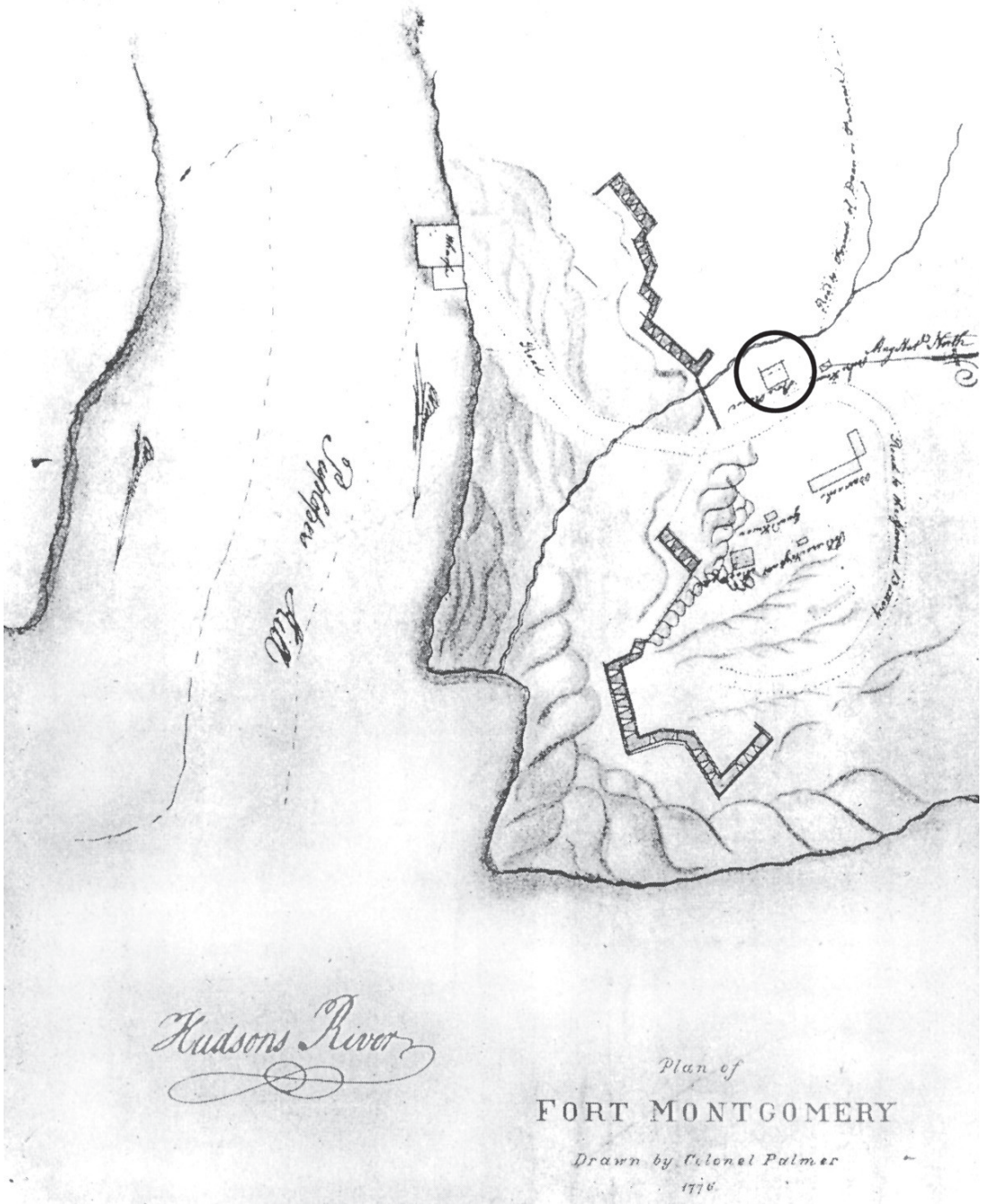

Figure 5.12. Storehouse location on a detail from a 1776 map by Palmer (Carr & Koke 1937). North is to the right.

Chapter 6: the North Redoubt

by Charles L. Fisher

This bastion is on the north side of the fort, east of the current Route 9W. Mead and staff from the Trailside Museum conducted a metal detector survey here in 1958. The "blade end of a shovel used in the construction of the Fort" was found "just outside the exterior rear wall (southwest corner of the Redoubt)" (Mead 1992:np) (Figure 6.1). Mead prepared a drawing of the location of this find, a section, and a sketch of the shovel in his 1992 report.

The North Redoubt consists of a salient, a northern outward-projecting angle from the north parapet of the fort and an irregular wall on the south, interior side (Figure 6.2). The maximum dimensions of this enclosure were approximately 100 feet north-to-south and 100 feet east-to-west. There was an entrance from the fort interior on the southeast wall of the redoubt.

Mead returned to this site and excavated most of the interior of this redoubt in Sections 50 and 64, employing his system of lettered Boxes, 25 feet square, and numbered 5 feet square excavation units. He investigated the exterior of the redoubt with excavation units in Section 63 on the west and 65 on the east. The westernmost part of this structure was destroyed in the construction of Route 9W. The redoubt was defined and delineated by locating exterior and interior faces of the wall. This summary of his excavations is based upon his excavation records and catalog, since no summary reports with his interpretations were located.

Structural Artifacts

Ditch

The salient of the redoubt contains several large, glacially deposited boulders that were utilized in the construction of the fort. A ditch was discovered approximately 15 feet north of these boulders in Section 50, Box G, Squares 3, 4, and 5 (Figure 6.3). This ditch was oriented east-west across the exterior of the salient. The ditch was approximately 4 feet wide and varied from 1 to 2 feet deep, where the archaeologists found the Revolutionary War era ground surface at the bottom of the ditch. This was a yellow soil that was burned to a red-orange color and contained musket balls and ceramic sherds. The ditch extended to the east and west for a length of 10 to 12 feet, where it was less than 1 foot deep.

Figure 6.1. Shovel found with metal detector alongside the North Redoubt (Mead 1992).

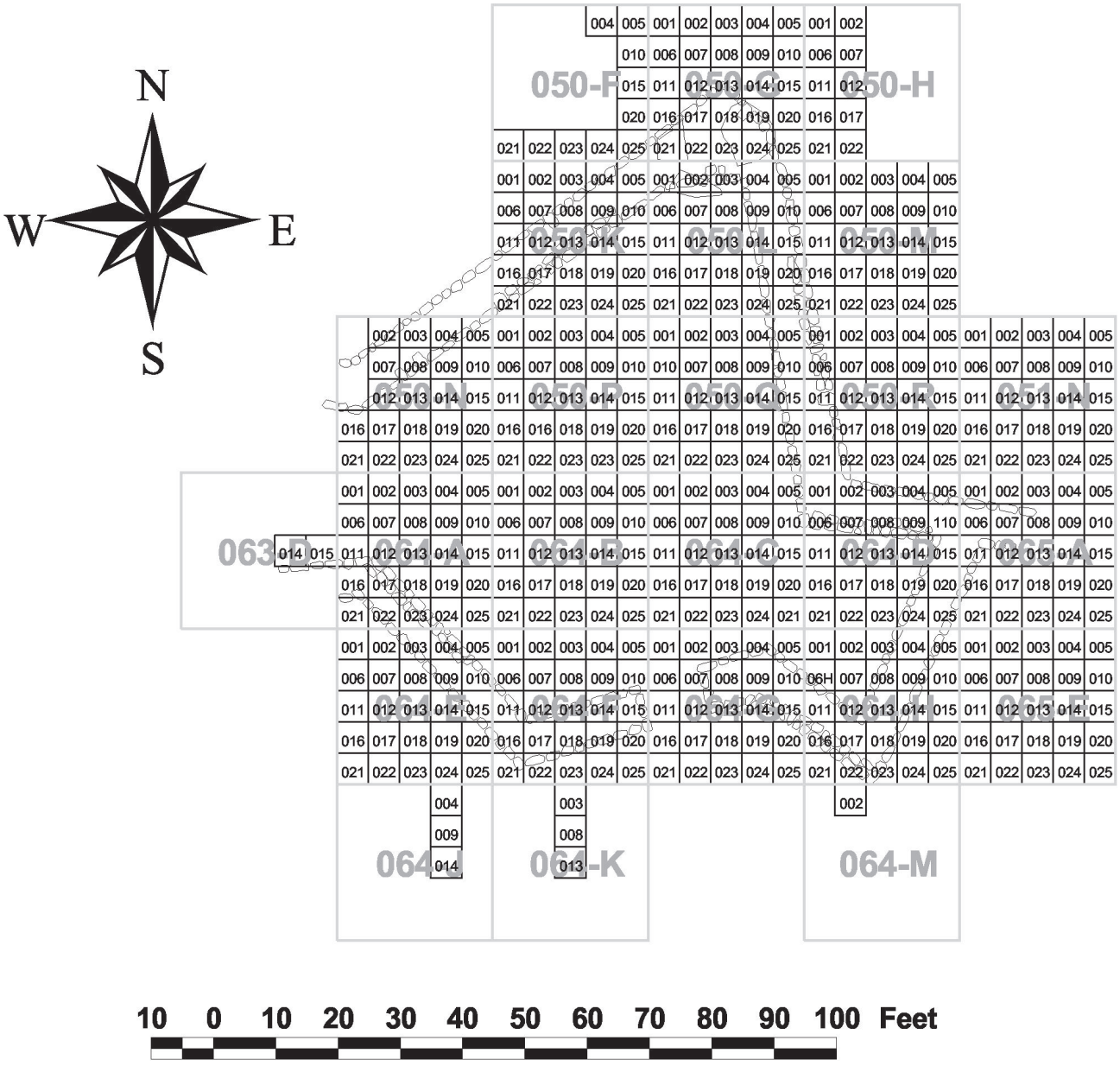

Figure 6.2. Plan map of North Redoubt with excavation locations.

Parapet

Archaeologists discovered the stone wall faces of the exterior and interior of the parapet. Usually, the remains of the walls were limited to the stones at the base of the wall, although in some areas walls of 1 to 2 feet high remained. The width of the walls varied from 8 to 10 feet (Figure 6.4). The interior of the parapet may have been filled with earth or rubble and faced with fascines. Lord Stirling reported to General Washington that the "works built [were] all faced with fascines and filled with strong, good loam…" (Hastings 1899(I):135). There is no direct archaeological evidence regarding the parapet interior, although stone walls were present on the interior and exterior and fascine fragments were recovered in excavations in the North Redoubt.

There was a berm of relatively level ground that was up to 3 feet wide along the exterior and at the base of the wall. Generally, the berm functioned to keep the ditch beyond it from rapidly filling with the soil from the ramparts. The presence of the berm at Fort Montgomery suggests the parapet was an earthen work, lined with stone walls.

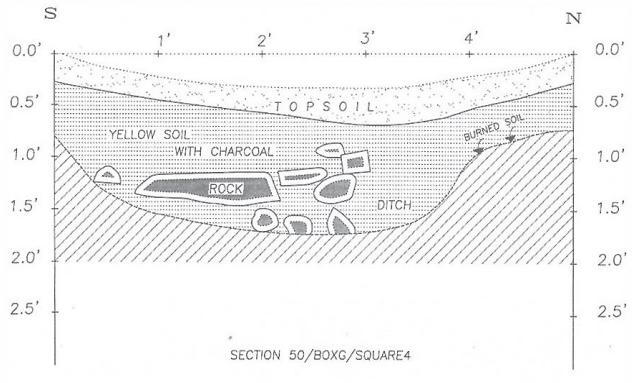

Figure 6.3. North-south section of Ditch excavated north of salient.

Mead's excavations, however, focused on following the stone face of the parapet and did not investigate the interior.

The exterior ditch was from 1 to 2 feet deep, below the top of the berm. The depth and width of the ditch depended upon the location and depth of the bedrock encountered in constructing the fort. Archaeologists' field notes indicated the presence of burned soil, ash, and charcoal in patches resting upon the bedrock at the base of the ditch. The ditch extended horizontally up to 5 feet beyond the edge of the berm, or up to 8 feet beyond the exterior wall face.

Artifacts recovered along the exterior of the parapet included a flattened musket ball in Section 64, Box F, Square 21 that may have been fired against the wall. The ditch beyond the berm was the location of many artifacts, as well.

On the interior of the parapet, archaeologists discovered the banquette, an elevated walkway along the inside of the fort wall that allowed the soldiers to fire over the wall at the enemy (Figure 6.4). This was a level, earthen surface that extended about 2 feet in from the interior wall face. The banquette was covered with fallen stone from the parapet and the drop from the banquette to the interior floor level of the fort varied from several inches to almost 20 inches. The drop-off from the banquette to the fort floor level usually contained artifacts, as well as charcoal, ash, and burned soil. For example, a complete wine bottle was recovered from this area in Section 64, Box F, Square 7 and a bayonet was discovered beneath fallen parapet stones below the banquette in Section 64, Box F, Square 9.

The entrance to the North Redoubt was located along the southeast wall and was approximately 8 feet wide (Figure 6.5). The west side of the entrance was in Section 64, Box G, Squares 11and 16 and the east wall was present in Section 64, Box G, Square 13. A number of clinched nails that may have been part of a door were recovered from Section 64, Box G, Square 3 located inside the redoubt to the east of the opening.

The irregular shape of the redoubt was identified by the location of the inward pointing, reen-

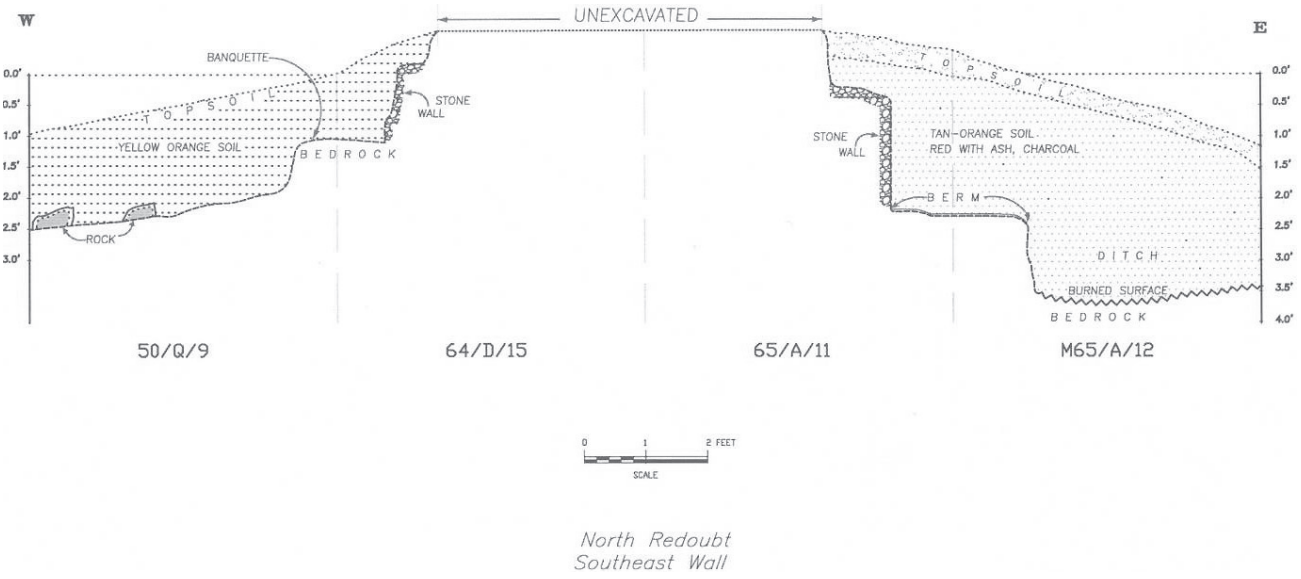

Figure 6.4. Typical section across parapet of the North Redoubt. East-west section across east wall of redoubt.

Figure 6.5. Photograph of southeast wall of North Redoubt with entrance opening visible, facing southwest.

trant angles of the wall. Examples were recorded in Section 64, Box A, Square 12 and Box G, Square 5.

Redoubt Interior

In general, redoubts may be considered as independent defenses within a larger fortification. In addition to projecting outward from the fort, the North Redoubt was walled and separated from the fort interior. Structures or buildings, such as barracks, may be expected to have been present within the North Redoubt.

Excavators observed a level floor that they referred to as a platform on the interior of the salient. The lower courses of a stone wall were found on the south side of the large boulder and boards, charred wood, rocks, and nails extended from this wall south about 10 feet into the redoubt. The largest remaining board was almost 12 inches wide and the wood grain was oriented north-south. This deposit was noted over almost 20 feet east-to-west across the interior surface.

It is uncertain whether the excavators thought this was a wooden gun platform or the floor for another structure. The evidence is insufficient to determine the details of the former structure at this location. The position, at the interior of the northernmost projection of the fort, suggests a gun platform was here. The diversity of artifacts, however, indicates this was the location of a variety of activities, beyond manning artillery.

The artifacts associated with this location are those generally indicative of living quarters. Examples of window glass, a hinge, and brick fragments were recovered from this area along with the charred wood, nails, and rocks. These items suggest a building was in this vicinity, possibly in addition to a gun platform. Other artifacts, such as pot hooks, a fork, bottle glass, ceramics, and food bone scraps were related to food preparation within the redoubt. The ceramics included sherds of tableware, such as creamware, and utility wares, such as lead glazed yellowware.

In addition to the evidence of a structure inside the salient of the redoubt, excavation notes indicate a small building may have been located

Table 6.1. Summary of artifacts from North Redoubt.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Creamware	16
		Delftware	9
		Jackfield-type Redware	12
		Pearlware	5
		Porcelain	26
		Redware	236
		Stoneware	20
		White Salt-glazed Stoneware	17
		Yellowware	13
	Ceramic Sherds Total		354
	Glassware	Bottle Glass (other)	44
		Bottle Glass (wine)	332
		Lead Glass (stem and tableware)	28
		Milkglass	2
		Other Glassware	20
	Glassware Total		426
	Other Food/drink	Cookware	4
		Cutlery (pewter)	1
		Cutlery (other)	3
		Kettle	1
	Other Food/drink Total		9
	Refuse	Botanical	2
		Faunal	372
		Shell	82
	Refuse Total		456
Food/drink Total			1,245
Personal	Clothing	Buckles	11
		Buttons (bone)	2
		Buttons (brass)	7
		Buttons (glass)	1
		Buttons (iron)	5
		Buttons (pewter)	23
		Buttons (other)	13
		Cuff Links	3
		Textile	7
		Other Clothing Items	1
	Clothing Total		73
	Equestrian	Horseshoes/Nails	2
	Equestrian Total		2
	Glass	Other Glass	21
	Glass Total		21

Table 6.1.(continued) Summary of artifacts from North Redoubt.

Artifact Class	Artifact Type	Artifact Subtype	Total
	Metal	Other Metal	1
	Metal Total		1
	Military/Defense	Bayonet	2
		Cannon	1
		Cartridge Boxes	1
		Firearms/Parts	9
		Gunflint	23
		Iron Cannister Shot	1
		Lead Buck Shot	45
		Lead Musket Shot	262
		Lead Rifle Shot	16
		Other Lead Shot	3
		Shotgun Shell	2
		Ramrod	6
		Other Military/Defense	3
	Military/Defense Total		374
	Personal Items	Keys	1
	Personal Items Total		1
	Tobacco Related	Kaolin Pipe	50
		Snuff Box	1
	Tobacco Related Total		51
	Tools	Axe	1
		Shovel	1
	Tools Total		2
	Toys	Doll (other)	1
		Marbles (other)	1
	Toys Total		2
	Writing	Lead and Slate Pencils	1
	Writing Total		1
Personal Total			528
Structural	Hardware	Chain	2
		Door Hardware	3
		Hardware Fasteners	2
		Iron Strap	33
		Locks	1
	Hardware Total		41
	Masonry	Bricks	63
	Masonry Total		63
	Metal	Other Metal	2
	Metal Total		2
	Nails	Wrought Nails	306

Table 6.1.(continued) Summary of artifacts from North Redoubt.

Artifact Class	Artifact Type	Artifact Subtype	Total
		Wrought Spikes	1
		Other Nail	5
		Unidentified Nails	20
	Nails Total		332
	Structural Samples	Charcoal	309
		Wood Samples	47
	Structural Samples Total		356
	Window Glass	Window Glass	15
	Window Glass Total		15
Structural Total			809
Miscellaneous	Debris	Coal	16
		Mica	2
		Organic	2
		Quartz/Quartzite	2
	Debris Total		22
	Samples	Charcoal	546
		Soil Samples	28
		Wood Samples	51
	Samples Total		625
	Unidentified Objects	Unidentified Iron Object	11
		Unidentified Lead Object	21
		Unidentified Pewter Object	6
		Other/Unidentified Metal	109
	Unidentified Objects Total		147
Miscellaneous Total			794

in squares M64, B8, 9, 13, 14, 18, and 19 where a quantity of stones were present. The artifacts located in the North Redoubt were examined to determine if living quarters were present.

Artifacts

Artifact classes and their locations provide evidence for evaluating the activities that took place within the redoubt. Several important observations were derived from the catalog of items recovered in excavations here. The number of items is summarized in Table 6.1. The initial metal detector survey by Mead yielded an iron shovel blade just outside the rear wall. Along with the axe head recovered in excavations, these two tools represent the basic tasks of the soldiers in construction of the fort.

Structural Artifacts

Evidence of the former structures in the redoubt consists of bricks, nails, window glass, and charred remains of boards, fascines, and hardware (Figure 6.6). The window glass, nails, and boards are located in the north and southwest areas of the redoubt. Although the number of window glass is small, the presence at these locations along with domestic items is strong evidence that soldiers were quartered here. An H-shaped hinge, another iron hinge, and iron latch were recovered.

Food/Drink

Some of the evidence of food preparation and

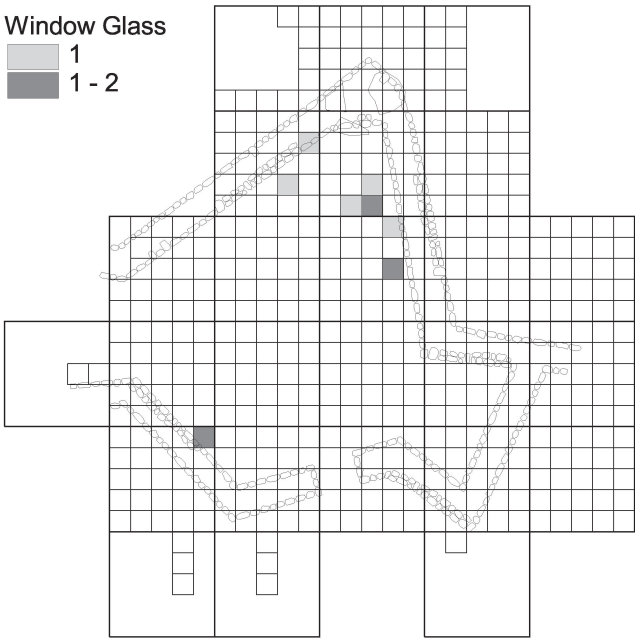

Figure 6.6. Distribution of window glass.

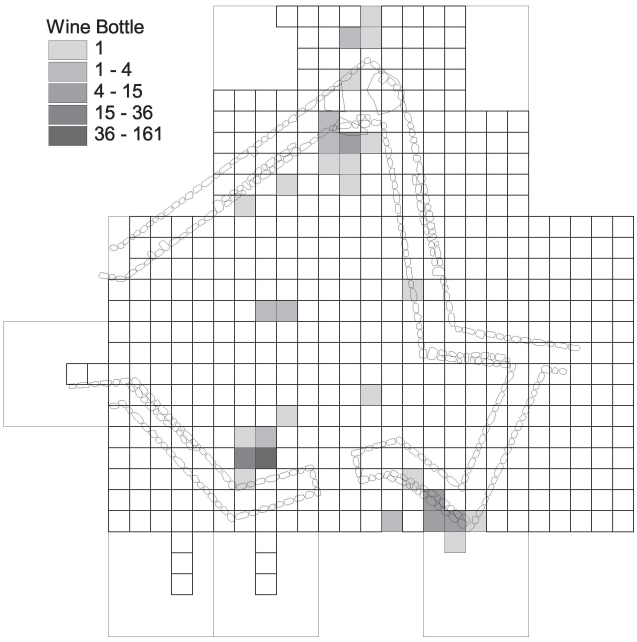

Figure 6.7. Distribution of wine bottle glass.

consumption in the North Redoubt has been referenced previously. The ceramics include vessels associated generally with domestic life, such as the Jackfield-type teapot, hand painted Chinese Export porcelain, and plates of creamware, delft, and white salt-glazed stoneware. The large proportion of redware sherds distinguishes this collection from other areas of the fort. The redware is lead glazed and at least one mug is reflected in the collection (Table 6.2).

Glass wine bottles were numerous in the collection from the North Redoubt (Figure 6.7). The distribution map of the wine bottle glass indicates two areas of this activity, one in the north and one in the southwest of the redoubt. The largest number, 150 sherds, was recovered from Section 64, Box F, Square 8, while a complete bottle was found just below the banquette in the adjacent unit in Section 64, Box F, Square 7. Clear lead glass sherds representing a decanter and possibly a flask were found as well.

Food preparation in the redoubt was indicated by iron kettle body and leg fragments. At least three pothooks were recovered along with mammal bones, teeth, clam shells, and oyster shells. These foods were consumed with the aid of utensils, such as an iron fork, another fork with a bone handle, and a pewter spoon.

Personal Artifacts

A large number of military items were found in the North Redoubt. Some of the items, such as the two flattened musket balls, bayonets, and discarded gun barrel sections, may be associated with the attack on Fort Montgomery. One section of a musket barrel exhibits a piece of lead shot wedged inside while another had a bore diameter of .70 inch. There were very few flattened pieces of shot recovered in excavations at this fort, possibly an indication of the relatively minor role of musket fire in the battle. More relevant to the attack on the fort were the bayonets archaeologically recovered (Figure 6.8). These artifacts were employed

Table 6.2. Ceramics from the North Redoubt.

Ceramic Type	# of Sherds	Vessel Types
Creamware	16	Plate
Delft	9	Plate
Jackfield-type	12	Teapot
Porcelain	26	Teaware
Redware	235	Mug
Stoneware, buff	2	
Stoneware, gray	13	Plate, handle
White salt-glazed stoneware	17	Plate
Yellowware	13	Plate

Figure 6.8. Photograph of excavation of North Redoubt and location of a bayonet.

in the hand-to-hand fighting described in the historic accounts of the battle. One of the bayonets was identified as the type associated with the British Brown Bess muskets.

Other gun parts recovered include three brass trigger guards, four sections of ramrod pipes, two other fragments of ramrod pipes, a musket worm, a brass sling buckle, and a butt plate. A gunlock, a gunlock spring, and a lock tumbler were present in this collection. Twenty-three gunflints were found within the redoubt excavations (Figure 6.9).

The large number of lead shot of the same diameter (.69 inch) indicates a standard weapon, such as the British Brown Bess, at this redoubt (Table 6.3). Although American soldiers may have had similar weapons of the same size, this uniformity is quite different from the range in shot diameters observed in other areas of Fort Montgomery.

The lead shot and gunflints were located mainly in the east section, along the interior of the southwest wall, and at the salient (Figure 6.10). Other activities relating to cooking, eating, and drinking were located in these same areas. Melted lead scraps were found in several areas within the redoubt. These may be the result of casting lead shot at this site.

American and British Regimental buttons are in the artifact collection in almost the same number. Four British buttons marked with the 57th Regiment and 3 NY marked buttons were present. This admixture may be a result of the assault, or the subsequent occupation of the redoubt by the British. The 57th Regiment was part of the British attack on the fort. Another 21 pewter buttons may be associated with the American Army or the Militia.

Civilian buttons recovered in excavation included one silver plated, one glass, five brass, five iron, two bone, and two cloth covered. These may be associated with the American Militia, although it is possible they were personal possessions of other soldiers. Three examples of cuff links were found in the North Redoubt, one was inset with glass and another with stone.

A fragment of material was the cause of some

Table 6.3. Shot number and diameter from North Redoubt.

Diameter (inches)	Lead Shot	Lead Rifled Shot	Iron Shot
1.00	---	---	1
0.72	1	---	---
0.69	194	---	---
0.60	---	5	---
0.59	10	---	---
0.55	1	4	---
0.52	---	1	---
0.50	1	1	---
0.49	6	1	---
0.40	---	3	---
>0.40	45*	---	---

* buckshot

excitement upon excavation. Initially, this was thought to have been part of a uniform coat sleeve by the archaeologists. Recently, this fabric has been analyzed and found to have been a fragment of a blanket "…rather than any kind of clothing" (Smith 2002b).

A variety of buckles was recovered as well. They included shoe, belt, stock, equipment, and sling buckles of pewter, iron, and brass. More unusual items in the collection include an iron snuffbox with a crushed lid, an iron key, a lead pencil, and the specimen of wool cloth.

Fifty fragments of white clay tobacco pipes were present in the archaeological collection from the North Redoubt. Only two exhibited impressed marks of the pipe makers. These are the marks of RT and a G.

A single stone marble was found in Section 50, Box K, Square 6. Marbles are usually considered as children's toys and may be the only evidence of family life at the fort. On the other hand, marbles may have been used by the soldiers in various games of chance.

Summary

The North Redoubt consists of a salient, a northern outward-projecting angle from the north parapet of the fort and an irregular wall on the south interior side (Figure 6.2). The irregular shape of the redoubt was identified by the location of the inward pointing, reentrant angles of the wall. There was an entrance from the fort interior on the southeast wall of the redoubt. Archaeological excavations yielded evidence of the structure of the redoubt, particularly concerning the ditch, parapet, the interior of the redoubt, and the activities that were conducted within the redoubt.

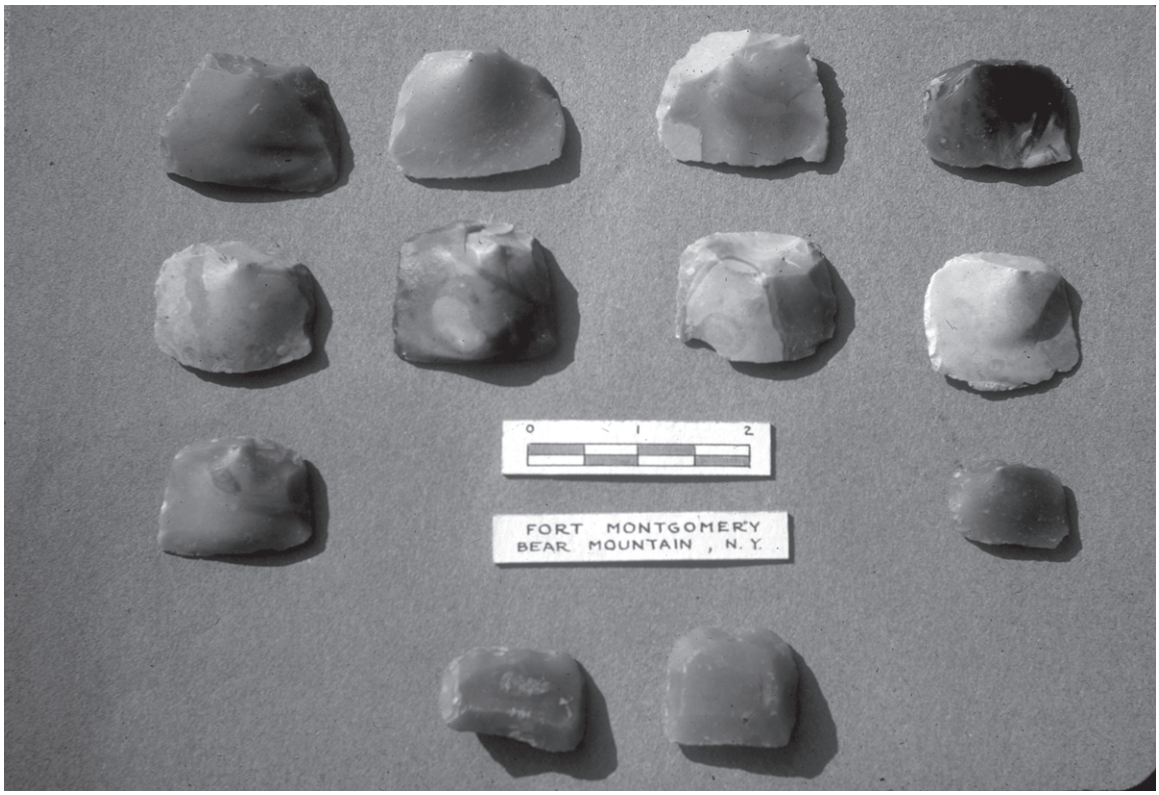

Figure 6.9. Gunflints from North Redoubt excavations.

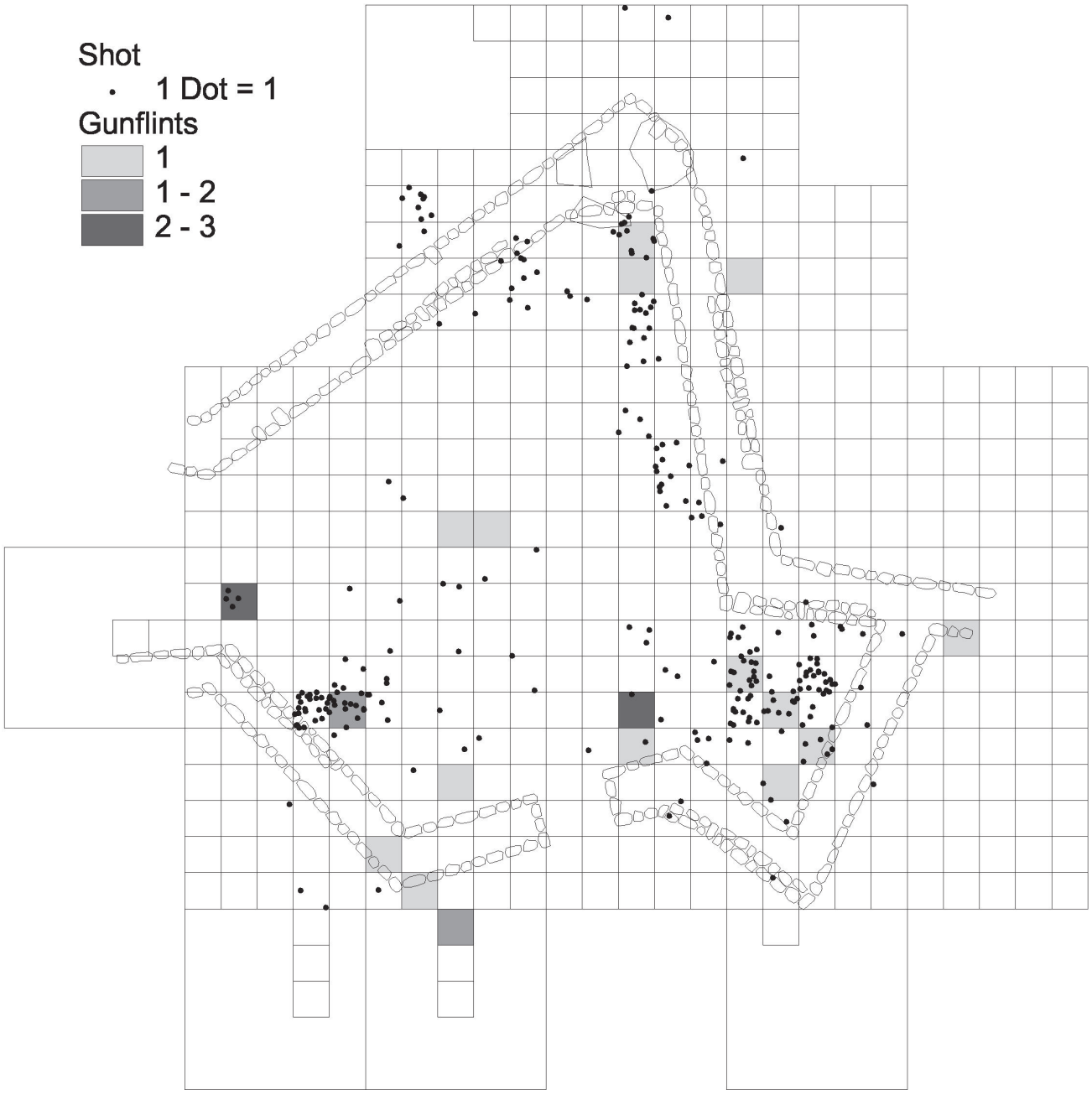

Figure 6.10. Distribution of shot and gunflints.

A ditch was discovered about 15 feet north of the north salient of the redoubt and oriented east-to-west for 12 feet across the front of the redoubt. The ditch was only 1 to 2 feet deep below the surface, but the surface in this location was several feet lower than the floor on the interior of the redoubt. The bottom of the ditch was exposed during the Revolutionary War and exhibited a yellow soil that was burned to a red-orange color. This soil layer contained musket balls, ceramic sherds, and other items from the construction, occupation, and destruction of the fort.

The large boulders in the salient of the redoubt marked the remains of the parapet (Figure 6.11). These large rocks were incorporated into the parapet (Figure 6.12). The archaeologists found the stone wall faces of both the interior and the exterior of the parapet. Although the remains of these walls consisted of only the very lowest stone courses, the width of the parapet was clearly ob-

Figure 6.11. Excavation in progress at the North Redoubt, facing north. Large boulders mark the salient of the redoubt.

Figure 6.12. Base of exterior parapet wall at salient, facing southwest.

served and measured from 8 to 10 feet. The interior was probably filled with earth and faced with fascines, which were recovered in charred fragments. The presence of the berm adjacent to the exterior of the wall and almost 3 feet wide indicates the parapet had at least a partial earthen fill, since the purpose of the berm is to prevent the exterior ditch from rapidly filling up with soil from the parapet.

The berm sloped downward to the exterior ditch, which was another 1 to 2 feet below the top of the berm and up to 8 feet beyond the parapet wall. The size and depth of the ditch varied considerably around the redoubt, apparently with the depth and topography of the bedrock encountered. Burned soil, ash, charcoal, and artifacts from the Revolutionary War were present in irregular spots on the top of the bedrock in the ditch.

An important artifact that may have resulted from the British attack on the fort was a flattened lead musket ball found in the ditch against the exterior of the west wall. This object appears to have been fired against the stone wall and the impact flattened the ball.

The banquette was identified along the interior of the parapet. This was an elevated "firing step" that provided access to the parapet to the defenders of the fort. The remains of this elevated walkway around the fort interior were about 2 feet wide and approximately 20 inches above the interior floor level of the redoubt. The original structure was both wider and higher than that observed by the archaeologists. The slope from the banquette to the floor of the redoubt appears to have "trapped" many artifacts, ash, and charcoal. Among these items along the interior edge of the banquette were a complete wine bottle and a bayonet.

The 8 feet wide entrance to the redoubt was discovered along the southeast wall. Clinched nails that may have been part of a door were found located inside the redoubt to the east of the opening.

On the interior of the salient of the redoubt, excavations revealed the charred remains of wooden boards over an area about 10 by 20 feet. This was interpreted as possibly a gun platform or a floor in a building. Redoubts, in general, were enclosed even on the interior side and may have functioned as independent defenses. The position of this platform in the North Redoubt, at the interior of the northernmost projection of the fort, suggests a gun platform may have been here. The wide variety of artifacts, however, indicates this was the location of a variety of activities, beyond manning artillery. The artifacts associated with this location are those generally indicative of living quarters.

A building or small barracks for the redoubt defenders may have been present. Examples of the artifacts recovered that indicate a building was here include window glass, brick fragments, a hinge, wrought iron nails, and the wooden boards. Other artifacts, such as pot hooks, a fork, bottle glass, ceramics, and food bone scraps were related to food preparation within the redoubt and point to the variety of activities present here. Although the number of items is not as great as that observed at the barracks within this fort, the variety is similar and quite different than that observed in the material items recovered from the Grand Battery. Fragments of porcelain and Jackfield-type teapots and creamware plates indicate that meals, not occasional snacks, were consumed here (Figure 6.13). Table glass, such as a decanter, and eating utensils further support the manner of food consumption was similar to that in the barracks. The presence of domestic, residential activities at the North Redoubt contrasts with the absence of this evidence at the Grand Battery.

A second area of domestic artifacts was observed in the southeastern portion of the North Redoubt. The range of artifacts reflects a number of activities that are not generally associated with specific defensive structures.

Some of the military items, such as the two flattened musket balls, bayonets, and discarded gun barrel sections, may be associated with the attack on Fort Montgomery. One section of a musket barrel exhibits a piece of lead shot wedged inside while another had a bore diameter of .70 inch. In general, the few pieces of flattened shot at this fort suggest the relatively minor role of musket fire in the battle. The bayonets recovered at the North Redoubt may be more relevant to the hand-to-hand

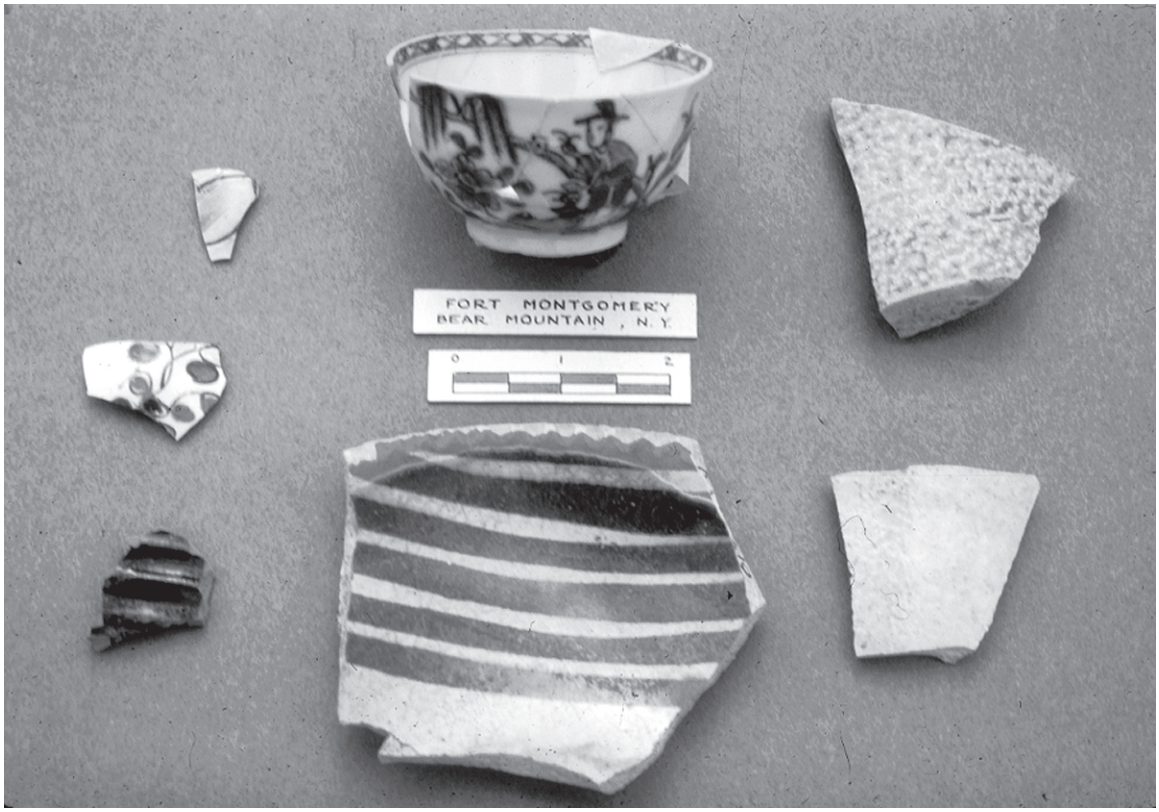

Figure 6.13. Examples of domestic ceramics that represent a variety of preparation and consumption of food and drink that occurred at the North Redoubt.

fighting reported in historical accounts of the battle. One of the bayonets is from a British Brown Bess musket. The presence of 194 pieces of lead shot of the same diameter indicates a standard weapon was present in the North Redoubt. The .69 inch diameter of these shot indicates the British Brown Bess was probably the standard musket.

The identity of the occupants of this redoubt is difficult, since the British weapon could have been owned by British or American soldiers. The recovery of rifle shot may relate to the defense of the fort, but the use of rifles is not generally associated with soldiers from New York and New England. The presence of both British and American marked buttons here does not resolve this problem. This mixture may be a result of the battle, or the American presence and then subsequent occupation of the redoubt by the British. The 57th Regiment was part of the British attack on the fort. Another 21 pewter buttons may be associated with the American Army or the Militia.

The variety of civilian buttons and buckles in this collection suggests that the Militia may have manned this redoubt. Another possibility is the lack of standardization of clothing may reflect the problems of supply within the Continental Army. This does not seem likely, however, given the wealth of material items recovered during archaeological excavations at this fort.

The standardization of lead musket shot diameters at the North Redoubt varies from the range of lead shot sizes at other locations within the fort. The ceramic distribution, with the majority of the sherds identified as redware, is inconsistent with the remainder of the fort. These two aspects of the collection, along with the presence of the British 57th Regiment buttons, suggest the British camped here after the battle. The North Redoubt provided advantages to their defense against a counter attack from the north while they dismantled the fort.

Chapter 7: the Grand Battery

by Charles L. Fisher

The Grand Battery is situated at the southern end of Fort Montgomery where the Popolopen Creek enters the Hudson River. This was among the first structures built at the site and "contained six embrasures for 32 pound cannons facing the River" (Lenik, Gibbs, and Cielo 1999:28).

In 1958, a metal detector was employed at this site and four small artifacts were found. On June 8, 1958, John Mead and a team from the Trailside Museum excavated a test trench in the Grand Battery. This trench was located at the third embrasure from the southeast corner of the battery and measured 1 foot wide and 9 feet long. His objective was the recovery of information that would enable new interpretive exhibits.

His trench revealed a section that was recorded and drawn for the exhibit (Figure 7.1). Beneath the upper layer of "yellow sandy soil" from the eroded parapet walls, he discovered a layer of mortar. This mortar layer sloped downward into the interior of the embrasure and then dropped vertically to form two "steps" down to the gun platform. He cautioned that the steps were not a continuous layer of mortar, but "suggestive" of the steps. The mortar layer was not interpreted as the surface of the embrasure, but as the result of the destruction of the embrasure by the British in 1777. The mortar rested on the burned wood of the feature, which was found about 10 inches below this mortar as a layer of charcoal. This charcoal indicates the base of the embrasure at the time of their destruction.

Lord Stirling reported to General Washington after his inspection of the Highland fortifications in June 1776 (Figure 7.2). He described the proposed use of mortar in the embrasures at Fort Montgomery since the fascine facings would catch fire if they were not protected by a mortar facing. He noted

> *Those works built are all faced with fascines, and filled in with strong, good loam; but as they are liable to take fire, the Commissioners who have the care and direction of the works, propose to rough cast the faces of the embrasures with a strong mortar made of quicklime and sharp sand, of which there is plenty at hand (Hastings 1899(I):135).*

The recognition of the important mortar layer enabled the archaeologists to follow it east toward the exterior of the embrasure. The excavation of five tests to the depth of the mortar provided the width and shape of the feature, if not the original

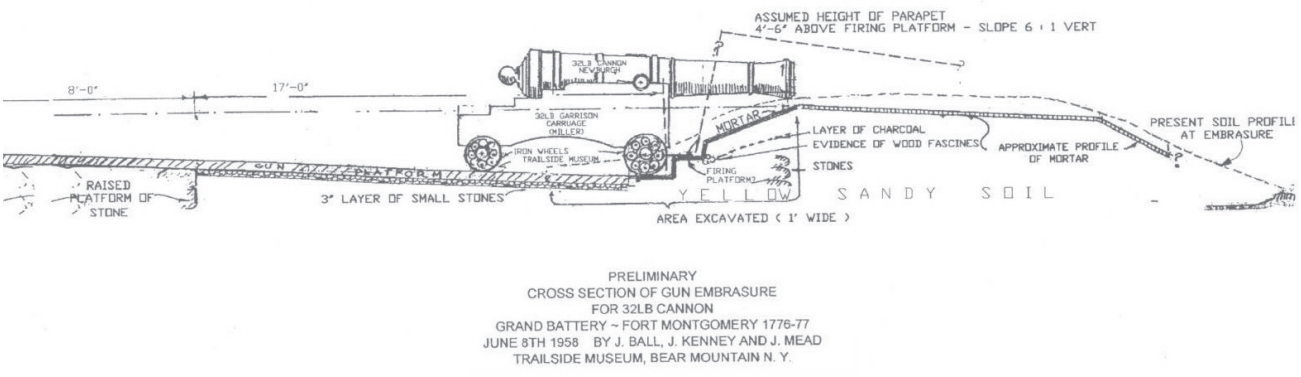

Figure 7.1. Cross section of gun embrasure adapted from Mead (1992).

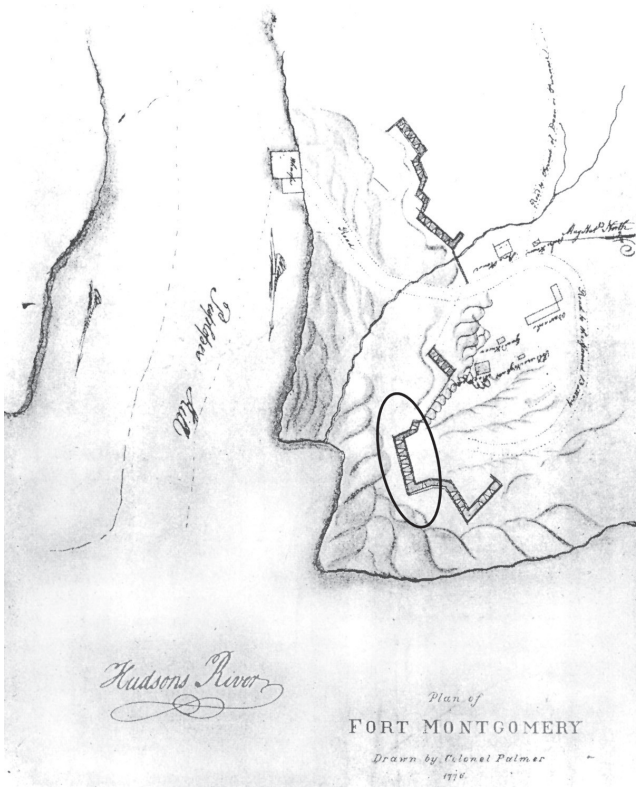

Figure 7.2. Detail of Plan of Fort Montgomery drawn by Colonel Palmer in 1776 showing the Grand Battery (Carr and Koke 1937:23). North is to the right.

height.

On the interior of the embrasure, the cannon would have set upon a wooden platform that sloped slightly down toward the parapet. A raised stone platform eight feet wide and 1 to 1.5 feet high was found in subsequent excavations to have been the support at the west end about 25 feet from the bottom "step" and a three inch thick layer of small stones was beneath the remainder of the gun platform.

An important result of this excavation, in addition to the shape of the embrasure, was Mead's discovery of the fascine impressions on the mortar (Figure 7.3). By using the impressions of the fascine bindings on mortar, Mead was able to estimate the diameter of the bundles to be 9 to 10 inches (Table 7.1).

The individual saplings in the fascines left impressions that measured from .2 inch to just over an inch in diameter. The tops of the bundles were both flat and peaked. During the examination of the sapling impressions, Mead found that several coats of mortar had been applied to the embrasures.

1971 Excavations

Mead returned to the site of the Grand Battery and excavated within Sections 164, 165, 166 178, 179, and 180. The majority of his work was centered on the battery in Sections 165 and 179, especially Section 165 Boxes M, N. P and R and Section 179 Boxes A, B, C, D, E, and F. In these excavations he examined the parapet walls, the embrasures, and the recoil wall at the west end of the gun platform (Figure 7.5, 7.6).

Structural Remains

Parapet

The north edge of the outer stone parapet on the east end was discovered in Section 166 Box N, Squares 22 and 16. The inner wall on the north end of the battery was present in Section 165 Box M Squares 12 and 17. The east exterior wall was

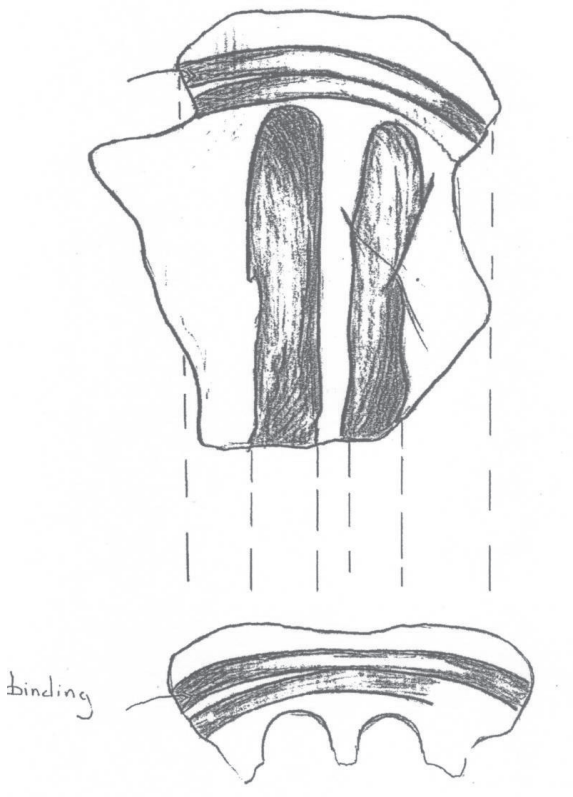

Figure 7.3. Drawing of a mortar fragment from the embrasures with fascine impressions (Mead n.d.).

Figure 7.4. Modern example of a fascine.

found in Section 179 Box F, between Square 6F and Box C Square 21. The wall was oriented from the northeast to the southwest of each square. About five courses of stone made up the maximum height of the wall remaining and the width between the exterior and interior stone walls was almost 16 feet.

Along the inner edge of the parapet wall, charcoal and burned earth were encountered. In Section 179 Box B Squares 11 and 12, the charred boards of the former gun platform were observed oriented parallel to the parapet. The remains of these boards indicate their original width was greater than .6 feet. In plan, a narrow band of burned soil was observed which was not covered with the fragments of the fascines. This indicated to the excavators that the fascines were placed against a cut in the sloping soil that resulted in the burning fascines falling into the interior of the battery.

Embrasures

Six embrasures were discovered along the east-facing parapet. The mortar used in the facing of these structures aided the archaeologists in their location. The third and fourth embrasures from the southeast corner in Section 179 Boxes B and F were delineated in excavation and the others located in smaller test trenches. The mouth of the embrasures at the inner parapet wall was about 3 feet wide and increased to about 8 feet wide at the outer parapet wall.

The average thickness of the remaining mortared embrasure wall was about .35 feet and at least 1.6 feet high above the mortared floor of the embrasure in Section 179 Box C Square 9. The floor was a layer of mortar about .04 feet thick and the walls extended below the floor about .1 to .15 feet.

Another concentration of mortar was observed on the south side of the battery, and might represent another embrasure. Based on the orientation of the battery, a south-facing embrasure may be expected at this position. The floor plans drawn of the mortar concentration and the remains of the parapet walls suggest that another east facing embrasure is located here. At this time, it is not clear what was present and additional study of the archaeological evidence is needed to evaluate the interpretations of this feature.

Recoil Wall

The stone wall beneath the west end of the gun platform was exposed in Section 165 Box P and Section 179 Box A. This wall was approximately 8 feet wide and from 17 to 25 feet from the inner wall of the parapet. This new information was added to Mead's embrasure section in Figure 7.2. In Section 165 Box P Squares 11 and 12, a

Table 7.1. Fascine bundle diameter estimates.

Mortar Sample	Estimated Diameter (inches)
Emb#6-1	9.00
Emb#6 -1A	9.00
Emb#6-6	9.85
Emb#6-2	10.20

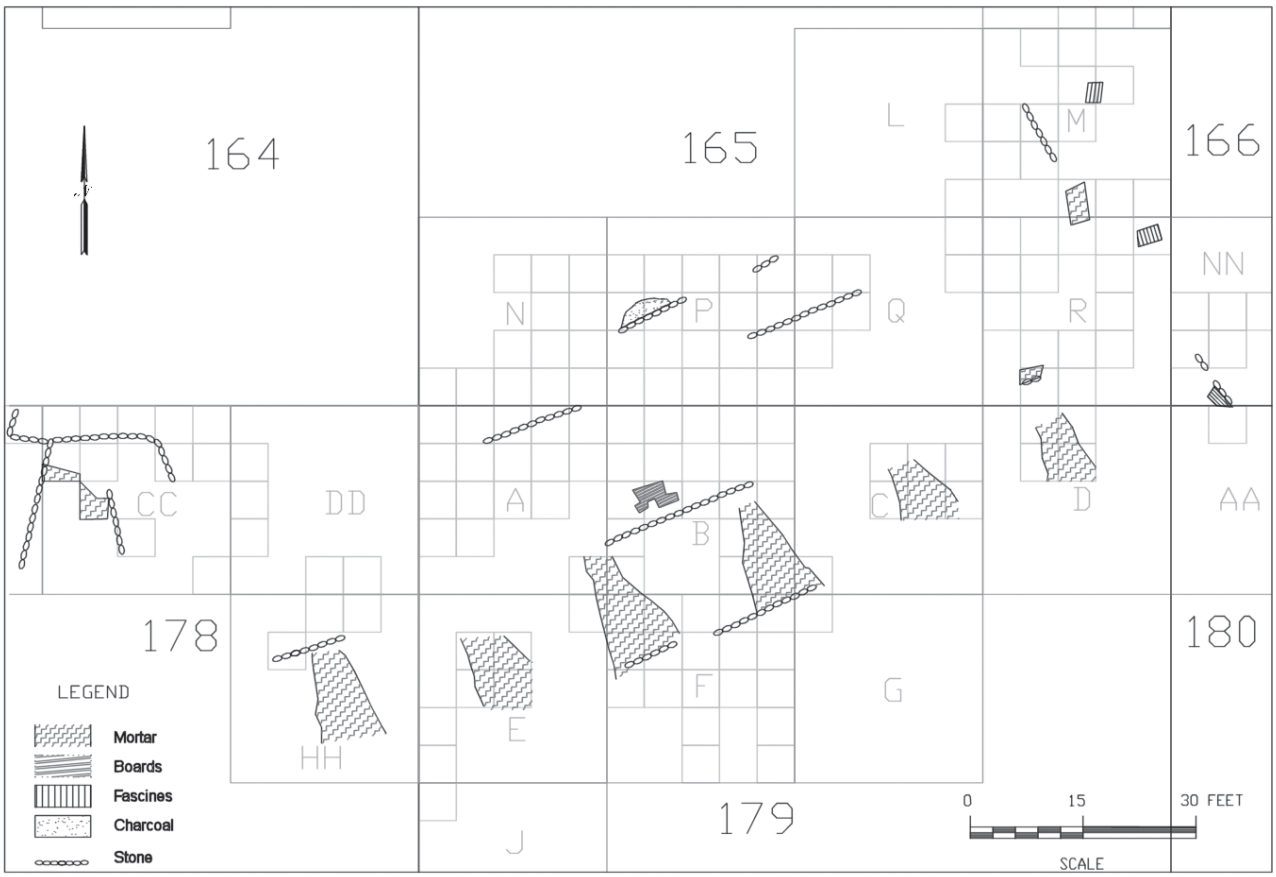

Figure 7.5. Archaeological features located at the Grand Battery.

layer of charcoal was discovered. This deposit was about 9 feet long against the stone wall and extended 3 to 4 feet west into the fort.

Artifacts

In 1958, a metal detector survey located four artifacts at the Grand Battery. Near the northeast corner

> *...an American nickel dated 1866 and a 3 ½ by 3 ½ " crude piece of iron, which might have been shrapnel fired from the British ships during the attack. At the southeast of the Grand Battery [Mead] found, on the surface, two peculiar pointed pieces of iron rod 3/8" in diameter. The smaller piece had an opening (eye) at one end (Mead 1992:np).*

A few additional artifacts were recovered in the subsequent excavations here. The largest proportion of the collection is the structural remains collected. Pieces of mortar, fragments of brick, spikes, and nails total 212 specimens. Another 211 items consist of samples of charcoal from boards and fascines (162), 40 fragments of unidentified iron, and samples of wood and soil.

Ceramic sherds from the Revolutionary War era include creamware (95) and Jackfield-type (4). The creamware sherds represent plates and a mug, while the Jackfield-type sherds indicate a teapot was broken and discarded here. Eight sherds of whiteware and ironstone and a sherd of redware attest to the presence of site visitors in the nineteenth and twentieth centuries. A relatively small number (44) of sherds of wine bottle and table glass were recovered as well. In comparison to other areas excavated at Fort Montgomery, this small collection may reflect the meals consumed by the builders of the battery. The operation of the battery did not produce refuse that was discarded in the vicinity of the embrasures.

Only one brass button and two pewter buttons were found in the excavations at the Grand

Battery. None of these specimens is marked. Five, unmarked, white clay tobacco pipe fragments are in this collection. An eighteenth-century iron key was recovered in excavation.

The military items recovered consist of one gray colored gunflint, 6 pieces of iron grape shot, seven lead musket balls and three pieces of lead buckshot. All seven musket balls measured .69 inch in diameter; the standard size of balls used in the .75 inch diameter muskets such as the British Brown Bess.

Summary

Excavations revealed the construction details of the gun battery. The battery was a substantial structure, about 16 feet wide with six embrasures facing the river. Additional embrasures were located along the parapet. The embrasures in the Grand Battery were mortared to protect the fascines. The size and shape of the embrasures were determined by the archaeological investigations. On the interior of the parapet, evidence of a wooden platform was discovered that rested upon a thick stone wall that extended about 25 feet into the interior of the battery from the parapet. The fascine impressions on the mortar of the embrasures enabled the archaeologists to estimate the size and shape of the fascine bundles used in the construction of the battery.

The artifacts recovered reflect the construction of the battery. Nails and spikes used to hold the wooden gun platform together and mortar from the embrasures were the most numerous artifacts in the collection. The small number of personal items and those related to food preparation or consumption distinguishes this location from the residences at the fort. The battery was well maintained and kept relatively free of trash.

Figure 7.6. Excavations along the interior of the Grand Battery, 1971.

Chapter 8: the Bakehouse

by Jennifer Bollen

The objective of the archaeological excavations at this location was to locate the Bakehouse. The proximity of the documented location to the highway raised concerns over the possible loss of this site. Unlike the other buildings reported here, the remains of this building were not excavated beyond the initial test units.

Bread was critical to the army and daily rations refer to one pound to one and one-half pounds of bread or flour. Like most of the proposed rations during the Revolutionary War, bread was not issued daily but only when it was available. The problems were not resolved when flour was given to the soldiers in place of bread because soldiers were not readily able to convert their flour into bread. They mixed it with water and fried it to create "fire cakes" that they could consume. Baking bread was a specialized skill and soldiers with flour had to sell or exchange it (Svejda 1970:144). This created problems between the army and the local civilians because soldiers wandered from camps to exchange flour for bread. The baking was initially the responsibility of each company, but the numerous instances of profiteering by selling either the flour or bread led to the establishment of a Superintendent of Bakers in 1777.

Bake ovens have been excavated by archaeologists at Fort Stanwix, Crown Point, Fort Ticonderoga, and are documented at numerous Revolutionary War forts in the northeast.

Excavation Description

The 1776 map (No. 2) by Col. Palmer (1776b) that accompanied the progress report on the fort construction indicated that the Bakehouse was located about 50 feet west from the west end of the Officers Commissary, approximately 125 feet north of the Store House, and east of a small, unnamed, drainage (Figure 8.1). The building was described as 16 by 14 feet in Palmer's report of April 27, 1776. Mead excavated trenches in his grid Section 104 where he expected to find the remains of the Bakehouse.

For some reason, the Bakehouse appears on Mead's overall site map in his grid Section 91. This does not correspond to the location indicated on Palmer's map or to Mead's field notes that clearly indicate the excavations took place in Section 104. The remains of this building are placed within Section 104 in this study, which may need to be reconsidered if evidence is found that explains the placement of this structure in Section 91 on the earlier archaeological site map.

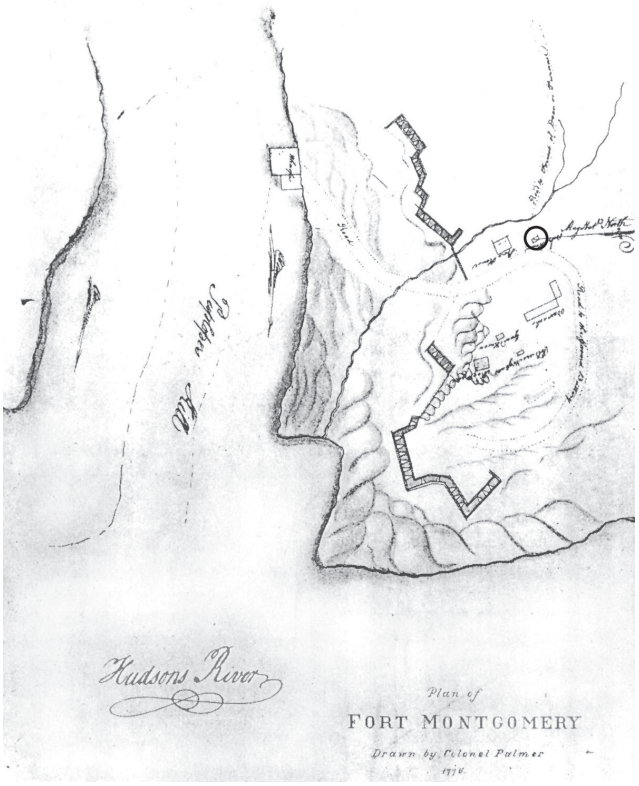

Figure 8.1. Detail of Plan of Fort Montgomery by Colonel Palmer in 1776 showing the Bakehouse location (Carr and Koke 1937:23). North is to the right.

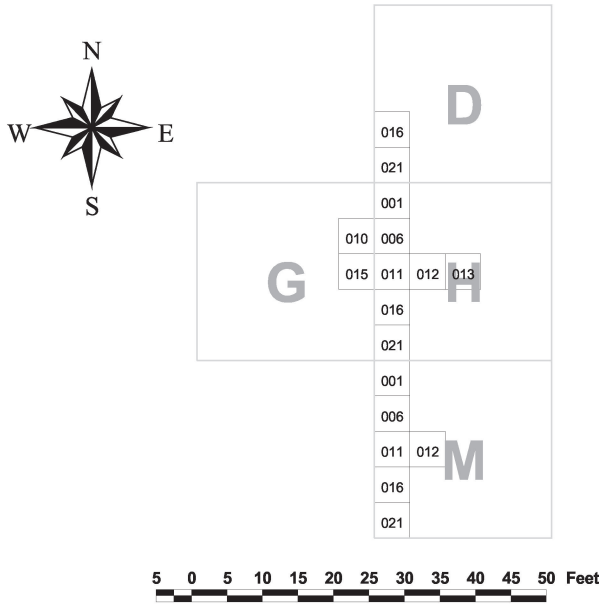

Figure 8.2. Excavation plan of Bakehouse area.

Trenches were opened in Section 104, Boxes D, G, H, and M, to search for the remains of the Bakehouse. Evidence of a structure, consisting of a concentration of brick and stone, were located in Section 104, Box H, Square 6 (M104 H6) and in Section 104, Box G, Square 10 (M104 G10) (Figure 8.2).

Unit M104 G10 (catalogue number 705) was represented incorrectly as M104 H10 in the notes. The unit M104 H10 is not connected to any other excavated units, and would not have been part of the exploratory trench used to locate the Bakehouse. Inspection of the original handwritten notes indicates the source of this error was in the transcribing of the field notes. In the designation of M104, Box "6", Square 10, the box "6" is most likely "G" written in haste and this excavation is M104 G10.

The notes also depict a stone wall along the southeast edge of the excavation that is oriented north south. Because M104 G10 is adjacent to M104 H6, where a north-south wall was located, the walls recorded in the two units match each other, indicating that the two adjacent units located the same wall.

Section M104 H11 (catalogue 711 and 712) was also misrepresented in the notes as M104 H1 (catalogue 707). The artifacts recovered from this unit and described in the notes do not correspond with the catalogue of artifacts recovered from M104 H1 Level A. The notes also indicate that artifacts were recovered from Level B and only Level A is catalogued for Unit M104 H1. The artifacts recovered from the unit correspond with M104 H11 Level B, catalogue 712.

Structural Remains

The exposed wall was oriented north–south and measured 8.25 feet long. It was located through units M104 H6 and M104 G10, which was adjacent to the west side of M104 H6. Both units also contained a heavy concentration of stone, brick, and nails on the northwest sides of the wall. The presence of the brick, as well as the stones, suggests this feature may be the edge of a chimney platform rather than a foundation wall. Bricks were employed in both fireplace and chimney construction at Fort Montgomery. The arched roof of the Powder Magazine is the only exception to this use of brick and the bake oven may be another specialized use of brick.

Three bricks and two large stones were recovered from M104 H11, and are associated with the stone and brick feature found in M104 H6 and M104 G10. One hundred ninety-five nails and nail fragments were recovered from these three units with 129 from M104 H11. This quantity of nails indicates that the building was probably a wooden structure. The presence of window glass in this unit also suggests that at least one window was present in the building and located in the vicinity of this excavation. It is unknown whether the chimney platform was in the center or at one end of the structure.

A wrought iron door pintle was located in unit M104 D21. This appears to have been from the door to this building, indicating the vicinity of the opening.

Artifacts

The artifacts consist of structural, domestic, personal, and military items (Table 8.1). Artifacts recovered from M104 G10 and M104 H6, and M104 H11 include 26 sherds of creamware, 8 sherds of Jackfield-type, 34 sherds of Whieldon

Table 8.1. Artifacts from the Bakehouse excavation.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Creamware	26
		Delftware	1
		Jackfield-type Redware	8
		Porcelain	5
		Stoneware	10
		Whieldonware	34
		White Salt-glazed Stoneware	7
		Yellowware	49
	Ceramic Sherds Total		140
	Glassware	Bottle Glass (wine)	101
		Lead Glass (stem and tableware)	1
		Other Glassware	86
	Glassware Total		188
	Other Food/drink	Kettle	7
	Other Food/drink Total		7
	Refuse	Faunal	2
	Refuse Total		2
Food/drink Total			337
Personal	Clothing	Buckles	1
		Buttons (brass)	1
		Buttons (other)	1
	Clothing Total		3
	Equestrian	Horseshoes/Nails	1
	Equestrian Total		1
	Military/Defense	Firearms/Parts	2
		Gunflint	4
		Lead Buck Shot	3
		Lead Musket Shot	2
		Other Lead Shot	2
	Military/Defense Total		13
	Tobacco Related	Kaolin Pipe	13
	Tobacco Related Total		13
Personal Total			30
Structural	Hardware	Barbed Wire	9
		Door Hardware	1
	Hardware Total		10
	Masonry	Ceramic Tiles	1
	Masonry Total		1
	Nails	Wire Nails	10
		Wrought Nails	25
		Unidentified Nails	205
	Nails Total		240
	Structural Samples	Charcoal	8
	Structural Samples Total		8
	Window Glass	Window Glass	12
	Window Glass Total		12
Structural Total			271
Miscellaneous	Samples	Charcoal	1
	Samples Total		1
	Unidentified Objects	Unidentified Lead Object	6
		Unidentified Stone	1
		Other/Unidentified Metal	6
	Unidentified Objects Total		13
Miscellaneous Total			14

ware, 5 sherds of porcelain, and 7 sherds of yellowware, a lead glazed slip decorated buff earthenware, and brown lead glazed slipware. One hundred and one pieces of rum/wine bottle glass, 7 iron kettle fragments, 3 pieces of lead buck shot, 13 white clay tobacco pipe fragments, 12 pieces of window glass, and 25 wrought iron nails were recovered as well. Artifacts recovered exclusively from M104 H6 include delft, white salt-glazed stoneware, burned bone, stoneware, a New York Regimental button, and a gunflint.

Over fifty percent of the artifacts recovered from units associated with this structure came from M104 H11, which is adjacent to and southeast of M104 H6. Artifacts recovered exclusively from M104 H11 include stoneware, nails, a brass buckle, two gunflints, five lead shots, and a small brass side plate from a gun. Three of the lead shot diameters were measured and were .50, .55, and .70. These were smaller than the standard British musket shot and could be for use in pistols or American rifles. The largest number of Revolutionary War artifacts relating to the investigation of this structure was recovered from this unit (51%). Either this unit represents the area where the most activity occurred, or where trash accumulated or was discarded.

The artifacts recovered from this location reflect a wide variety of activities that took place here. The kettle fragments and burned bone indicate food preparation and consumption, while the ceramics and clothing items indicate a residence was established in this building. The gunflints and shot, along with the New York Regimental button associate the occupation with soldiers at the fort. If this is indeed the Bakehouse, the limited archaeological collection does not indicate a specialized building. This is consistent with other buildings at the fort where archaeological excavations demonstrated that soldiers were in residence despite the historical references to specific, non-residential functions.

Summary

The limited archaeological effort to locate the Bakehouse was successful at discovering the remains of a building associated with artifacts of the Revolutionary War era in the approximate location of the documented building. In the absence of direct archaeological evidence of bake ovens, the identification of this site as the Bakehouse relies upon the historical map documentation.

The structural remains located appear to be a portion of a chimney platform of brick and stone. Evidence of other construction materials such as nails, windows, and a door hinge were recovered in the limited testing completed.

The majority of the artifacts recovered, however, indicate the structure served as living quarters for soldiers, possibly of the New York Regiment. The small collection appears consistent with the other military residences at Fort Montgomery.

In addition, the use of special purpose buildings for residences is consistent at the Fort. The Guardhouse, Storehouse, and even the North Redoubt had soldiers living there. The presence of quarters within this building does not rule out it functioned as the Bakehouse as well.

Chapter 9: the Guardhouse

by Charles L. Fisher

This building was centrally located within the eastern portion of the fort, almost midway between the North Redoubt and the Grand Battery (Figure 9.1). This location enabled the guard stationed here to watch over most of the fort, particularly the nearby Powder Magazine and Storehouse. This was excavated in 1958-1959 by a team from the Trailside Museum directed by John Mead. Mead provides details of this excavation in his 1992 report, which will be summarized here.

One historic reference to this building located by Mead was the status report of the work at Fort Montgomery submitted to the New York Committee of Safety. In his letter, Thomas Palmer refers to the completed "guard-house twenty feet by fourteen." This building is identified on two of Palmer's 1776 maps of Fort Montgomery as a Guardhouse. References to the use of this building were scarce, but Mead located several items in the 2nd New York Orderly Book of David Beviers. These indicate that officers and men were constantly on duty at the Guardhouse.

In July of 1776, Jas. Rosekrans reported to General Clinton the names of two Tories, or *disaffected persons*, he "took last evening and confined in the Guard House" (Hastings 1899(I):259). Almost a year later, in May of 1777, General Clinton referred to "many other" traitors in the Guardhouse at Fort Montgomery awaiting trials (Hastings 1899(I):783).

Archaeologists observed mortar and bricks on the surface of this site and decided to investigate it before artifact seekers disturbed it. Despite the presence of a vertical mine shaft and the associated stone debris from the nineteenth century very close to the Guardhouse, the initial test trench excavation produced artifacts and a fireplace associated with the Revolutionary War period. A second trench, at right angles to the first, encountered a foundation wall as well as similar artifacts.

The excavation grid of three foot squares was established parallel to the initial trenches (Figure 9.2). Permanent cuts were chiseled into bedrock at the intersection of the trenches, as well as other locations on the grid for future reference. The excavation methods here were similar to those used at other locations within Fort Montgomery; soil was sifted through hardware screens and artifacts were collected by grid square. An important difference in the technique here was the effort to leave structural stone in place for future interpretation on-site (Figure 9.3).

Figure 9.1. Guardhouse shown on a detail of the 1776 Plan of Fort Montgomery by Colonel Palmer. (Carr and Koke 1937:23). North is to the right.

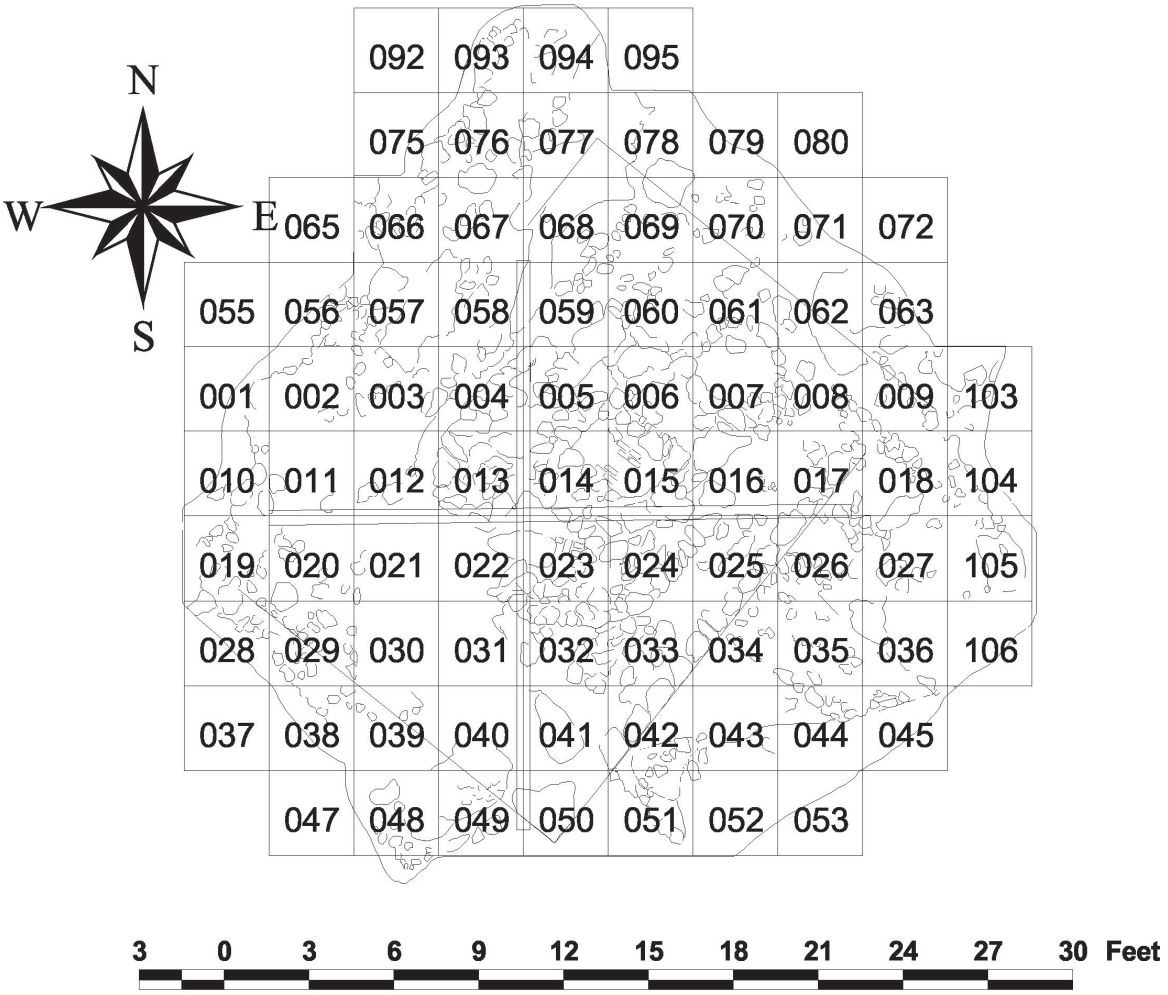

Figure 9.2. Excavation plan map with unit designations.

Structural Remains

The chimney platform was examined and found to have been constructed of mortared stones, about 9 1/2 feet by 8 feet in size and was less than 1 foot above the ground surface. This platform contained back-to-back fireplaces of brick, 3 feet by 2 feet in size. This central platform and fireplace arrangement indicates that the Guardhouse was divided into two rooms (Figure 9.4)

A section of the foundation wall on the south side was found undisturbed for a distance of 12.5 feet. This wall was 8 to 9 inches wide and the top appeared to be at the same level as the top of the chimney platform. The other three foundation walls were not found, but traces of their former locations were discovered. A mortar floor was found in the west room. The western limits of this mortared floor provided the evidence for the west wall of the building. Foundation stones were absent from the north side, however, a linear pattern of charcoal about four inches wide was discovered that paralleled the southern wall. In addition, the mortared floor did not extend to the north of this "shadow" of the former wall. Similar charcoal evidence of the east wall was uncovered along with alterations to the bedrock in the northeast corner. The bedrock was hammered to reduce it to the elevation required to level the foundation. Based on the absence of the mortared floor observed on the west side of the building and the yellow soil present, Mead suggested the east room had a wooden floor.

Similar construction techniques have been documented archaeologically for the American Army at Morristown, New Jersey (Rutsch and Peters 1977:25). The winter huts of the 1st Connecti-

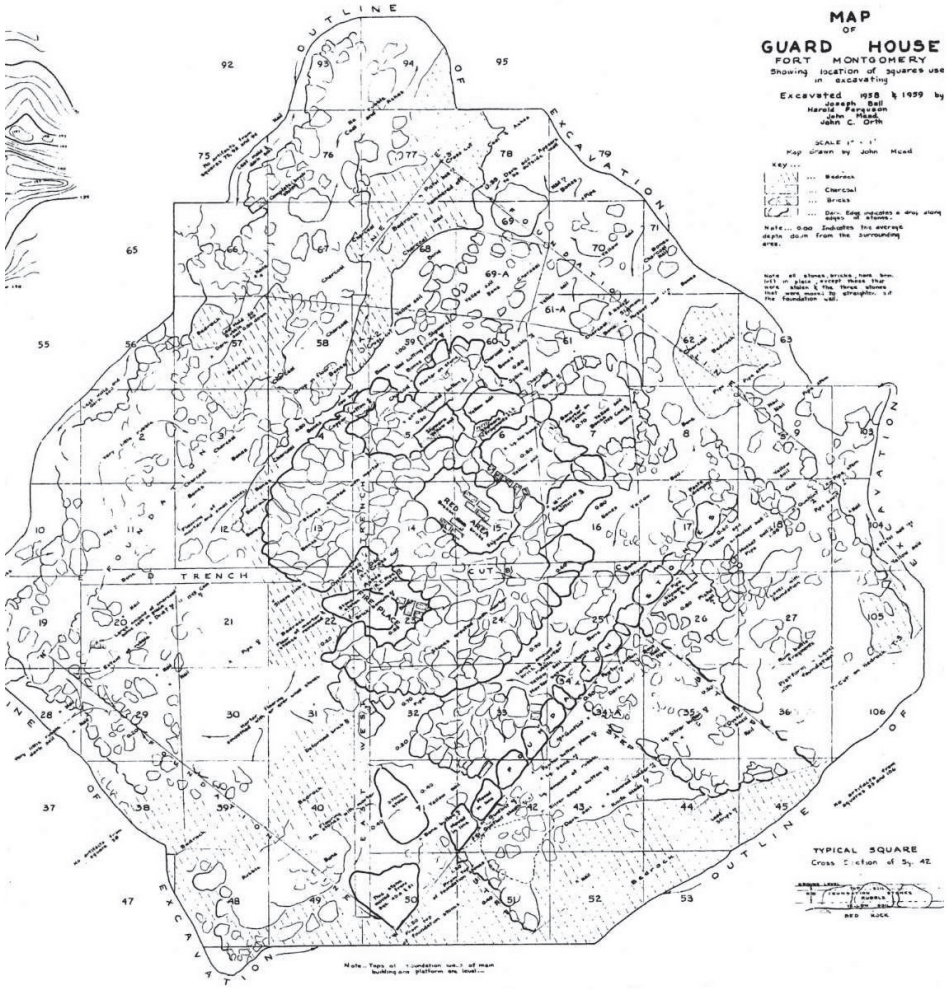

Figure 9.3. Plan of Guardhouse excavation by Mead (1958-59).

cut Brigade in 1779 were built into the side of a hill. Archaeologists found a stone wall on the downhill side of the hut while the uphill side evidenced the wooden remains of a log sill placed on the ground. The stone foundations were present on the downhill side in order to raise and level the site for the hut.

The absence of foundation walls may be due to the recycling of the building stone in the years after the Revolutionary War. Another possibility is that the presence of surface bedrock eliminated the need for a stone foundation. The "hammered" bedrock in the northeast corner indicates that sills could have rested directly upon the bedrock, once the rock was leveled. The slope of the bedrock may have determined the need for a foundation wall on the south side. The mortared floor is another technique to utilize the bedrock, rather than remove it with great difficulty. The mortar provided a level floor where the bedrock was uneven.

An additional feature was discovered along the exterior of the south wall. Here archaeologists "found what appeared to be three steps from 0.30' to 0.50' high (Figures 9.2, 9.3). The leading edge of the steps consisted of stones at right angles to the south wall, and the area between the steps was level" (Mead 1992:np). Mead further suggested that this porch could have been covered to protect guards on duty, although no support posts were found in excavation. The presence of bedrock close to the surface here indicates that the discovery of postholes for the roof supports is unlikely.

Coal and coal ash were found in the excavation squares in the northeast portion of this site. This material was produced by the steam boiler used in the excavation of the mine during the 1800s.

Figure 9.4. Chimney platform and fireplaces of Guardhouse.

The Guardhouse site was carefully covered after the archaeological study. A section drawing was included in the 1992 report to aid in any future investigations here.

Artifacts

Artifacts related to the structure at this site included nails, spikes, bricks, mortar, window glass and a door hinge. Although most of these items were associated with the Guardhouse, some later items were deposited from the mining operation. For example, 183 wrought nails were recovered along with 12 post-Revolutionary War period cut nails and 8 round wire nails from the latter portion of the nineteenth century.

Many brick fragments from the fireplaces and chimney were found at the Guardhouse. Only two complete bricks were recovered that had not been removed from the site. They measured 7.5 by 3.5 by 2 inches. Mortar, smoothed for flooring was recovered in large amounts. Similarly, charcoal was present particularly along the north and east walls. Twenty-seven sherds of window glass of a light blue color were found, mainly along the south wall near the east corner (Figure 9.5). One fragment evidenced a straight edge, expected of window glass. Additional construction materials include the butt end of an iron door hinge that measured 1 3/4 by 1 3/8 inches with three holes, a hinge fragment, an iron hinge pintle, a square iron spike 5 3/4 inches long, and 8 tacks. Six iron strap fragments may have been portions of other hinges.

Food/Drink

The majority of the sherds were yellowware, lead glazed slip decorated buff earthenware, and buff earthenware (Figure 9.6). These represent similar functions and styles and possibly even different parts of the same vessels. Buff earthenware, yellowware, and redware vessels are generally hollowwares that reflect food serving and preparation bowls, mugs, and tankards (Figure 9.7). These pots would have been used to consume liquid based foods, such as stews that required spoons. In contrast, the presence of creamware reflects a different, modern style of food preparation and

Table 9.1. Summary of artifacts from the Guardhouse.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Buff Earthenware	92
		Creamware	73
		Delftware	18
		Pearlware	9
		Porcelain	1
		Redware	26
		Stoneware	2
		Whieldonware	1
		White Salt-glazed Stoneware	1
		Whiteware	8
		Yellowware	78
		Other Ceramic Sherds	3
		Unidentified Ceramic Sherds	11
	Ceramic Sherds Total		323
	Glassware	Bottle Glass (wine)	55
		Bottle Glass (other)	35
		Case Glass	11
		Lead Glass (stem and tableware)	3
		Other Glassware	87
	Glassware Total		191
	Other Food/drink	Cutlery (other)	1
	Other Food/drink Total		1
	Refuse	Botanical	6
		Faunal	3,048
		Shell	784
	Refuse Total		3,838
Food/drink Total			4,353
Personal	Clothing	Buckles	5
		Buttons (bone)	5
		Buttons (brass)	5
		Buttons (glass)	1
		Buttons (iron)	1
		Buttons (pewter)	7
		Buttons (silver)	4
		Buttons (other)	7
		Clothing Fasteners	1
		Cuff Links	4
		Textile	1
		Other Clothing Items	1
	Clothing Total		42

Table 9.1.(continued) Summary of artifacts from the Guardhouse.

Artifact Class	Artifact Type	Artifact Subtype	Total
	Furnishings	Other Furnishings	1
	Furnishings Total		1
	Metal	Other Metal	90
	Metal Total		90
	Military/Defense	Cartridge Boxes	1
		Firearms/Parts	1
		Gunflint	53
		Lead Buck Shot	6
		Lead Musket Shot	13
		Other Lead Shot	3
		Shotgun Shell	2
		Ramrod	1
		Sword	1
		Other Military/Defense	2
	Military/Defense Total		83
	Personal Items	Beads	1
		Coins	3
		Jewelry	1
		Mirror	1
		Watch/Clock	1
	Personal Items Total		7
	Tobacco Related	Kaolin Pipe	184
	Tobacco Related Total		184
	Tools	Drill	1
		Pliers	1
		Wedge	1
		Whetstone	2
	Tools Total		5
	Writing	Lead and Slate Pencils	2
	Writing Total		2
Personal Total			414
Structural	Hardware	Door Hardware	6
		Electrical	1
		Hardware Fasteners	27
		Hook	1
		Iron Strap	4
		Plumbing	2
		Other Hardware	1
	Hardware Total		42
	Masonry	Bricks	206

Table 9.1.(continued) Summary of artifacts from the Guardhouse.

Artifact Class	Artifact Type	Artifact Subtype	Total
		Mortar/Plaster	163
		Other Masonry	5
	Masonry Total		374
	Metal	Other Metal	1
	Metal Total		1
	Nails	Cut Nails	1
		Wire Nails	11
		Wrought Nails	290
		Other Nail	4
	Nails Total		306
	Structural Samples	Charcoal	574
	Structural Samples Total		574
	Window Glass	Window Glass	27
	Window Glass Total		27
Structural Total			1,324
Miscellaneous	Debris	Chert	2
		Coal	32
		Lime	1
		Limestone	1
		Melted Glass	15
		Quartz/Quartzite	17
		Slate	19
		Tar	3
	Debris Total		90
	Glass	Other Glass	1
	Glass Total		1
	Samples	Charcoal	473
		Soil Samples	3
		Wood Samples	21
	Samples Total		497
	Unidentified Objects	Unidentified Brass Object	3
		Unidentified Iron Object	2
		Unidentified Lead Object	20
		Unidentified Pewter Object	1
		Unidentified Stone	26
		Other/Unidentified Metal	47
	Unidentified Objects Total		99
Miscellaneous Total			687
Grand Total			6,778

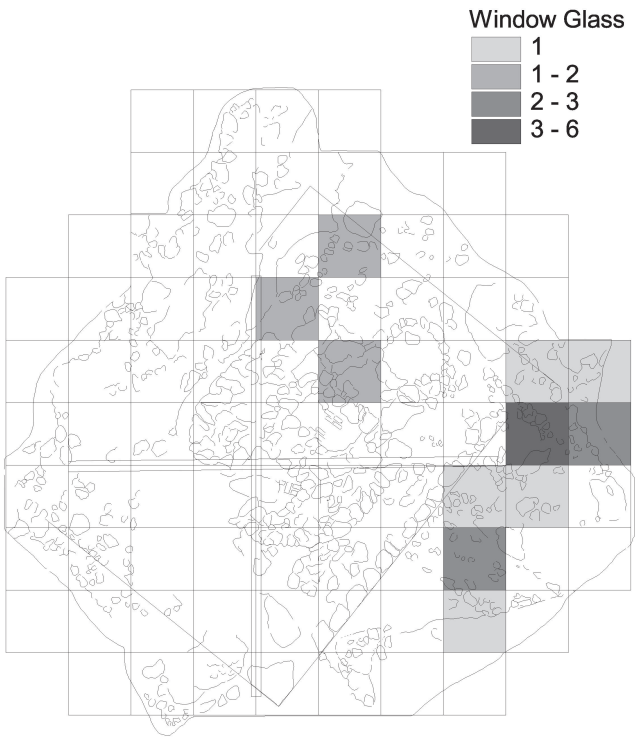

Figure 9.5. Distribution of window glass.

Figure 9.6 Distribution of buff earthenware.

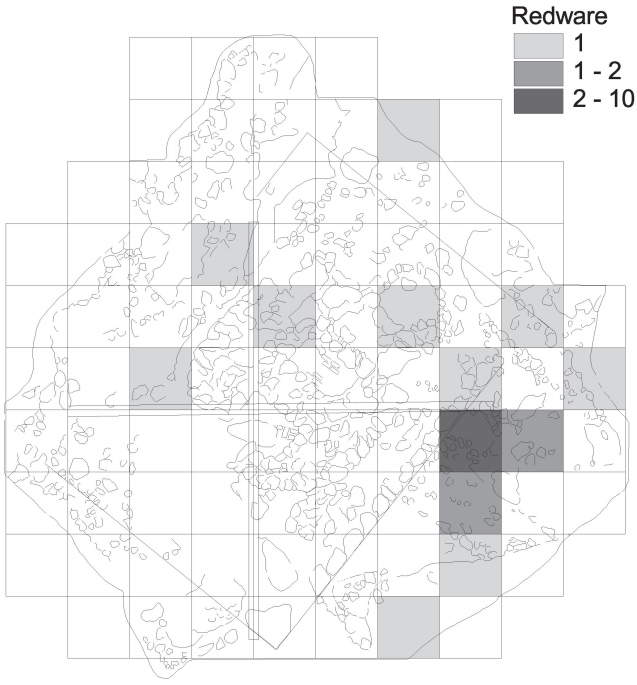

Figure 9.7. Distribution of redware.

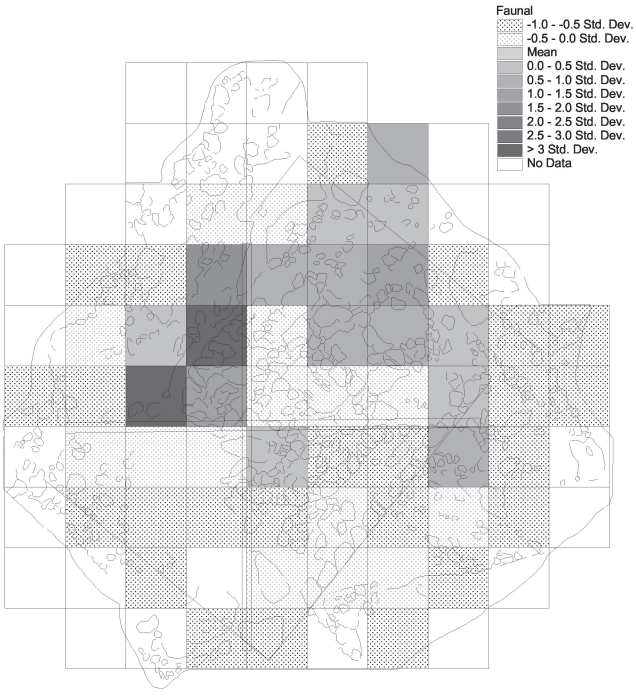

Figure 9.8. Distribution of animal bone.

Table 9.2. Ceramics from the Guardhouse.

Ceramic Type	# of Sherds
Buff Earthenware, Red Slip	1
Buff Earthenware, Unidentifiec	52
Creamware	71
Delft	18
Pearlware	9
Porcelain	1
Redware	26
Stoneware, gray	2
Whieldon	1
White Salt-Glazed Stoneware	1
Whiteware	8
Yellowware	118

consumption. Creamware was the latest ceramic product available at the time and associated with individual place settings. Plates were identified among the creamware sherds indicating that meat was roasted, at least on occasion. The relative absence of high status Chinese export porcelain indicates that the officers of the guard were not among the higher ranked officers at the fort.

The distribution maps of the ceramics point to the east-northeast section of the Guardhouse as serving as quarters. The other half of the building is basically devoid of artifacts.

Glass

Fragments of dark green wine bottle glass and two sherds of clear glass from the base of a two-inch diameter decanter were recovered. One case bottle was represented among the dark green bottle glass sherds. Other fragments were too small to be identified with a specific vessel. Modern glass from the site included milk glass and clear glass.

A knife blade was the only eating utensil recovered during the investigation. The two whetstones present may be associated with this item.

Faunal Remains

The largest number of bone fragments in a square occurred on the west side of the structure, adjacent to the north side of the fireplace (Figure 9.8). In Square 12 over 500 pieces of bone were found. This is in contrast to the other artifact groups where very few, if any, items were located on the west side of the Guardhouse.

The animals represented in the collection of bone from the Guardhouse were generally similar to those from the Barracks and Officers' Commissary. Cow and pig made up the larger animals consumed, but chicken and fish were also present. There were some unusual remains in the Guardhouse that included turtle shell and evidence of a Great Blue Heron.

Personal Artifacts

Gunflints (41), gun parts, and shot were recovered in excavations here (Figure 9.9). Both complete and fragmentary gunflints were present, along with lead sheaths used in holding the flint in the musket jaw. Mead (1992) noticed one of these sheaths had the impression of the gun hammer on it. A brass ramrod holder that was $1\ ^{7}/_{16}$ by $^{7}/_{16}$ inch in size was recovered. This item had the Roman Numerals *II* and *XI* marked on it. A powder pick and a bayonet clip were included in the artifact list from the Guardhouse.

Nine musket balls, three pistol balls, and four pieces of buckshot were excavated at this site. Seven of the musket balls have a diameter of .69 inch, which suggests they were intended for use in a .75-inch musket barrel such as the British Brown Bess. One musket ball was .50 inch diameter and another was only $^{1}/_{8}$ of a complete ball. The pistol shot were all $^{5}/_{16}$ inch diameter. Two pieces of lead shot exhibit teeth marks. A modern shotgun shell and a 32-caliber bullet are in the archaeological collection.

Six pieces of lead, four burned lead fragments, and nine pieces of melted lead were recovered in excavation. These items may be the remains of soldiers casting lead shot at the Guardhouse.

Tobacco smoking at the Guardhouse was a common activity indicated by a number of discarded fragments (184) of white clay pipes. The mark of the pipemaker Robert Tippet was present as an impressed *RT* with a heart design and stars on each side of the bowl. A second pipe bowl fragment exhibited a portion of a similar heart design. Post Revolutionary War pipes marked with *TD* and stamped with *McDougal* and *Glasgow* on the stem

Figure 9.9. Distribution of gunflints and shot.

were present as well.

A number of buttons of pewter, brass, and silver were found in excavation along with a modern button of white, milk glass (Figure 9.10). Four buttons were marked and three can be identified with specific regiments. Two buttons were associated with the New York Regiment of the Continental Army, a single button from the British 64th Regiment of Foot, and a pewter button with a raised *18* may be associated with the American Army.

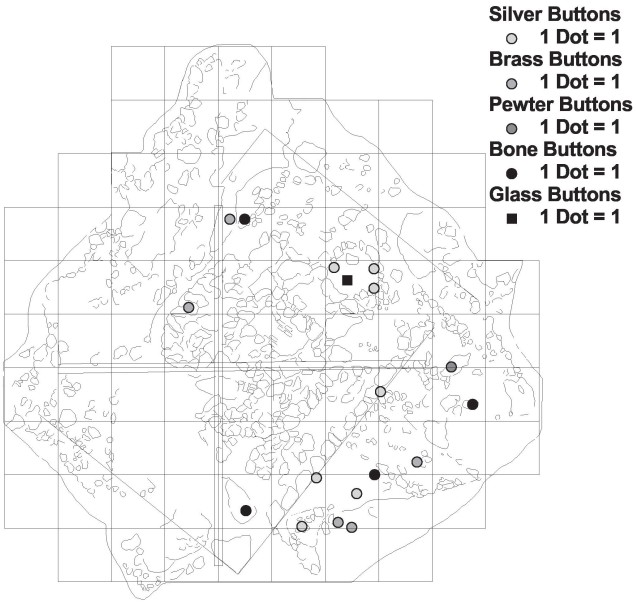

Figure 9.10. Distribution of buttons.

Two other regimental buttons were found that Mead (1992) attributed to a high-ranking officer. These buttons had a "rope edge and [one exhibited a] many-sided star in silver over an iron base" with a bone backing. Another item in this collection that may reflect a high status or rank is cuff links. Two separate examples were found of which one was a turquoise colored glass. A fragment of a silver thread was found that might have been part of a uniform.

Five bone buttons, five brass buttons, five plain pewter buttons, and four silver buttons indicate that the majority of these items are not associated with specific military regiments. Four fragments of shoe buckles, representing three buckles, were found at the Guardhouse. A two-pronged buckle and a "hook" were recovered as well.

Two lead pencils may be associated with the soldiers' activities in the Guardhouse. Three British half pennies were found in the Guardhouse, two are dated 1745 and one is dated 1720. These coins circulated for a long time before being lost at Fort Montgomery.

Forty-three pieces of iron were present in this collection. These fragments have not been related to a specific object or activity. They may be related to post-Revolutionary War occupation of this site. Other items recovered in excavation may be associated with later activities at this site. In the collection is a pocket watch key, an iron rivet, a piece of copper wire, coal, coal ashes, and stone drill core fragments.

Summary

Mead concluded that the building examined archaeologically fits the documentary description of the Guardhouse, as a structure 14 feet by 20 feet. The back-to-back fireplaces are consistent with the description of two rooms within the Guardhouse, one for guards and one for prisoners. Historic documents reveal that soldiers and civilians were held in the Guardhouse. Each of these rooms was 14 by 10 feet in size. Mead believed

the west room, with the mortared floor and brick hearth was for the prisoners. This room did not have many artifacts at all.

The brick chimney was evident in the debris pile although most of the complete bricks were absent, probably having been collected after the Fort was abandoned. A window was present in the south wall of the east room. The presence of the steps and a piece of a door hinge found in Square 43 indicate that the door was on the south wall.

Mead included a drawing from 1823 of a British Guardhouse in his 1992 report. This building, built at Fort George, depicts a structure very similar to the archaeological evidence of the Guardhouse at Fort Montgomery. The Fort George Guardhouse was a two room structure with a central fireplace and a roofed galley along one side. The presence of two doors, one for each room, may not have been the case at Fort Montgomery where a single door to the exterior would have been present for the guardroom. The entry to the prisoners' room may have been from the interior of the guardroom.

The prisoners' side of the building, as expected, lacked window glass, shot, and gunflints. Very few ceramic sherds were located there as well, suggesting they may have been fed with wooden bowls, trenchers, or tinwares. The large faunal collection from the west side of the Guardhouse is the only interior space in Fort Montgomery that was not regularly cleaned of refuse.

Chapter 10: the Soldier's Necessary

by Charles L. Fisher

This building is centrally located within the fort, less than 75 feet north of the Guard house and less than 100 feet east of the southeast corner of the one-story barracks. This is a small, dry laid stone foundation below grade (Figure 10.1). This foundation was first located and cleaned off by Richard J. Koke in 1935-36. On September 8, 1936, excavation of this site was carried out by Burggraf, Stewart, Fisher, and Koke to the rock base of the structure between three and five feet deep. They recovered "over one hundred" hand wrought nails, a "honey" colored gunflint, ceramics, sherds of a dark green wine bottle neck, and four pewter buttons. The presence of many nails led the excavators to infer a wooden structure sat on top of the stone foundation. Three of the buttons were marked with NY, which Mead later attributed to the 5th New York Regiment commanded by Colonel Lewis Dubois.

Koke concluded from this excavation that "this site was abandoned and filled in by the Americans, and that a new location, not yet investigated, was selected for the latrine" (Mead 1992:np). The material they recovered supports their interpretation that this feature was used for a very short period.

John Mead and Joseph Ball returned to this feature in 1958 to complete the excavation (Figure 10.2). They found only four nails and traces of charcoal resting on the bedrock at the base of the necessary (Figure 10.3). These items were not collected in the earlier excavation. A measured plan and section drawings were completed (Figure 10.4). These drawings show the vault was excavated to the bedrock, which dipped to the east and north. As a result, the bottom in the northeast corner was about one foot deeper than the rest of the pit. The stone foundation stood approximately 4 feet above the bedrock on the north side and 5.3 feet above the bedrock in the northeast corner. The excavators noted there were no signs of mortar in the walls. This building measured 4.85 by 9.25 feet in size.

This was the only necessary found and excavated within Fort Montgomery (Mead 1992). It appears to have been used for a relatively short period of time by the 5th New York Regiment and abandoned.

Artifacts

The excavations recovered a relatively small number of artifacts in comparison to the other structures at Fort Montgomery (Table 10.1). As expected, there were very few ceramics in the collection. A total of 16 sherds were found here and 10 were not manufactured until the mid-nineteenth century. The six sherds from the Revolutionary War era included one of yellowware, one sherd of buff earthenware, 2 pieces of Jackfield-type, and two of redware. The majority of the collection was 442 pieces of wine and other bottle glass. A variety of other items were recovered, such as 9 pew-

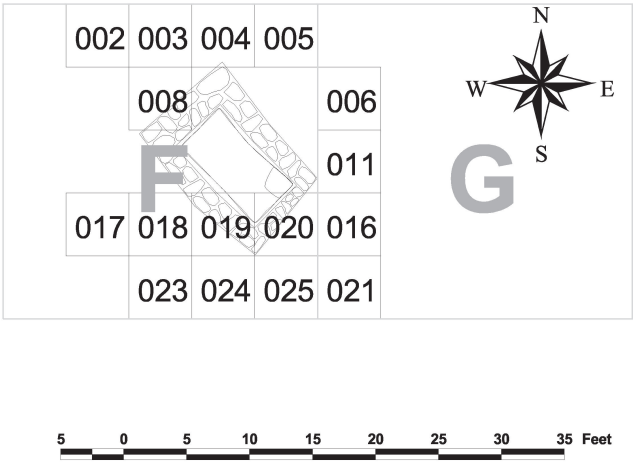

Figure 10.1. Plan of Soldier's Necessary and excavation area.

Table 10.1. Summary of artifacts from Soldier's Necessary.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Buff Earthenware	1
		Ironstone	7
		Jackfield-type Redware	2
		Redware	2
		Whiteware	3
		Yellowware	1
	Ceramic Sherds Total		16
	Glassware	Bottle Glass (wine)	241
		Bottle Glass (other)	195
		Other Glassware	6
	Glassware Total		442
	Other Food/drink	Kettle	2
	Other Food/drink Total		2
	Refuse	Faunal	5
		Shell	5
	Refuse Total		10
Food/drink Total			470
Personal	Clothing	Buttons (pewter)	9
		Buttons (other)	5
	Clothing Total		14
	Military/Defense	Gunflint	1
		Lead Buck Shot	2
		Other Military/Defense	1
	Military/Defense Total		4
	Tobacco Related	Kaolin Pipe	26
	Tobacco Related Total		26
	Tools	Bucket	2
	Tools Total		2
Personal Total			46
Structural	Masonry	Bricks	2
	Masonry Total		2
	Nails	Wire Nails	5
		Wrought Nails	14
		Other Nail	1
		Unidentified Nails	318
	Nails Total		338
	Window Glass	Window Glass	12
	Window Glass Total		12
Structural Total			352
Miscellaneous	Debris	Paint	1
	Debris Total		1
	Samples	Charcoal	62
	Samples Total		62
	Unidentified Objects	Unidentified Lead Object	1
		Other/Unidentified Metal	2
	Unidentified Objects Total		3
Miscellaneous Total			66

Figure 10.2. John Mead mapping the Soldier's Necessary.

Figure 10.3. Photograph of the Soldier's Necessary.

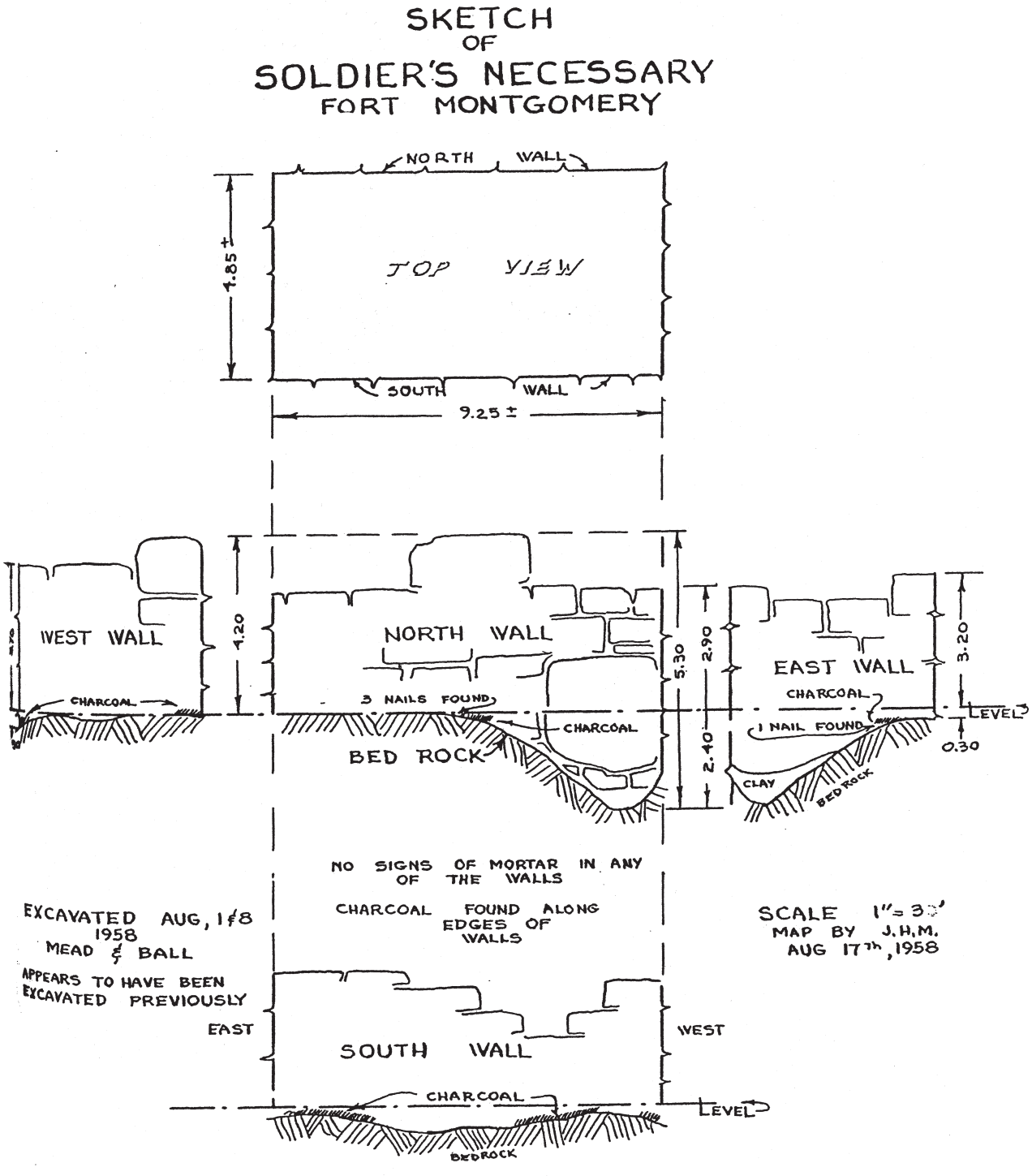

Figure 10.4. Plan and section drawings of the Soldier's Necessary (Mead 1992).

ter buttons, a gunflint, 3 pieces of lead shot, 2 fragments of an iron kettle, 2 pieces of a bucket, and 26 tobacco pipe fragments.

Summary

This building differs from most of the others excavated in the small number of objects recovered. The large number of nails and window glass indicates a wooden structure covered the necessary. The relative absence of items related to food preparation and consumption, and personal items contrasts with the residential spaces in the fort. The large number of wine bottle glass sherds and the tobacco pipes in the vicinity of the building may be interpreted in several ways. Drinking and smoking are social activities generally conducted in groups. The covered necessary may have been used for these activities not permitted in the center of the fort.

The necessary at Fort Stanwix was shown on a 1777 plan of the fort located off the east side of the southeast bastion (Hanson and Hsu 1975). This may have been the location established before the Revolutionary War. In 1777, a new necessary was constructed in the fort's ditch that was referred to in an orderly book of the Third New York Regiment and depicted on subsequent plans of the fort. The soldiers were ordered "…not to make use of the Necessary House within the Fort in the Daytime, the one in the Ditch being designed for that purpose…" (Eigly 1981:72). Archaeologists found evidence for three privy pits on the parade, which they interpreted as necessaries. One of these pits, referred to as Feature 73, was about 9 by 5 feet in size and 4 feet deep. This was located in almost the center of the fort. In size, location, and date of construction it approximates the Soldiers' Necessary at Fort Montgomery.

At Mount Independence, archaeologists have been unsuccessful at locating the necessaries (Howe 1996). There is historic documentation that these features were located over the steep hillsides that provided the natural defense for the fortification. The Fort Montgomery necessaries may have been constructed in similar positions along the exterior of the fort or over the ditch.

Soldiers' necessaries at camps of the Revolutionary War exhibit considerable variation. At New Windsor Cantonment, the Continental Army in 1782-1783 dug trenches parallel to and several hundred feet downhill of the enlisted men's huts (Fisher 1983). The officers, in contrast, had separate dwellings and their own privies to the rear of their huts.

The Soldier's Necessary at Fort Montgomery is situated near the center of the fort (Figure 10. 5). It did not appear to have been used throughout the occupation of the fort, which indicates other necessaries were constructed. These may have been located over the ditch or the steep ravines that bordered the site on the north and south sides. The officers' privies have not been located, but would have been separate from the soldiers' necessary.

Figure 10.5. Location of Soldier's Necessary on detail of map by Palmer (Carr and Koke 1937:23). North is to the right.

Chapter 11: the Powder Magazine

by Charles L. Fisher

John Mead and Joseph Ball conducted the initial excavation of the Powder Magazine in July and August of 1958 for the Trailside Museum. These excavations were carried out to obtain information for new exhibits at the museum. Mead returned to excavate this site in 1967-1968 with the aid of Edward Lenik as the supervisory archaeologist. Mead completed a report on this excavation that is Volume II of his 1992 study, which will be briefly summarized here.

In a letter written on April 27, 1776 Thomas Palmer notes "a magazine 12' x 18', walls 8' thick, as far complete a turning the arch on top will finish it" (Mead 1992 (II):np). Palmer's maps of the fort show the thick walls of the magazine and Major Holland's map of 1777 shows a road from the southwest into the fort, but this road does not go completely to the magazine. The magazine was blown up by the British in 1777 when they abandoned the fort.

The location of the magazine appears to have been carefully selected (Figure 11.1). Mead (1992 (II):np) notes that the magazine location was well protected by rising bedrock on each side. The building site was well drained and close to the river batteries where the powder was needed.

Reginald Bolton, Edward Hall, and W.L. Calver may have carried out archaeological work at this location between 1916 and 1917. Mead (1992 (II):np) was unable to find their field notes and associated artifacts from the Powder Magazine. He did locate some glass plate negatives of their work in the New-York Historical Society. He reproduced one photograph for his 1992 report that shows their work in the magazine interior.

Structural Remains

The magazine was found to be 18.3 feet along the east wall, while the north wall was 12 feet long and 8 feet thick. The agreement of the field observations with the Palmer description and map location indicates that this is the remains of the powder magazine (Figure 11.2). Since the interior of the magazine was visible, in 1967 the archaeologists began their study by locating the exterior of the walls. This was a very difficult task due to the pile of rubble and debris from the explosion that destroyed the magazine.

Below the topsoil, there was a thick layer of pieces of mortar, brick fragments, and rocks mixed with a yellow soil. This layer indicates the construction followed the recommendations to cover the arch with soil. Another layer, below this, con-

Figure 11.1. Location of the Powder Magazine on detail from Palmer (Carr and Koke 1937:23). North is to the right.

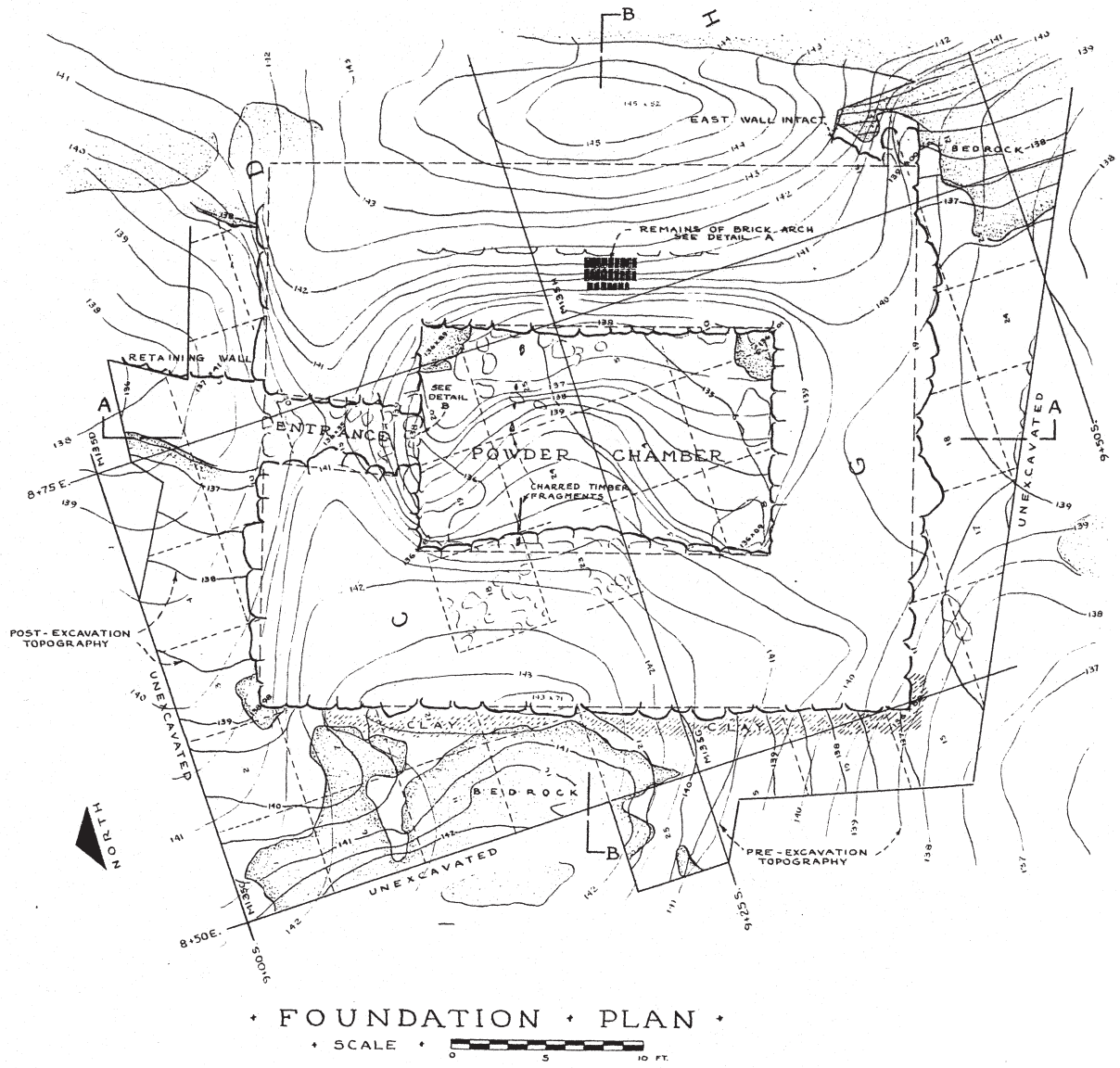

Figure 11.2. Foundation plan of Powder Magazine.

sisted of compacted brick and mortar along with large stones. The Revolutionary War topsoil was discovered at the base of this layer as a dark, organic rich soil against the exterior of the wall. The alignment of the exterior wall was difficult to determine except at the very base of the wall, due to the displacement of the face stones. Once the base of the wall was reached, the archaeologists were able to follow the exterior of the walls around the magazine.

The excavators were puzzled over the contrast between the well preserved interior of the wall and the poor condition of the exterior wall. This seemed to contradict the account of the magazine destruction by the British, which was accomplished by setting off an explosion inside the magazine. Mead suggested that the force of the explosion was transferred to the exterior of the wall by the structure of the arch, which left the interior of the wall relatively intact.

The magazine was very carefully constructed. The walls were approximately 8.2 feet thick, resulting in a building with an exterior size of 28.5 by 34.5 feet. The archaeologists were impressed by the relatively large, flat, square stones used in construction and the flat face of the wall. The

stones were mortared to a depth of 2 to 2.5 feet on both the interior and the exterior. The exterior walls exhibited "ridge mortar" that protruded beyond the face from the joints to protect the walls from moisture damage. The interior walls were mortared to provide a smooth surface and evidenced fire.

A layer of bluish gray clay was found along the base of the exterior walls. This sealed the foundation and protected the powder supply from the potential of water damage. On the interior, the yellow subsoil was excavated to slope approximately one foot toward the southwest corner. This was another measure taken in construction to protect the powder from moisture. The interior had a wooden floor, which was indicated by the protruding stones at the base of the east and west walls. Wooden timbers resting upon these stones served to support the floorboards. The elevations of the interior corners at the floor level indicate the floor was slightly higher than the base of the entranceway.

Prior to excavation, Mead noted a stone platform covered with about three feet of earth (Figure 11.3). Initially thought to be a platform for

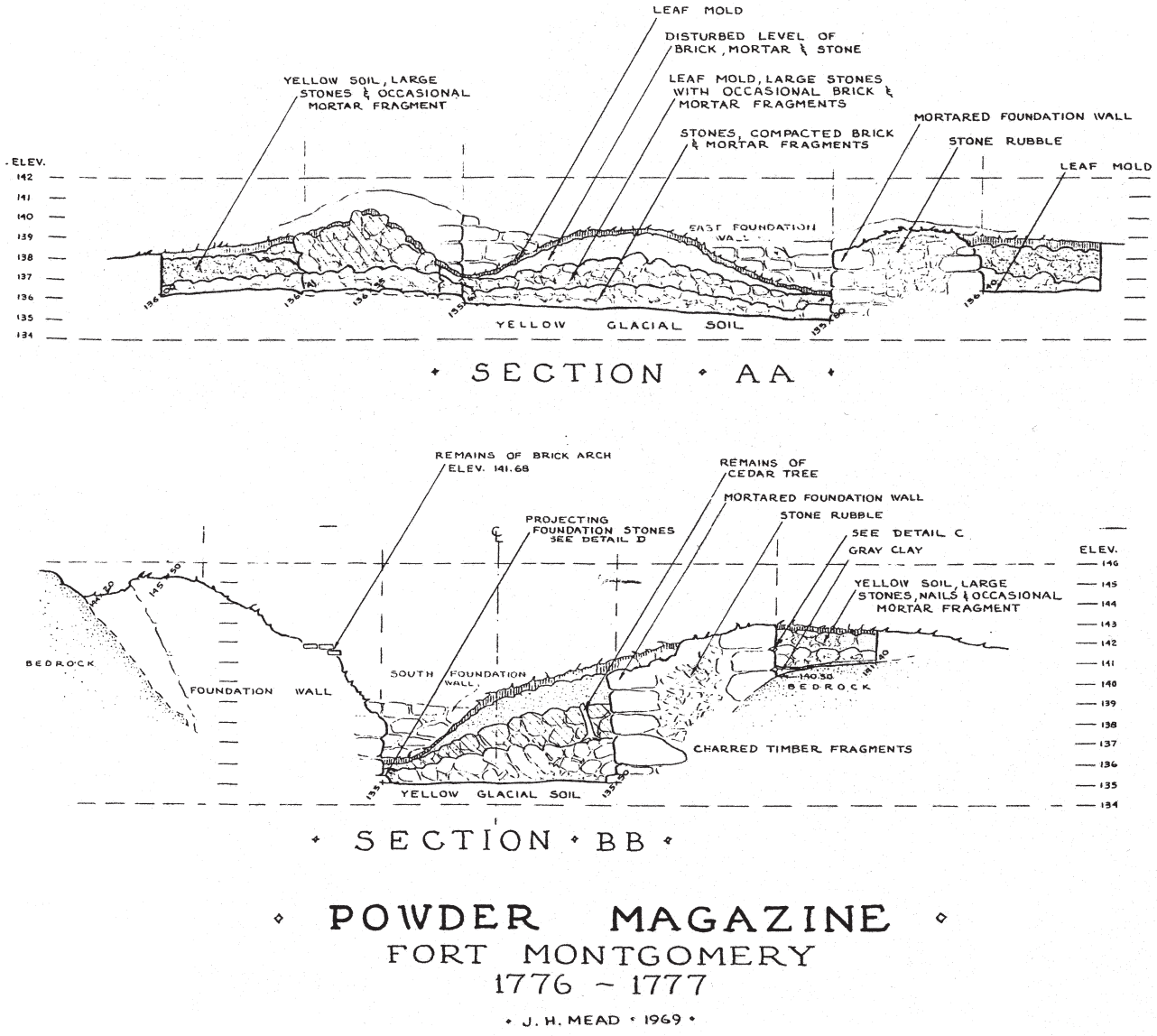

Figure 11.3. Section drawings of Powder Magazine.

Table 11.1. Summary of artifacts from Powder Magazine.

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Yellowware	1
	Ceramic Sherds Total		1
	Glassware	Bottle Glass (other)	1
		Bottle Glass (wine)	6
		Lead Glass (stem and tableware)	1
		Other Glassware	1
	Glassware Total		9
	Other Food/drink	Cutlery (other)	1
	Other Food/drink Total		1
	Refuse	Faunal	41
		Shell	59
	Refuse Total		100
Food/drink Total			111
Personal	Clothing	Buttons (brass)	1
		Buttons (silver)	1
		Cuff Links	1
	Clothing Total		3
	Military/Defense	Firearms/Parts	1
		Gunflint	3
	Military/Defense Total		4
	Personal Items	Coins	1
	Personal Items Total		1
	Tobacco Related	Kaolin Pipe	2
	Tobacco Related Total		2
Personal Total			10
Structural	Hardware	Door Hardware	1
		Iron Strap	1
		Other Hardware	1
	Hardware Total		3
	Masonry	Bricks	12
		Mortar/Plaster	299
		Other Masonry	2
	Masonry Total		313
	Nails	Wrought Nails	47
		Unidentified Nails	9
	Nails Total		56
	Structural Samples	Wood Samples	25
	Structural Samples Total		25
Structural Total			397
Miscellaneous	Debris	Coal	1
		Limestone	5
		Other Debris	2
	Debris Total		8
	Samples	Charcoal	4
		Wood Samples	7
	Samples Total		11
	Unidentified Objects	Other/Unidentified Metal	1
	Unidentified Objects Total		1
Miscellaneous Total			20
Grand Total			538

powder barrels within the magazine, later excavations showed this to be fallen rock from the adjacent walls.

The amount of brick and mortar encountered in excavation was interpreted as the remains of the massive brick arch that was a critical part of the structure's objective to protect the powder supply. The bricks were described as very hard in comparison to the bricks used in the chimneys of the other buildings in the fort. Bricks measured between 8 by 4 by 2 inches and 7.5 by 3.5 by 2.75 inches. The base of the arch was discovered on the top of the east wall where bricks remained mortared together. The arch was determined to have been about 3.8 feet in thickness based on these bricks.

The entrance was found on the north side of the building. At a point 5 feet north of the interior of the north wall, the floor level was made of large stones grouted with clay-like mortar. The entrance here was about 2.4 feet wide and the center was 4.7 feet from each corner of the north wall. The stone edge of the first step was found 2 feet north of the interior of the north wall. This step dropped one foot down to the next level that continued to the interior of the north wall, where another drop of one foot met the floor of the magazine. The entrance at the north wall was 3.7 feet wide. The floor at the entrance was mortared stone and the side walls were covered with mortar. On the exterior of the wall near the entrance, four clinched nails were found that might have been used in the door, which would have been 1.5 inches thick. A brass or copper pintle was recovered near the entrance, probably used to hang the door to the magazine. This was .8 feet above the floor on the west side and 2.3 feet from the interior entrance.

A small stone retaining wall about 1.4 feet high was discovered on the east side of the entrance. This served to maintain the path into the magazine.

Artifacts

Stones darkened with charcoal and shattered, along with charred wood, fractured bricks, and mortar were noted during the excavation (Table 11.1). Only a few complete bricks were found. Most of the bricks were sharply fractured and separated from each other, "giving the appearance of being exposed to an explosive force" (Mead 1992 (I):np).

The brass or copper pintle for the door is consistent with documentary evidence that iron hardware should be avoided to prevent sparks from igniting the powder. Mead references a request for copper nails and lock for the magazine at Constitution Island in 1775. Despite this account, the only nails from the Fort Montgomery magazine excavation were iron.

The neck portion of a dark green wine bottle was found in the excavation of the entrance on the north side. Oyster and clam shells, bone fragments, and other items recovered may have been related to the meals consumed during construction of the magazine. Other items excavated from the magazine vicinity may have been lost or discarded during general duties around this building.

Summary

The magazine at Fort Montgomery was built in a carefully selected location that was well protected by small rises in the bedrock on each side. The size and construction appears to have followed eighteenth century military practice. The walls were 8 feet thick and covered with a brick arch that was 4 feet thick. This arch was then covered with a wooden roof. Details of the construction evidence skill and considerable efforts in the building. The walls were carefully mortared on the interior and exterior, where a ridged mortar provided protection against moisture. Dense clay was applied to the base of the exterior wall to prevent water entering the magazine. The wooden floor was raised above a sloped surface to improve the drainage away from the powder if water managed to get inside the building. An entrance was discovered on the north side and a retaining wall protected the entranceway. A copper pintle was used to hang the doorway instead of the usual iron that could produce a dangerous spark.

Chapter 12: the Material World of the Soldiers

Fort Montgomery included the things acquired, made, used, and discarded at this place, as well as ideas about them. The material world created by the soldiers reflects the social relationships of their society. Consequently, this site is an artifact that contains evidence of the processes, conditions, and contradictions that were present in late eighteenth-century America.

Daily Tasks

Although the daily schedule of tasks for the soldiers at Fort Montgomery has not been determined, most likely it was similar to that of other forts and camps of the American Army during the revolution. The common experience of eighteenth-century life for both civilians and soldiers was that of hard labor, required of every occupation but particularly familiar to the rural agricultural workers and the urban poor.

> *Those soldiers who escaped illness, and many who did not, endured a steady regimen of grinding physical toil. While in camp, a work day of twelve hours or more was common for those on fatigue duty, which involved principally cooking, cutting wood, and building entrenchments and barracks. Work commenced at about six in the morning and continued, with one hour for breakfast, until noon; work resumed at about two o'clock and continued without abatement until sunset.*
>
> *...To the "Camp Colour men" fell the unhappy duty of cleaning the area of all "nausances," defined in written orders as "filth, bones, &c.," and of "throwing the Same into the pits and Covering the filth therein with fresh dirt every morning"; these men additionally faced the even less enviable task of covering "the excrements in the holes of their Respective Regiments every morning (Ferling 1995:89).*

The soldiers at Fort Montgomery spent most of their time at construction of the fortifications and the buildings. The shovels, axes, and ox shoes recovered in excavations were used in the basic tasks of fort building: digging, chopping, and hauling.

Soldiers' Equipment and Clothing

Despite the items frequently reported in period documents, historians agree that the American soldier of the Revolutionary War was never fully equipped. Muskets, bayonets, bayonet scabbards, gunflints, cartridge boxes, swords, blankets, knapsacks, canteens, and kettles were some of the items issued to the soldiers. The soldiers at Fort Montgomery shared in the general lack of equipment. Ordinance returns, such as one from May 29, 1777, listed extremely low numbers of stores at the fort. Only eight bags of grapeshot and twelve muskets were present at that time. In July of 1777, a report from Col. John Snyder's Regiment listed five men in one company and seven in another along with the words "no guns." Other men were missing crucial parts for their weapons. An earlier report simply stated "the whole of the troops at both these posts [Forts Montgomery and Constitution] are miserably armed…" (Hastings 1899 (I):137).

The Militia were expected to provide each of their men with "a blanket and knapsack and every six men with a pot or Camp Kettle" (Hastings1899 (I):257). While in barracks in New York City in 1776, the First New York Regiment was issued the following items for each room that contained 20 men:

> *10 cribs, 10 bedcases, 10 Boulsters*

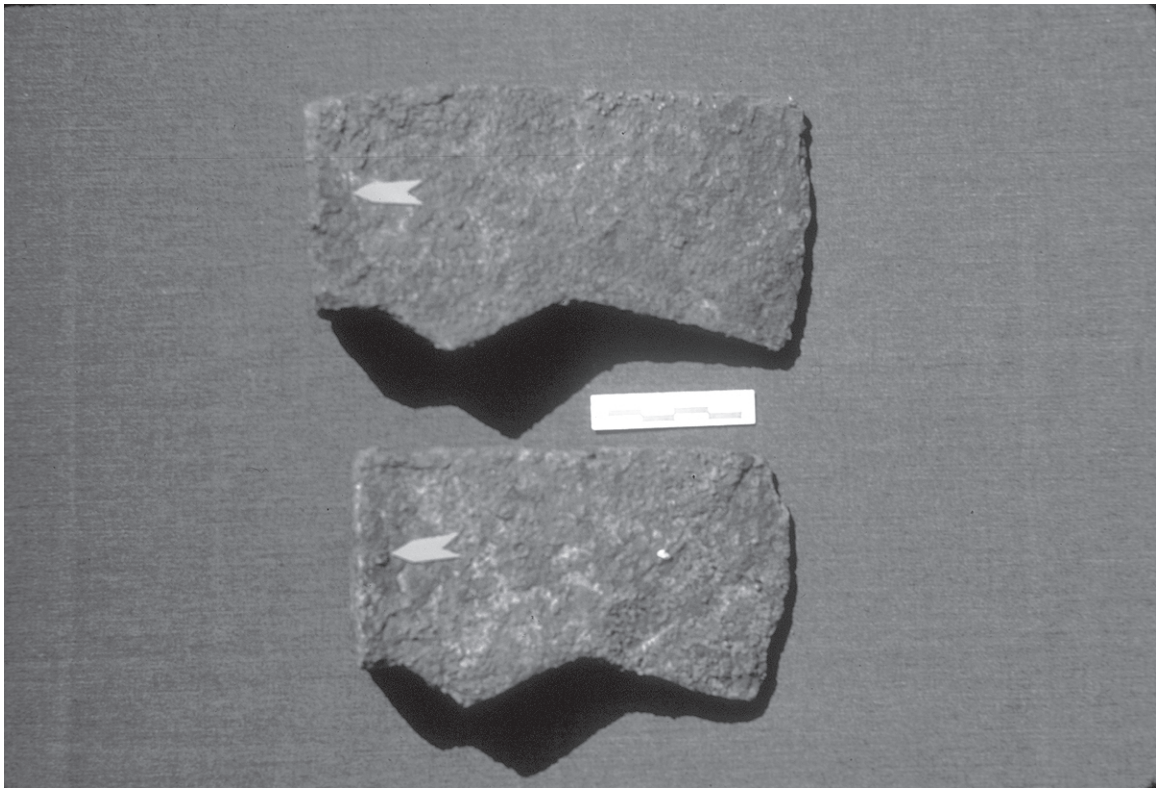

Figure 12.1. Examples of iron axes excavated at Fort Montgomery.

> *to be filled with straw every three months, 2 iron pots, 2 trammels, 1 pr. Tongs, 1 wood axe, 1 iron candlestick, 1 table, 2 benches, and 1 bucket…(Egly 1981:25).*

Similar room furniture may be expected at Fort Montgomery, although the typical shortages of materials should be expected as well. Few examples of this material, if present in the fort, have been recovered archaeologically. Iron pots and axes were found at several different locations within the fort (Figure 12.1).

Ideally, each soldier in the Continental Army was issued 2 hunting shirts, 2 pair of overall, a leather or woolen coat, a hat or cap, one pair of trouser, two shirts, two pairs of hose, and two pairs of shoes upon enlistment (Ferling 1995:87). In reality, this was seldom the case. Contemporary witnesses frequently recorded barefoot and coatless soldiers, even in the winter. The soldiers were dependent upon the states to provide their regiments with clothing.

The militia, on the other hand, may have been better clothed, since they were expected to provide their own. Dr. Timothy Dwight visited the site of Fort Montgomery several months after the British abandoned it and nearby found

> *...a pond of moderate size, in which we saw the bodies of several men, who had been killed in the assault upon the fort…. The clothes which they wore when they were killed were still upon them; and proved that they were militia; being the ordinary dress of farmers (Hastings 1899(I):153).*

This is an important piece of evidence for the archaeological interpretation of the collection from Fort Montgomery. The efforts of the Continental Army to regularize the weapons and uniforms of the soldiers may be expected to result in greater variation in artifacts associated with weapons and clothing among the Militia. Although the marked regimental buttons are important to determining what troops are present in the fort, there are complicating factors in using this information because of the army's constant shortages of clothing.

Marked Buttons

Generally, the regimental buttons provide evidence of the troops present at Fort Montgomery, although there are some exceptions to this interpretation. The recovery of a British 22nd Regiment button from the excavation of the Main Barracks does not mean that this regiment was at the site (Troiani 2001). This is due, most likely, to the documented capture in 1775 of a transport with approximately 500 British uniforms of the 22nd and 40th Regiments. These uniforms were distributed to American soldiers and have been found at Fort Ticonderoga, Mount Independence, and Fort Edward. Troiani (2001:89) has expressed caution in interpreting the recovered buttons since the "role of captured British military garments in clothing the Continental Army should not be underestimated."

Another problem is the presence of British 64th Regiment buttons from the Guardhouse and EMB excavations. These pewter buttons may be British buttons or American copies of a British button (Troiani 2001). While the 64th Regiment was part of the raid on Peekskill in March of 1777, they were not present as a regiment in the Battle of Fort Montgomery.

In contrast, the four examples of 57th British Regiment buttons found at the North Redoubt were probably from uniforms of soldiers of this regiment that were part of the attack on Fort Montgomery. These may have been lost during the battle. Another British Regiment present in the attack on this fort is represented in the 63rd Regimental button recovered from the Storehouse excavation. Both the 57th and the 63rd were in the Battle of Long Island in 1776 as well.

A button of the British 26th Regiment was recovered from the Main Barracks. This regiment participated in the attack on Fort Montgomery, but their uniforms may have been worn by Americans. Members of this regiment, along with their uniforms, were captured by the rebel forces at Crown Point, Ticonderoga, and St. Johns. Americans wore these uniforms in the 1775-1776 campaign in Canada according to Troiani (2001) and Hanson and Hsu (1975:85).

The most common American button at Fort Montgomery exhibits a mark referred to as the

Figure 12.2. Photograph of examples of NY *buttons.*

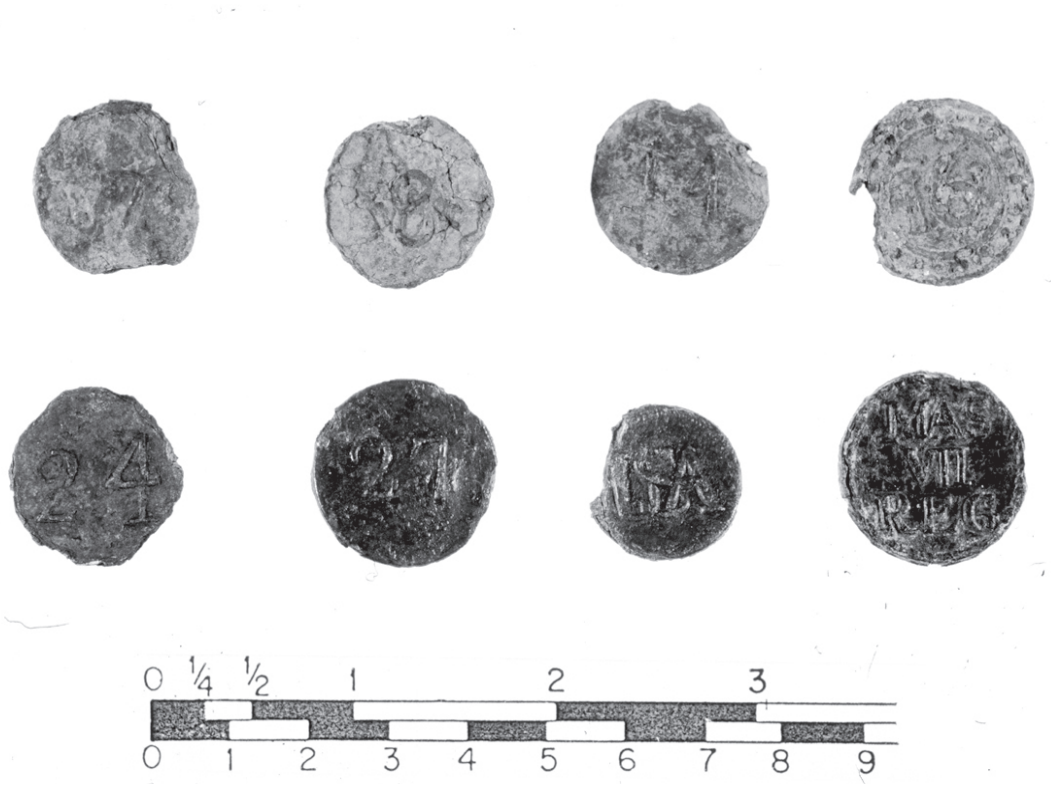

Figure 12.3. Photograph of examples of regimental buttons and USA *button.*

"joined *NY*"(Figure 12.2). These buttons were used from 1776 through 1778 by Continental Regiments from New York. Buttons with this mark have been found at the Fishkill Barracks, Constitution Island, and Fort Stanwix as well as Forts Clinton and Montgomery (Troiani 2001:132).

The absence of the Colony of New York mark, *CN*, from this collection was unexpected. These marks were in use in 1775 and 1776 and buttons with this mark have been found at West Point and other sites in the Hudson Highlands (Troiani 2001:132).

New England troops were present at Fort Montgomery and left several types of marked buttons. Buttons marked with a 7, 12, 14, and 24 were recovered from excavations in the Main Barracks and reflect Continental Regiments made up of Massachusetts men (Figure 12.3). These regiments were formed in January of 1776 and participated in the New York campaign of that year. Buttons of the 7th Regiment have been found at Fort Ticonderoga, 12th Regiment buttons were recovered from the Hudson Highlands, and buttons of the 14th Regiment have been found at Fort Ticonderoga, Fort Stanwix, and the Champlain Valley (Troiani 2001). A button marked with 21 was recovered from the OCB at Fort Montgomery.

A button of the 24th Regiment was found in the Main Barracks. This regiment, however, was not assigned to the Hudson Highlands until 1778 and served in the Saratoga Campaign at the time Fort Montgomery was attacked (Troiani 2001).

Evidence of other New Englanders at Fort Montgomery included a button from the 17th Regiment, which was found in the Main Barracks. This regiment was organized in January of 1776 from a Connecticut Regiment and was disbanded by the end of 1776. French style buttons were recovered from the OCB. These buttons have been associated with Connecticut troops since Calver and Bolton (1950) described them. Troiani (2001) states they were used by troops from Massachusetts and New Hampshire as well. A single button from the 7th Massachusetts was recovered from the OCB. This regiment was formed during the re-

Table 12.1. Marked buttons from Fort Montgomery.

BUILDING	# BUTTONS	MARK	LOCATION	COMMENTS
OCB	9	USA	105/B/10	5 buttons
			105/C/6	
			105/C/11	
			105/Z/2	2 buttons
	4	French-style	105/B/10	French-style buttons associated with New England troops.
		5	105/B/15	
		7	105/B/8	
		9	105/B/15	
	3	NY	105/B/17	
			105/C/9	
			105/C/5	
	1	2	105/B/13	
	1	8	105/F/5	
	1	14	105/C/11	
	1	21	105/B/24	
	1	7th Mass	105/6/11	Regt. Formed in 1781
EMB	5	NY	106/A/20	
			106/E/3	
			106/F/22	
			106/K/6	
			106/K/12	
	2	14	106/F/2	
	1	22	106/B/21	
	1	27	106/F/19	
	1	64	106/F/2	May be American Copy or British button.
	1	57	106/K/7	British button.
Main Barracks	5	NY	M5-152	2 buttons
			M5-w	3 buttons
	4	7	M5-30	2 buttons
			M5-31	
			M5-45a	
	1	12	M5-33	
	2	14	M5-168-0	
	1	16	M5-65	
	2	17	M5-45a	
			M5-156	
	1	24	M5-33	
	1	19	M5-70	British button.
	1	22	M5-31	British button.
	1	26	M5-105	British button.
	1	Proctor	M5-30	Button?
Storehouse	1	NY	119/P/2	
	1	63	119/N/18	British button.
North Redoubt	4	NY	64/H/1	
			64/H/6	
			64/H/3	
			64/C/25	
	4	57	64C/24	British button.
			64/D/14	British button.
			64/D/19	British button.
			64/D/24	British button.
Guardhouse	2	NY	M1/-/7	
	1	64	M1/-/5	British button.
Soldiers Necessary	12	NY	M107/F/20	
			M107/F/25	
			M107/G/11	2 buttons
			M107/G/16	
			Watercloset	7 buttons
	1	25	M107/F/25	
Bakehouse	1	NY	104/H/6	

organization of the Continental Army in January 1781 (Troiani 2001:126) (Figure 12.3).

The Guardhouse yielded a button from the 18th Continental Regiment. This regiment was formed in 1777 and was present at the Battle of Saratoga.

The presence of the USA and French buttons within the OCB and the absence of NY buttons stands in contrast to the marked buttons from the EMB and the Main Barracks (Figure 12.3). The soldiers' barracks did not contain either the USA or French buttons, but yielded a variety of numerically marked regimental buttons. Similar numerically marked buttons from the OCB excavation were recovered only from the exterior of the building.

Other Buttons

The large number and variety of buttons indicate that clothing was not standardized at Fort Montgomery. For example, approximately 100 bone buttons, 38 silver buttons, and 283 brass buttons are in the collection along with one hundred and twenty one cuff links. This large number of decorative buttons and cuff links was unexpected due to the belief these items are associated with elite style clothing (Figure 12.4). Archaeologists have reported them from many military and non-elite domestic sites, but not in the quantity recovered from Fort Montgomery. This variety may reflect the presence of the Militia at the fort, although the Continental Army may not have been uniformly clothed at that time.

Lead Shot

The diameter of the lead shot recovered archaeologically provides information about the weapons and the people who may have used them at the fort. A total of 424 pieces of lead shot were measured. These measurements are presented in Figure 12.5. The greatest numbers of shot (351) are in the .68 to .72 inch group, which is the standard size for the .75 inch diameter British Brown Bess musket (Sivilich 1996). This was the standard size barrel for both the British and American armies (Hanson and Hsu 1975). Many men in the American militia, who carried their own weapons, had muskets of this same size.

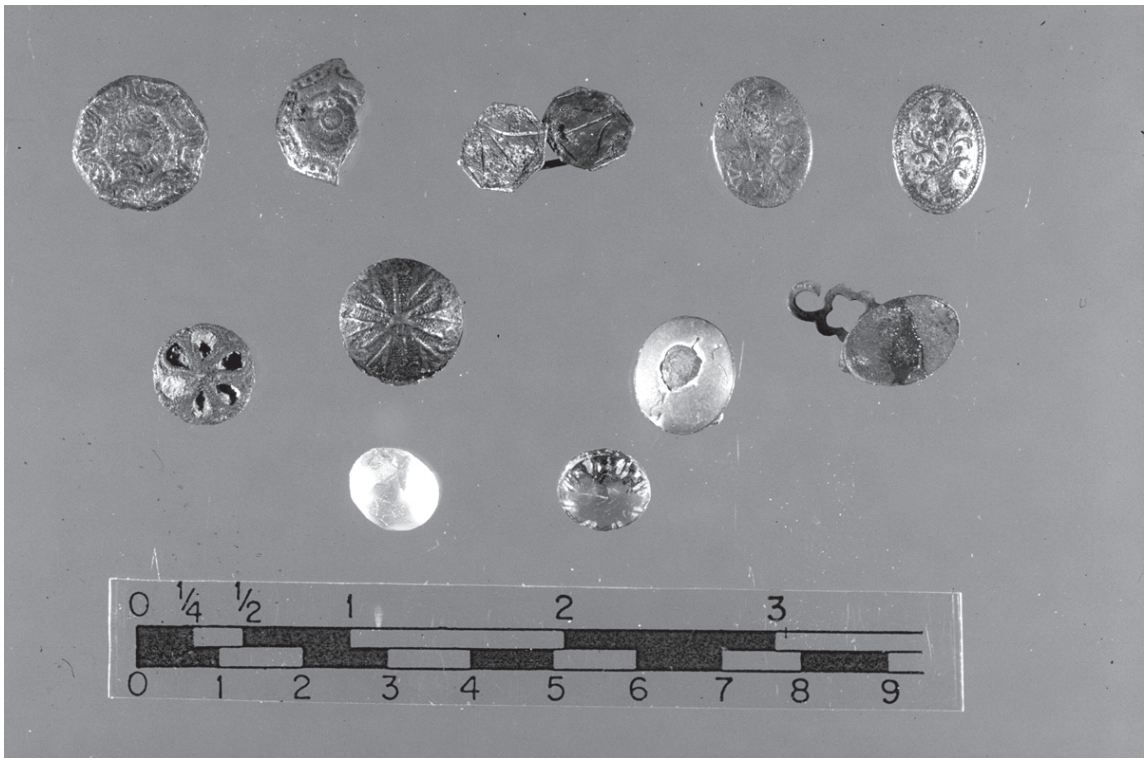

Figure 12.4. Photograph of examples of sleeve links.

The second largest size group, with 99 pieces, consisted of shot with diameters that measured between .59 to .65 inch. This size range was appropriate for use in the .69 inch barrel of the French Charleville musket, American muskets modeled after the French gun, or British fusils, Dragoon carbines, and other firearms (Neuman and Kravic1975).

A smaller number of shot (13) was between .49 and .57 inch in diameter. This size shot may have been used in American rifles or pistols. A pistol barrel found at Fort Stanwix was .63 inch in diameter (Hanson and Hsu 1975:80). Seven specimens of the rifle shot were recovered from the North Redoubt, which was one of the objectives of the British attack on the fort. The only examples of lead shot flattened from impact were found along the North Redoubt as well.

These three size groups of lead shot represent a range of firearms that were at this site. The variety may have resulted from the American and British occupations and the range of weapons among the Americans. The absence of a standard firearm and the associated shot may be due to the Militia at the fort. In addition, they may have owned British muskets that they brought to the fort with them.

The distribution of shot sizes was examined for the different buildings within Fort Montgomery. The shot from the OCB appears different from the rest of the fort (Figure 12.6). There was an equal number of shot (15) in the .60 to .64 inch group and in the .69 to .70 inch group. This reflects the smaller, specialized muskets and pistols of the officers. In contrast, the range in shot sizes was greatest at the EMB and the Main Barracks (Figures 12.7, 12.8). The lack of standard firearms suggests the Militia were occupants of portions of these barracks.

The North Redoubt exhibited the least variation, with the greatest number of shot (194) with the same diameter (.69 inch) (Figure 12.9). The standardized shot at this location may indicate the British presence at this location following the battle.

The variety of weapons at Fort Montgomery required soldiers to make shot for their individual firearms (Figure 12.10). Melted lead waste from the individual manufacture of lead shot was present at numerous locations in the fort.

Health Conditions

The well-known story of the revolutionary origin of our nation includes the suffering soldiers who experienced extreme hardships in the service of their country. They described their experiences off the battlefields in terms of "starving and freezing" in the service of their country (Martin 1979:150). Meat, when present in their diet, may have been horse or dog as well as beef, and soldiers ate their shoes, soap, candles, and even chewed bark on occasions when other food was not available. Shelters and supplies of blankets and clothing were lacking throughout the conflict. People that may have been dispersed across the countryside before the revolution found themselves in densely settled forts where communicable diseases spread among them rapidly. Consequently, the soldiers that were hungry and cold were frequently sick.

Dysentery and smallpox were probably greater dangers to the soldiers of the rebellion than the enemy. Approximately nine soldiers died from disease for every one killed in battle during the American Revolution (Blanco 1982). One historian has estimated that "for thirty months after July 1776, never less than 16 percent of the troops were incapacitated by illness; at times more than one-third of the army was on sick call" (Ferling 1995:88). This resulted in death rates for the army in camp that exceeded those from battles. For example, in August of 1776 a visitor to the army recorded about thirty men died each day at Fort Ticonderoga from disease (Ferling 1995:88).

In July of 1776, the General Orders for Fort Montgomery referred to "a great number in the Garrison…sick…" (Hastings 1899(I):269). Returns for the regiments at Fort Montgomery in May and June of 1777 indicate the overall sick call was slightly less than 16%, but ranged around this figure for each regiment. Some regiments such as Col. Dubois' exceeded 16% sick in the return of June 12. In February of 1777, Washington began a program of mass inoculation of the army against

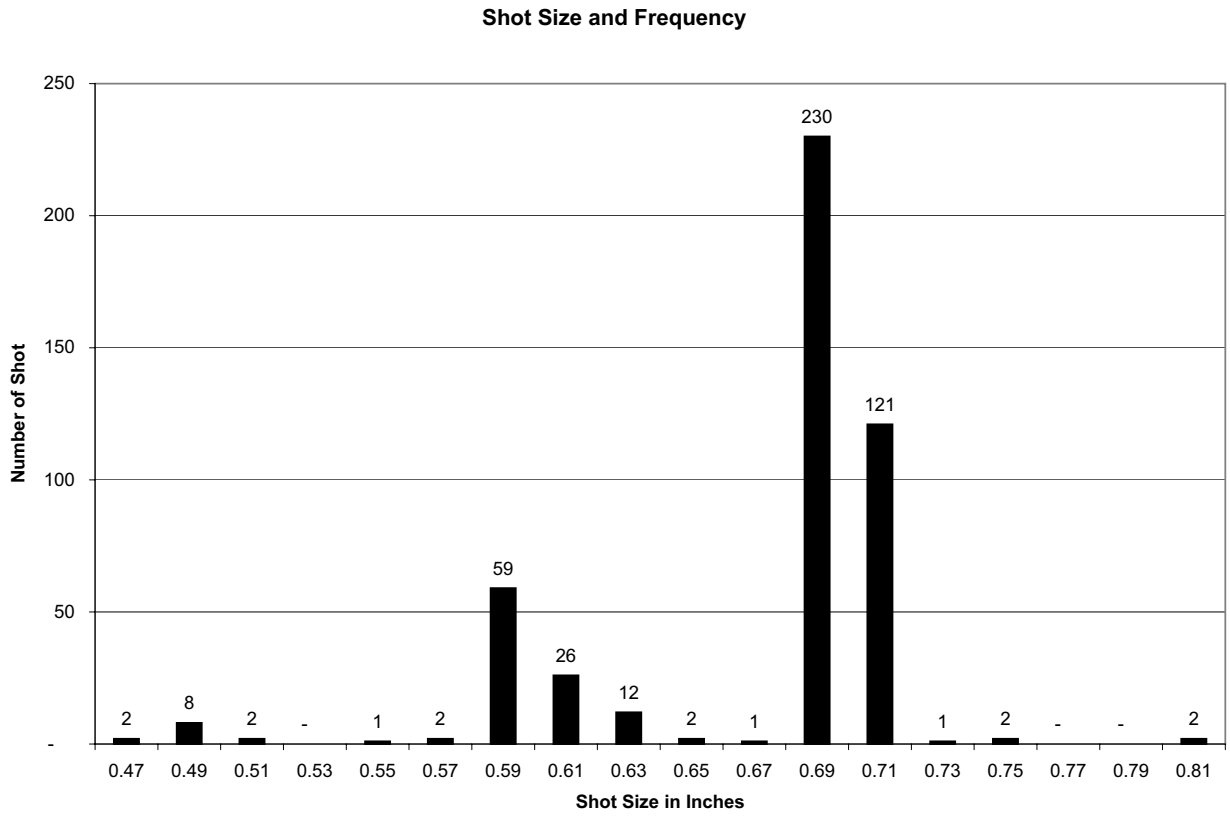

Figure 12.5. Bar chart of lead shot and frequency.

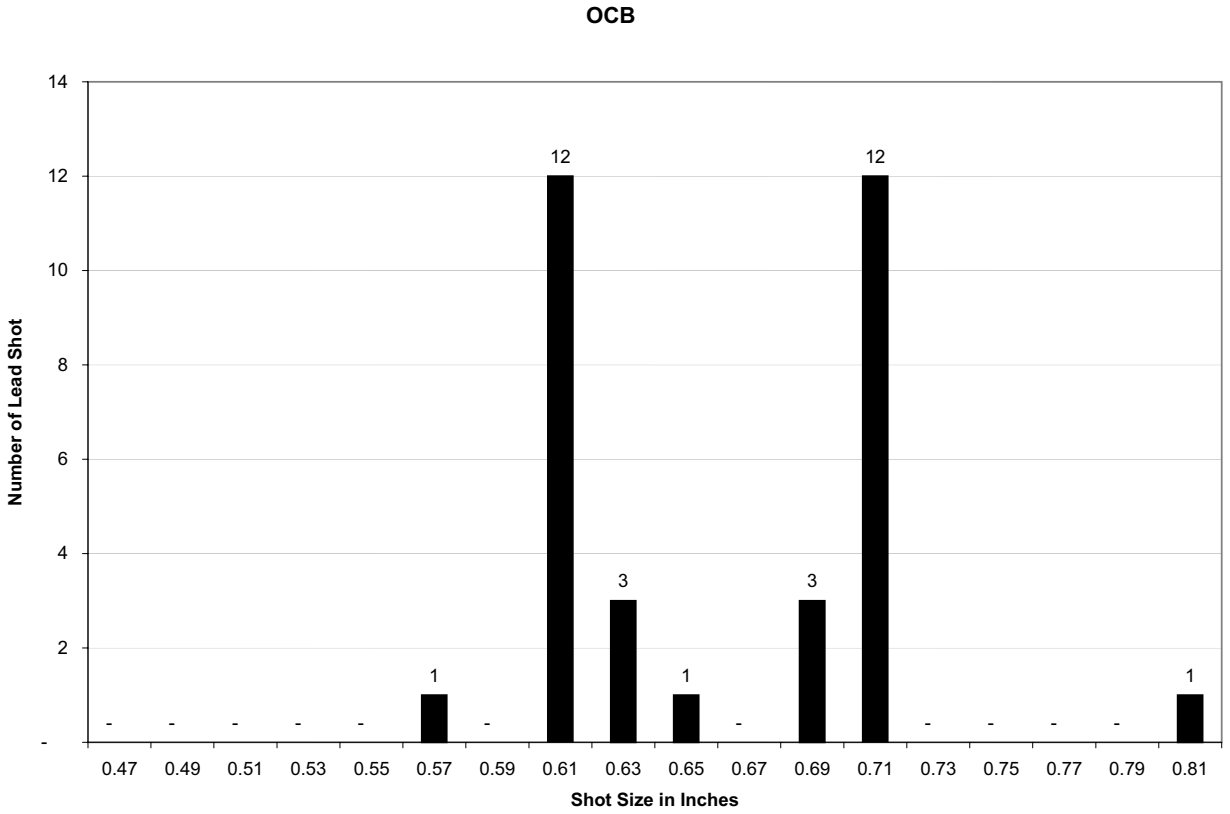

Figure 12.6. Bar chart of lead shot and frequency from OCB.

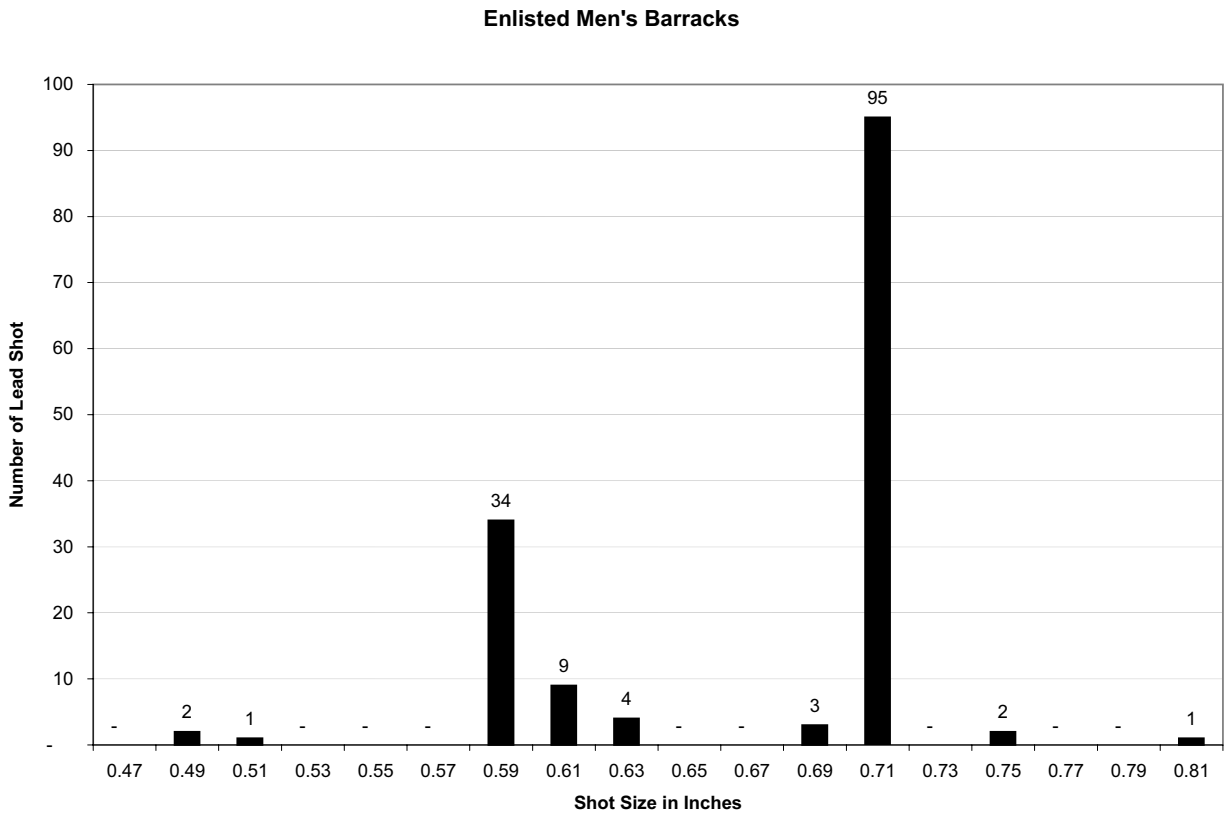

Figure 12.7. Bar chart of lead shot and frequency from EMB.

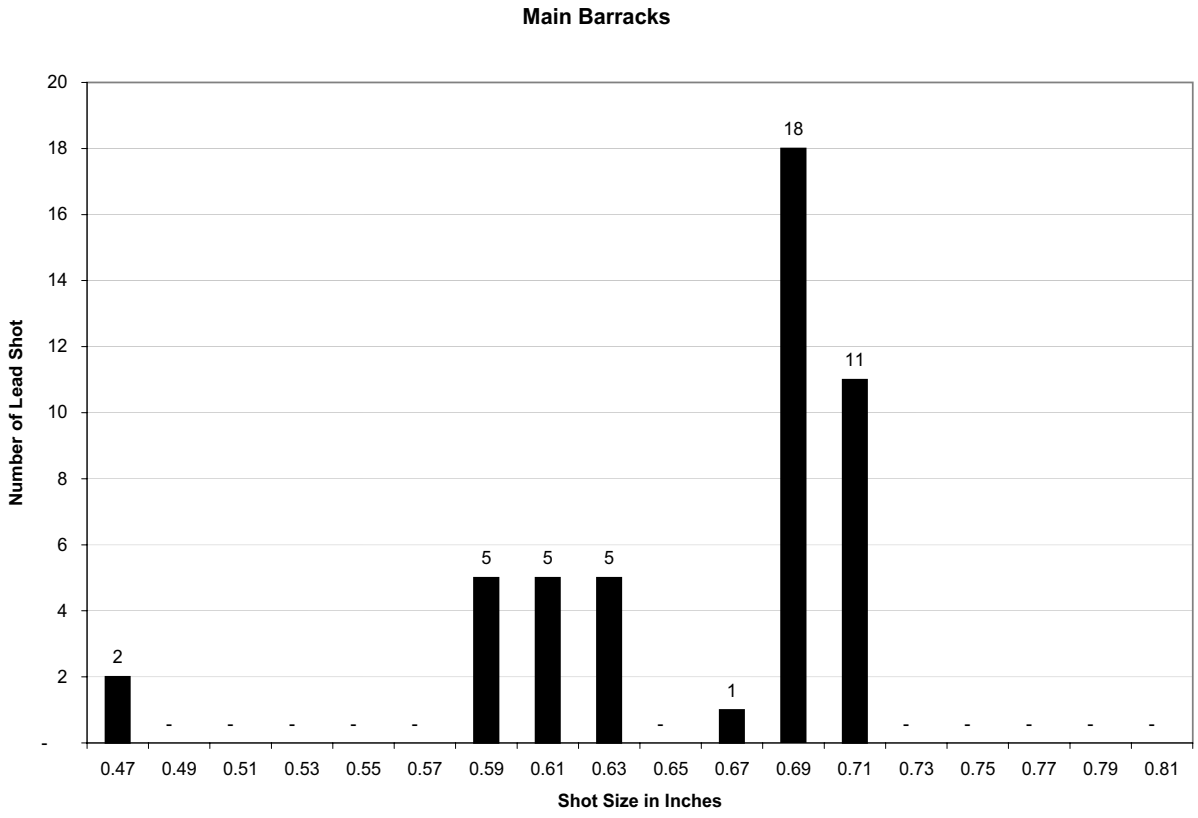

Figure 12.8. Bar chart of lead shot and frequency from Main Barracks.

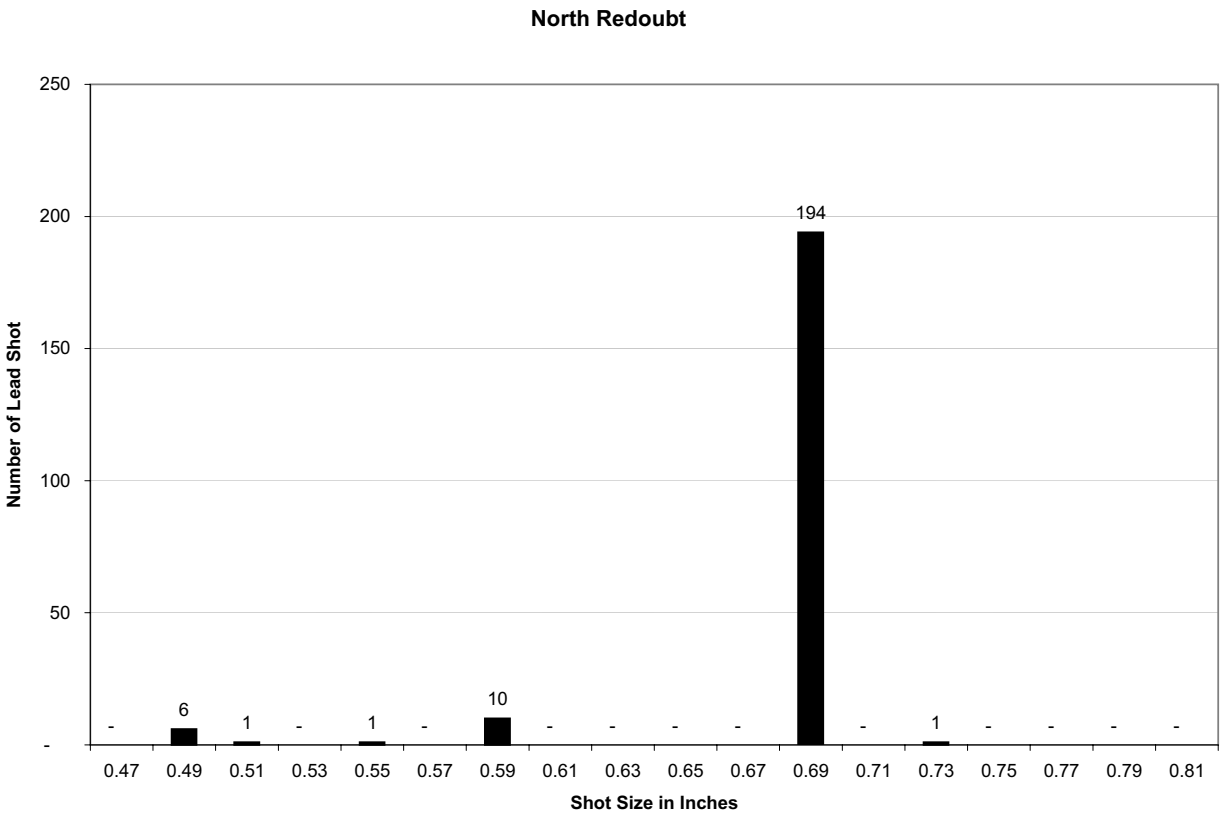

Figure 12.9. Bar chart of lead shot and frequency from North Redoubt.

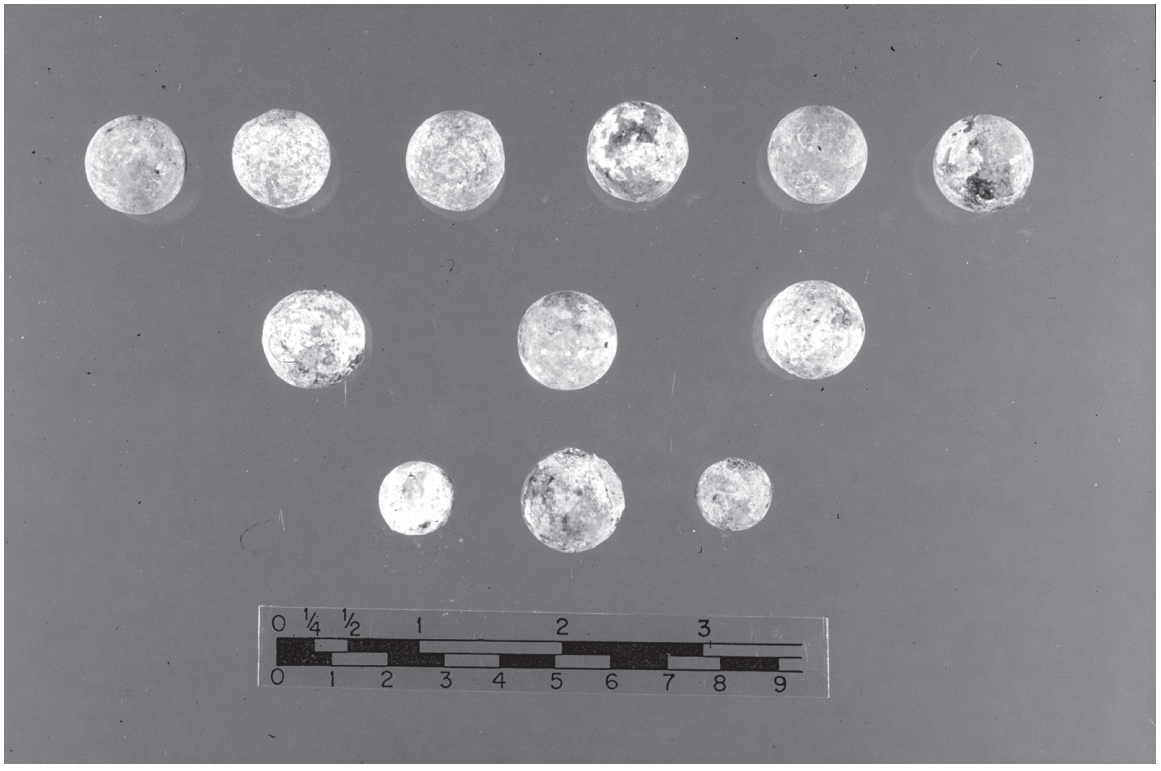

Figure 12.10. Examples of lead shot from Fort Montgomery.

smallpox, which had reached epidemic proportions. Following this practice, the Continental Army "gained immunity from smallpox to match the former British advantage" they had derived from their routine programs of inoculation (Morgan 2002:22). The militia at Fort Montgomery, however, may not have been inoculated. Joseph Plumb Martin, along with other men from Connecticut Regiments, was inoculated in the Hudson Highlands in 1777 where he stayed for 16 days in a barrack (1979).

Medicine bottle glass was recovered in the excavations at Fort Montgomery. These bottles were probably plain vials of green or light green colored glass. Without the preservation of paper labels that would have been tied to the bottlenecks, it is not known what these bottles held. The usual practice during the eighteenth century was for medicine, derived from herbal mixtures, to be dispensed in solutions of flavored water or alcohol (Jones and Smith 1985:90). Wine and alcoholic beverages were believed necessary to maintaining the health of the soldiers according to doctors of the eighteenth century (Braudel 1979:244). The size and shape of the bottles may indicate the general contents of the bottles. For example, wide mouthed medicine bottles were used for powders and large dark green glass bottles were employed in storage of medicines.

The vast majority was from two areas, the trash deposit behind the Main Barracks and the Storehouse vicinity. This distribution results from the use of medicines in the barracks and the storage of them in the Storehouse. The storage of medicines in the Storehouse, however, was not anticipated since this is a role associated with hospitals or physicians. Medicine was considered a valuable commodity in the fort that required restricted access to it.

In addition to the formal medicine in the Storehouse, soldiers self-medicated with a number of drugs that are represented in large numbers of artifacts recovered from the fort. The use of alcohol to suppress pain, tobacco smoking to suppress hunger, and tea drinking for the stimulating caffeine was common among the soldiers. Over 3500 fragments of white clay tobacco pipes were recovered in excavation, along with over 11,000 sherds of wine bottles. Fragments of teapots were found in almost every living quarter in the fort.

At the Virginia Brigade encampment and Wayne's Brigade area at Valley Forge drug pots of delft and redware were recovered in excavations (Parrington, Schenck, and Thibault 1984). One of these pots contained a lump of sulphur, which may have been used "to alleviate the after-effects of small pox vaccination or for skin disorders such as scabies" (Parrington, Schenck, and Thibault 1984:150). Other drugs known to have been in use during the Revolutionary War include laudanum, which was used as a pain killer, cremor tartar, which was used as a cathartic, spirits lavender, used to relieve gastric distress, and paregoric, which was used as a pain killer, for diarrhea, cough, and nausea (Morristown Memorial Hospital nd).

The soldiers were given additional rations of sheep at Mount Independence in 1776 to improve their health. The commanding officer ordered this be used to make a broth for the sick. Other foods were issued to cure or prevent illness throughout the war.

Another aspect of health and sickness at the fort may be seen in terms of sanitation. The mix of people and animals in close proximity was not conducive to healthy people. Archaeological excavations indicated that animals eaten at the fort were apparently butchered there and the waste discarded nearby. The presence of pig teeth at domestic sites is usually interpreted as the result of occasional tooth loss of free-ranging animals. This raises the question of the location of these animals within the fort and whether they were penned or allowed to range. The problems associated with pigs running loose within the fort seem to negate this as a possibility here. In either case, these animals were part of life at the fort.

The military attempted to control the health risks through discipline. A necessary was built in the central portion of the fort and the trash disposal areas were restricted in location and limited in size. The Soldiers' Necessary at Fort Montgomery appears to have had limited use only during the initial period of the fort construction. No other necessary has been located at the fort, although

they may have been constructed outside the fort, or over the fort ditch. At Fort Schuyler in 1777 it was "part of the responsibility of the officer of the day to see that the soldiers made proper use of the 'Necessaries' and to prevent anyone from easing themselves, in any other places about the Camp, or Garrison, except the Necessaries provided for that purpose…" (Egly 1981:71). Later "the soldiers were instructed …not to make use of the Necessary House within the Fort in the Daytime, the one in the Ditch being designed for that purpose" (Egly 1981:72). Eighteenth century plans of Fort Stanwix depict the necessary outside the fort, over the ditch (Hanson and Hsu 1975).

Each of the buildings at Fort Montgomery that contained residences was kept clean on the interior. Some small artifacts were found within the buildings, usually along the exterior walls, in the vicinity of the fireplaces, or possibly lost between the floorboards. The lack of thick trash deposits within the soldiers quarters contrasts with many domestic sites of the period, even those of the wealthy where servants could be expected to control waste and discard trash in specific areas away from the house. The exception to this was the Guardhouse, where refuse bone was found to have accumulated inside the building. This may relate to the use of this building for holding prisoners, who did not have the freedom to remove waste from the building as it accumulated.

Outside the doorways, sheet refuse was found that resulted from the broadcast discarding of small items of waste created inside. This was not the location of the majority of the garbage, which appears to have been removed to specific locations in the vicinity of the major residences. Both the Main Barracks and the L-shaped Barracks had large deposits of trash to the rear of the buildings, with less waste around the side walls. The residents in the Storehouse discarded some of their waste as sheet refuse outside their doors, but removed the largest quantity to the damp, low area on the exterior of the south side of the building. The negative correlation between the location of doors to the quarters and the location of large trash areas suggests that soldiers threw most of their waste out the windows. The location of window glass sherds supports this method of trash disposal. These trash areas avoided the pathways across the site and between buildings. The north side of the Main Barracks was relatively clear of trash, indicating the army maintained a cleared area surrounding the interior of the parapet. Garbage produced by the residents was discarded out-of-the-way and out-of-sight.

Covering the waste with layers of soil controlled the odor. This is evident in the absence of rodent- or dog-chewed bones, which would have been plentiful if the food waste was merely thrown on the ground surface since there is evidence of both rats and dogs at the fort. Slaves and free black men within the army may have carried out the task of covering the trash daily with earth. An order issued at Fort Montgomery on July 25, 1776, specified "two or more Persons are to be appointed whose Duty it Shall be daily to remove all Filth & Nastiness from about the Barracks & Garrison" (Hastings 1899(I):269).

Social Stratification

American officers adopted the position of the European officers that they were a special caste both within the army and within society. Their attitude appeared at odds with the struggle for a more egalitarian society, which was a source of continual worry for many civilian leaders throughout the war. The soldiers had more immediate fears of the brutal punishments inflicted upon them by their leaders. The tension between liberty and authority expressed in the revolution was present in the daily life within the army.

The military hierarchy of privilege and power mirrored the colonial society that produced the army. The soldiers were fighting, however, to change that social system. Cuff links with the word "LIBERTY" on them, recovered in excavations behind the Enlisted Men's Barracks, clearly express the objective of the revolutionary struggle to many of the soldiers (Figure 12.11).

The differences in the living conditions of the officers and soldiers were a constant threat to the revolution from within the army. The unequal allocation of scarce resources did not go unnoticed by the soldiers. At the end of a long march in 1777,

Figure 12.11. Liberty cuff links from EMB trash area, Fort Montgomery.

Joseph Plumb Martin observed the soldiers "were ordered into some barns near by, the officers, as usual, ordering themselves into the houses" (1979:69). Shelter, clothing, and food were distributed without regard to need, but by rank. The attitudes toward alcohol consumption, for example, ranged between the officers' acceptance of drinking as essential to their social cohesion and even part of the etiquette of camp life (Figure 12.12). In contrast, soldiers could be brutally punished for drinking by these same officers. The message was certainly a mixed one that could only be understood within the rigid caste system of the military.

This became even more complicated when alcohol was used to reward men for extra efforts and the soldiers considered the unequal allocations. Ferling (1995:95) refers to the expedition of 1779 against the Iroquois as an example of the conflict. The "officers were furnished with a quart of whiskey for every pint issued to the men; moreover, officers were ordered to see 'that water was immediately mixed with the soldiers' whiskey." One of the commanders of the campaign was General James Clinton who was in charge of Fort Clinton in 1777 and it is likely that he issued similar orders there.

The presence of women and children at the fort is accepted, although there are no material objects that are specifically associated with them. At domestic sites of this period, the vast majority of the household material and waste would be associated with women and children. At Fort Montgomery the thimbles and sewing equipment, the ceramics and table glass, and the cooking equipment are associated with soldiers although it may have been used by women. At Fort Stanwix, sad irons were found that indicate one of the tasks women performed at military sites (Hanson and Hsu 1975). Women's shoe buckles, hatpins, and jewelry have not been identified in the Fort Montgomery collection as yet. This does not deny their presence at this site, but only the difficulty in observing it archaeologically. At Fort Hill in Peekskill, the barracks plan of December 1776 refers to the occupants of room No. 8, where there are "8 of Coll. Graham's Regt 1 is a woman" (Curran 1998:np). There were other buildings at Fort Montgomery that were not excavated and may

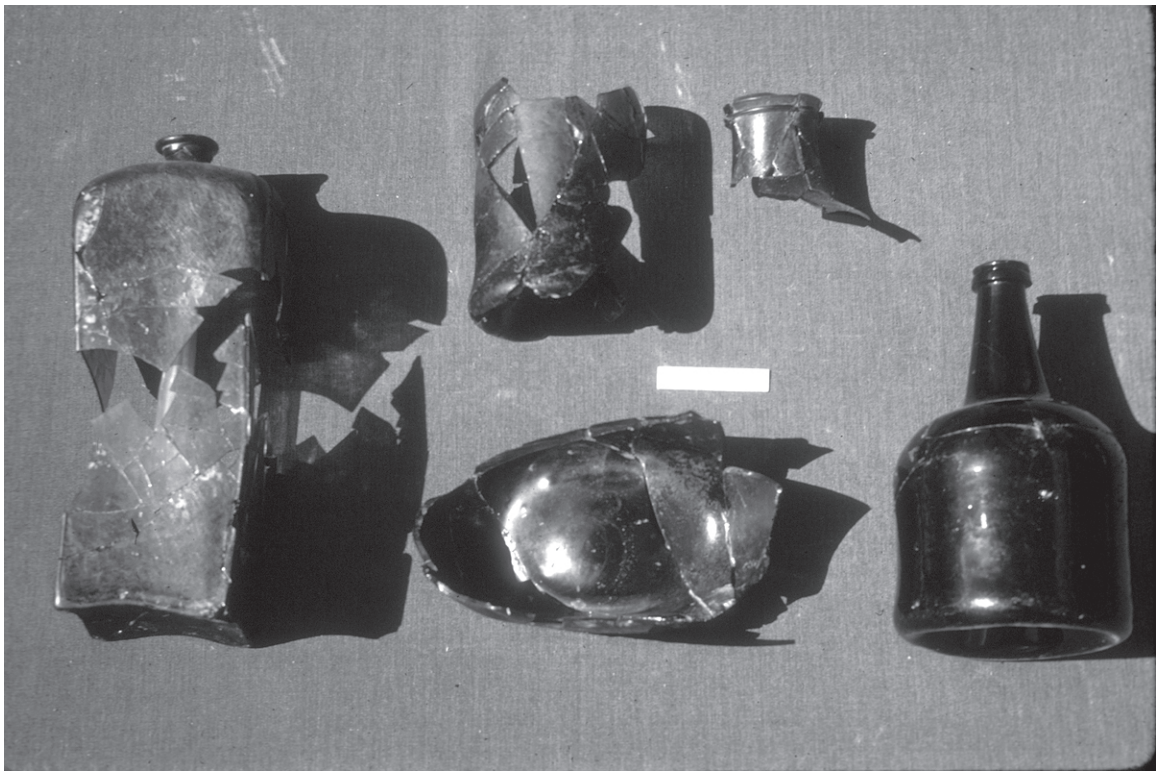

Figure 12.12. Bottles recovered in excavation of Fort Montgomery.

have quartered families or women in service.

Architecture

The relationships among social groups within the fort were reinforced and publicly displayed in architecture. Although general construction methods were similar, finer distinctions were made in order to reproduce and communicate the social structure in the built environment (Feister 1984; Fisher 1983). The Officers' Commissary and Barracks was adjacent to the Enlisted Men's' Barracks but they were oriented at right angles to each other. This provided the proximity necessary for access to the cellars of the Officers' Commissary where enlisted men worked for the officers. At the same time, the arrangement of these buildings provided social distance between these groups.

The Officers' Commissary and Barracks exhibited better and more elaborate construction techniques then the Enlisted Men's Barracks. In contrast to the Enlisted Men's Barracks, the Officers' Commissary and Barracks contained mortared and finished walls, dressed (mortared) fireplaces, brick aprons in front of the fireplaces, and the commissary in the cellar. The doors to the Officers' Barracks were on the south side of the building where the Enlisted Men's Barracks was not visible and on the northeast side almost adjacent to the Men's Barracks. These doors both separated and united the Officers and their men.

In contrast, the Enlisted Men's Barracks door was located on the west side of the building where their entrances and exits were visible to the Officers. The stone foundation of the Enlisted Men's Barracks was considerably inferior to that of the Officers in terms of both size and construction. The Men's Barracks lacked the brick fireplace aprons and dressed fireplaces that were present in the Officers' Barracks.

The officers' quarter identified in the Storehouse was markedly different from the adjacent quarter. The officers' interior space was plastered and painted red. It was floored with brick, at least partially, and was adjacent to the larger storeroom.

Cellars

The cellars beneath the barracks were used for storage and food preparation. General Wash-

ington directed the Commissioners in the Highlands to complete the barracks in Fort Montgomery in June of 1776 "…especially as the cellars under them will make excellent magazines for salt provisions" (Smith 2002). Archaeologists found iron barrel band fragments in the cellar, along with large numbers of yellowware, a lead glazed buff earthenware with slip combed and dotted decoration. Whether the yellowware contained provisions or were the actual stored items is unknown.

Both the Main Barracks and the EMB had exterior doorways that allowed direct access to the cellars. If stores were kept in these cellars, there were probably guards stationed outside each of these doors. Some of the trash in these doorways may be the result of the guards' meals.

The large fireplaces in the cellar of the EMB indicate these were areas of food preparation, as well as storage. The cellar door in the west wall at the north end and the proximity of this to the OCB suggests the officers' food may have been prepared in the cellar of the EMB.

The storage of goods in the cellar required security measures that could have been locked doors or constant guards. The presence of military stores and medicine in a specific Storehouse building with officers' quarters present to control access to them provides some framework for understanding the use of the cellars. Another building was described as a Provision Storehouse on the Palmer Map No.2 of June 1776. The barracks cellars may have contained items from those larger stores and assigned to the specific barracks or contained other items not stored in either of the larger storehouses.

Ceramics

Large numbers of eighteenth century ceramics were recovered from the excavations at Fort Montgomery. Ceramics are important evidence of the everyday life of the occupants that appear to be very sensitive to manners of eating and drinking. The residents employed ceramics in particular ways that expressed their cultural ideas of the natural and social world surrounding food. Ceramic types indicate particular ways of food preparation, consumption, and disposal. Since ceramic use is embedded in social activities, ceramic types

Figure 12.13. Yellowware, lead glazed and slip decorated buff earthenware, vessels from Fort Montgomery.

Figure 12.14. Examples of knives and forks.

communicate social, economic, and even political messages.

The types of ceramics at each of the buildings and structures reveal specific activities that took place at each location and the social conditions of that use. In general, a large proportion of yellowware that consists of 8,032 sherds distinguishes the ceramic collection. This is the largest number of sherds of any particular type of all of the ceramic types present. These sherds represent hollowware vessels, in general, that are lead glazed, slipped, and usually decorated by combing and/or dotting techniques (Figure 12.13). These vessels were manufactured in England from the late seventeenth century throughout the eighteenth century. By the time of the American Revolution, yellowware was considered an older ceramic that reflected old-fashioned uses of ceramics. Yellowware was usually hollowware in form, primarily mugs, cups, porringers, and posset pots. They frequently had handles and sometimes more than one handle per vessel. There were some large platters and plates of this ware, but these were usually deeper plates that contained liquid based foods that were eaten with fingers or spoons.

The second largest ceramic type in this collection is creamware, which consists of 3,073 sherds. In contrast to the yellowware, creamware was the most recently manufactured type of refined ware available at the time of the Revolution. This modern ware represents a different use of ceramic from that of the earlier yellowware. Creamware was available in matched sets, frequently flatware that required dry food served in individual portions. This, in turn, required eating with knives and forks while sitting at a table (Figure 12.14). Some scholars have observed that the use of individual plates increased social distance while the use of shared trenchers and pots decreased it (Deetz 1977; Yentsch 1991).

The presence of these sherds in different proportions at each of the structures examined indicates the activities related to ceramic use that occurred there. The OCB and the Storehouse were the only buildings that contained more creamware than any other ceramic type (Figures 12.15, 12.16). Both of these buildings were the residences of officers who must have eaten in the modern style

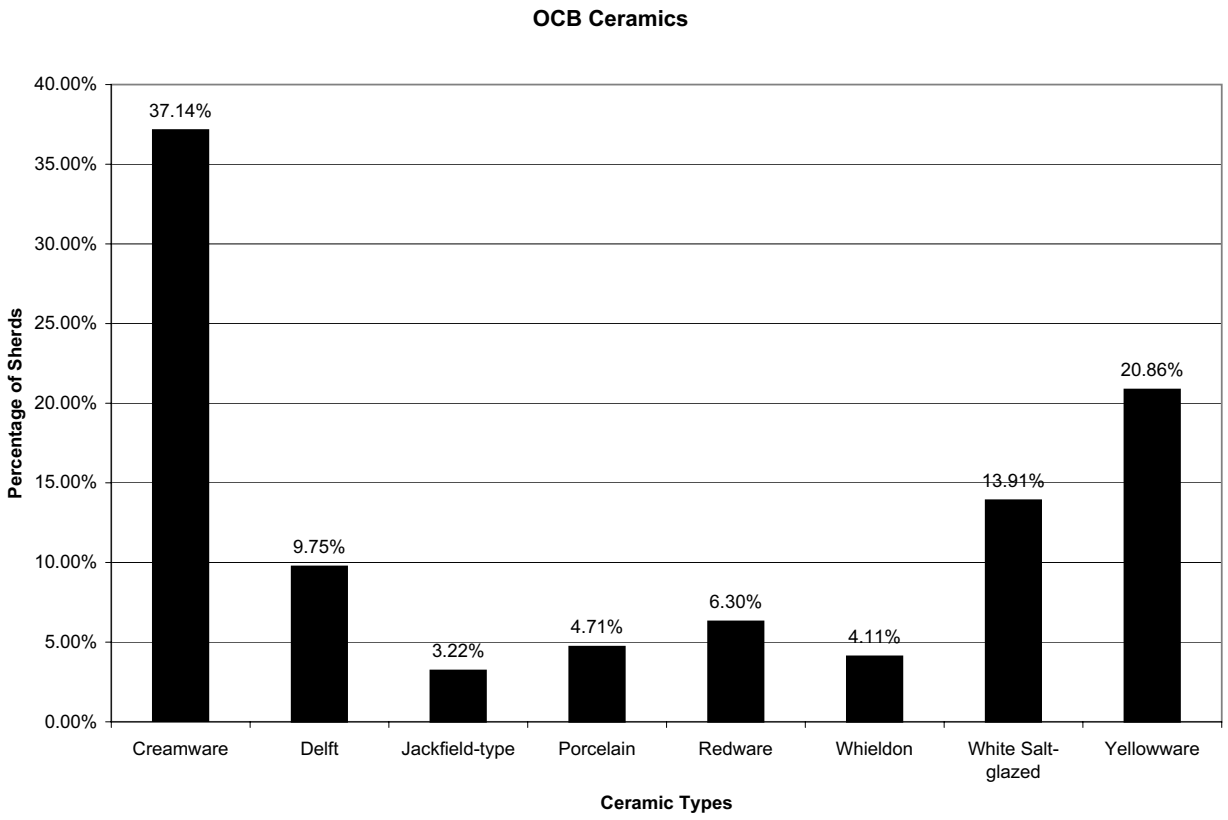

Figure 12.15. Bar chart of selected ceramics from OCB.

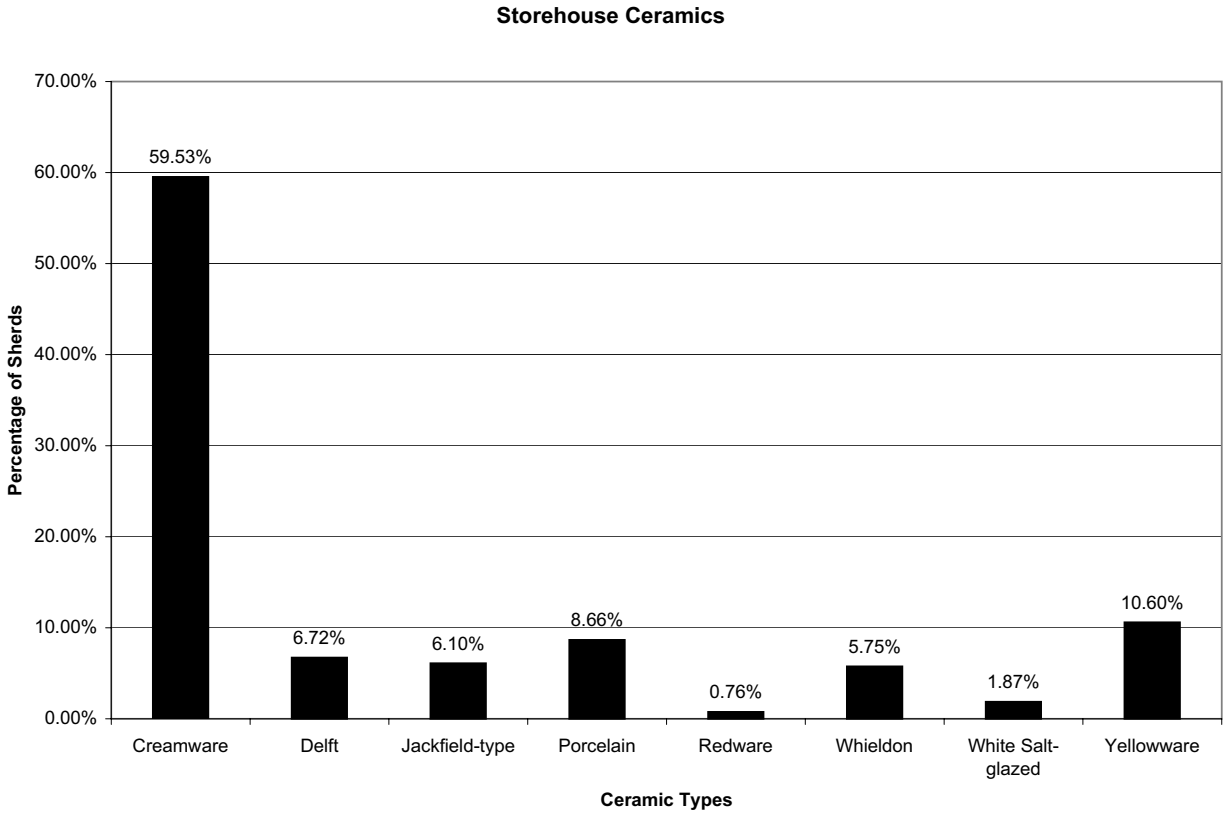

Figure 12.16. Bar chart of selected ceramics from Storehouse.

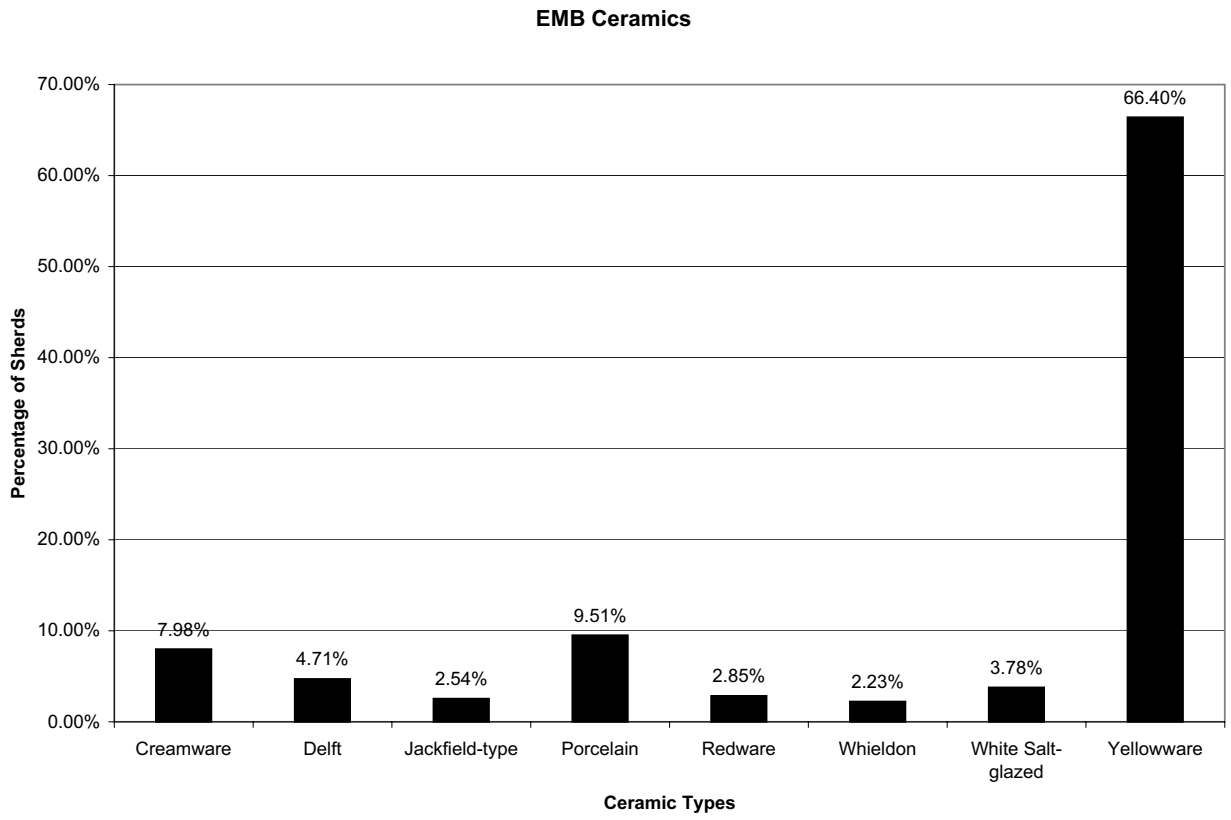

Figure 12.17. Bar chart of selected ceramics from EMB.

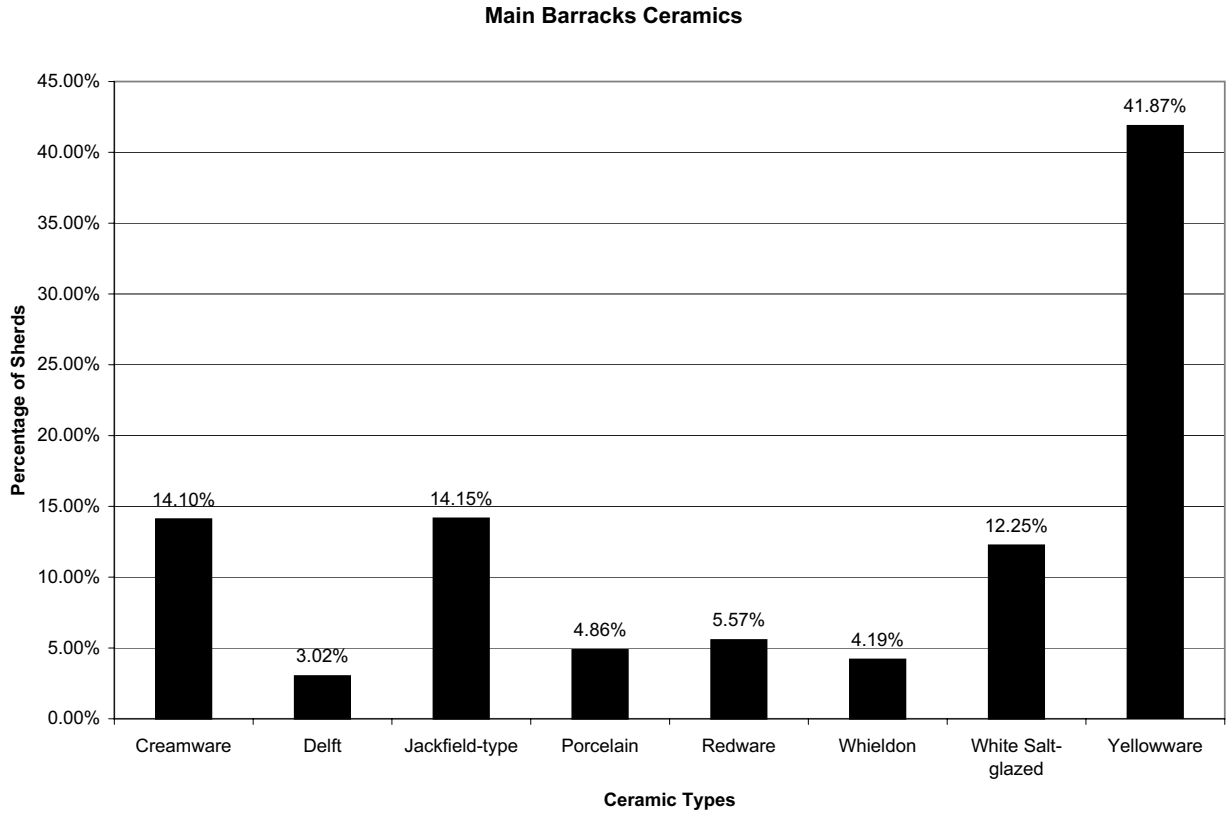

Figure 12.18. Bar chart of selected ceramics from Main Barracks.

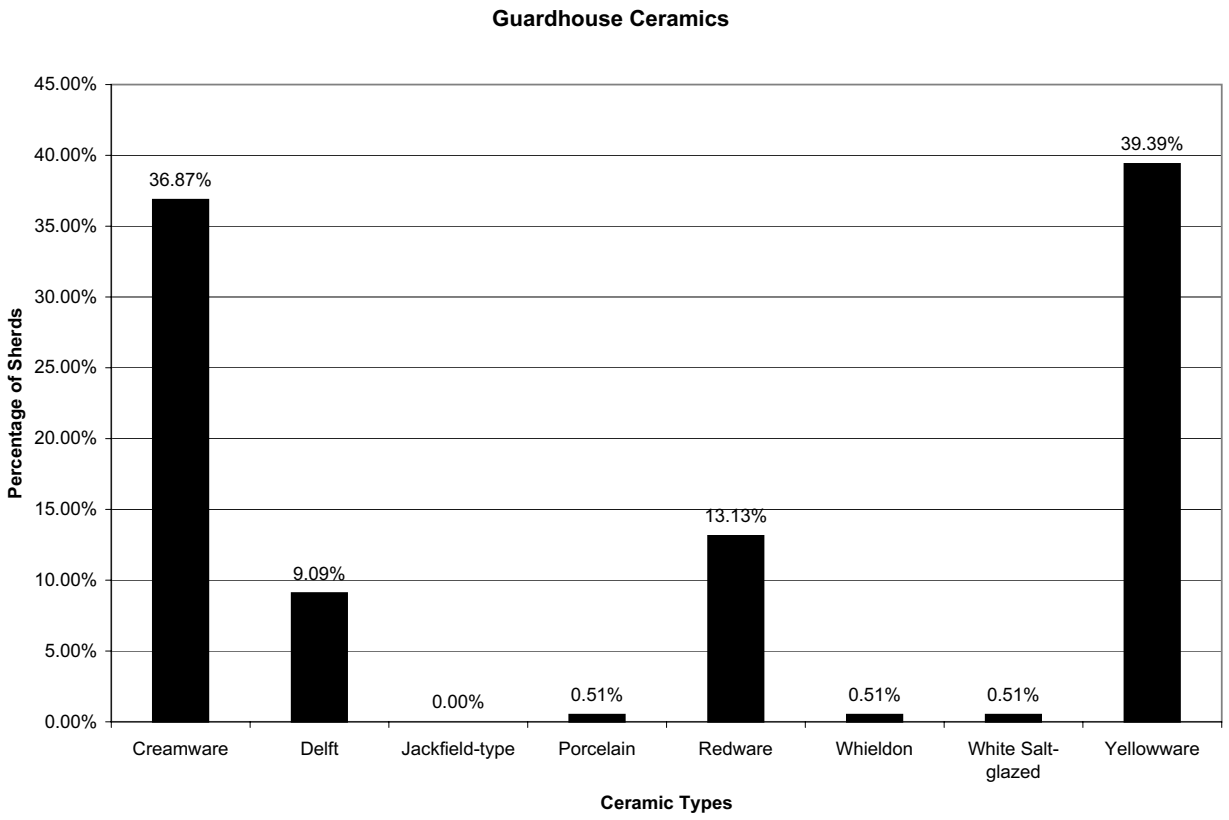

Figure 12.19. Bar chart of selected ceramics from Guardhouse.

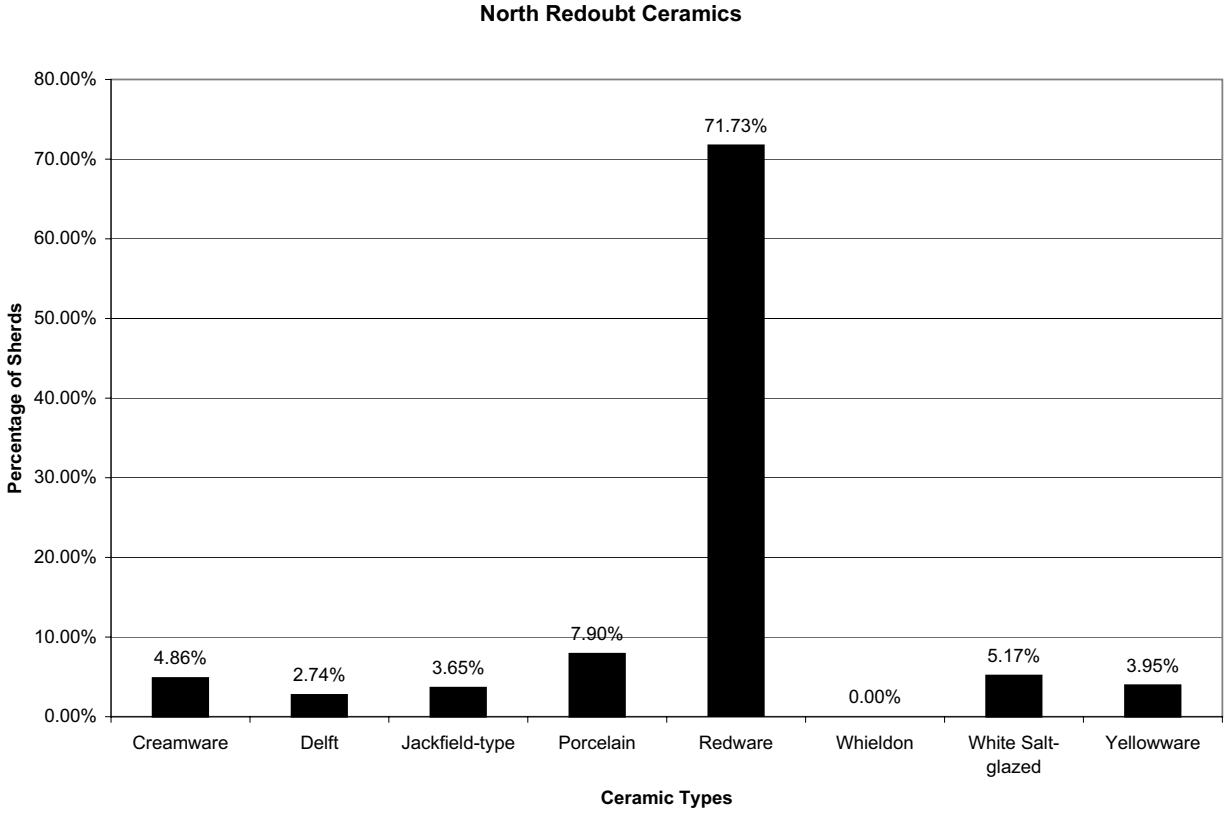

Figure 12.20. Bar chart of selected ceramics from North Redoubt.

with these fashionable wares. Archaeologists have observed the association between officer's quarters and creamware at other American sites of the Revolutionary War era (Howe 1996). In contrast, the EMB and the Main Barracks had many times more sherds of yellowware than creamware (Figures 12.17, 12.18). In both of these buildings, some residents ate in the new manner, but only on occasion. The presence of thousands of sherds of yellowware at these locations indicates the regular use of ceramics was in the traditional manner. The Guardhouse yielded the same number of creamware as yellowware sherds, possibly as a result of quartering the officer of the guard and prisoners (Figure 12.19). Both styles of ceramic use were present at the Guardhouse.

An unusual collection of ceramics was observed at the North Redoubt. There was little variation among the sherds and the collection was almost entirely redware, with at least one mug identified (Figure 12.20). The uniformity of the ceramics at this location suggests the same type of uniformity of supply that was observed in the lead shot at this location. Standardization was one of the goals of the American Army that was associated with the British Army.

In discussing the dual meaning of ceramics at domestic sites, Yentsch (1991) has classified ceramics in terms of their use in daily sustenance and social display. Ceramics used for everyday cooking in private spaces of houses were earth-toned in appearance while those vessels involved in ceremonial displays in public spheres were white-toned. In this approach, white-toned ceramics were associated with dominant individuals and groups, such as males, elite, and contests over prestige. Earth-toned vessels, in contrast, were associated with subordinate individuals and groups.

At Fort Montgomery the white-toned creamware and white salt-glazed stoneware are a greater proportion of the ceramic collection at the officers' quarters. The earth-toned yellowware and redware were in greatest proportion in the soldiers' barracks and their private, cellar spaces. In a previous study, the ceramic collections from eight military sites of the American Revolution were examined and found that they could not be used to evaluate the role of ceramics in the maintenance of the social hierarchy (Fisher 1987:55). In contrast, the collection from Fort Montgomery could be associated with structures of known function and they reflect rank and status very clearly. Both the size of the ceramic collection and the short occupation span of Fort Montgomery have permitted a different, and more accurate, view of military life during this period.

The large quantity of yellowware in the Fort Montgomery collection is similar to some domestic sites of the period but is not typical of Revolutionary War era sites in the northeast. For example, archaeological excavations at Raritan Landing, New Jersey yielded a similar ceramic collection. The residents had

> *...the means to purchase the fine imported wares that had become widely available by the third quarter of the eighteenth century...[yet] the creamware and white saltglazed tablewares seen elsewhere by this period were almost entirely absent. In their place was an unusually large quantity of English slip-decorated buff earthenware [yellowware] (Yamin 1989:51).*

The residents of Raritan Landing selected different ceramics than their social counterparts in New York City, although the same items were available to both. This emphasis on artifacts that display differences was a material expression of social cohesion within Raritan Landing and separated this community from New York City.

A similar argument may be made for the presence of these wares at Fort Montgomery. The yellowware at this site could be viewed as the American rejection of the fashionable British manufactured wares and the monarchy that produced them. This does not account, however, for the variation within the site in the use of these wares. The American officers, at least, did not reject the imported creamware and white salt-glazed stoneware. These vessels maintained social boundaries within the fort by separating officers and their patterns of ceramic use from the soldiers.

The large quantity of yellowware at Fort Montgomery is in contrast to other Revolutionary

War military sites. For example, the 15 soldiers huts from 1776 excavated at Mount Independence yielded only 4 sherds of slipware (yellowware), 64 sherds of redware, 131 sherds of white salt-glazed stoneware, 230 of creamware, and 1285 sherds of delft (Howe 1996:10). In addition, creamware was found in association with the officers' quarters, similar to Fort Montgomery. Yellowware was absent from the collection of 101 sherds recovered from the General Hospital at Mount Independence and the collection of 281 sherds from the huts of Wayne's Brigade of Pennsylvania troops excavated at Valley Forge (Parrington, Schenck, and Thibault 1984:150; Starbuck 1999:152).

In a comparison of the ceramic collections of seven military sites of the American Revolution, yellowware consisted of only 2%, 3%, 4%, and 8% of the site's ceramic collection (Fisher 1987:55). The largest percentage of yellowware in a collection was from the Fishkill Supply Depot that consisted of only 130 sherds. Two of the sites, Wayne's Brigade and the Virginia Brigade area from Valley Forge, did not contain any yellowware at all.

The archaeological collection from Fort Stanwix contains 80 vessels of lead glazed, slipped buff earthenware similar to the yellowware vessels from Fort Montgomery (Hanson and Hsu 1975:126). The occupation of Fort Stanwix during both the French and Indian War and the Revolutionary War prevented the archaeologists from determining whether these items were associated with the occupation during the Revolutionary War. Other military sites with large ceramic collections, such as Fort Edward and Crown Point, had much longer occupation periods than Fort Montgomery.

Other inferences concerning the activities of the soldiers within the buildings include the drinking of tea in each of the locations studied. The ceramic type referred to as Jackfield-type was almost exclusively teapots and sherds of this type were recovered from every location except the Guardhouse. The use of tea by the soldiers, however, does not mean that they engaged in the specific tea ceremony, which required a variety of vessels in addition to teapots.

Delft sherds were found in relatively small numbers at Fort Montgomery. Delft was in the greatest proportion at the OCB. Additional research should be conducted to determine if these sherds represent punch bowls, which were frequently a delft vessel form at military sites of the late eighteenth century. Punch drinking was a social activity among officers that served to unite them and distinguish them from the soldiers.

The particular types of ceramics in use at the fort required specific utensils. Forks, for example, were not much use in eating liquid based, stew-like meals from hollowwares. They were useful, however, for eating dry foods off flat plates and holding large portions of meat that had to be cut with a knife (Figure 12.21). The large quantity of hollowware vessels of yellowware at Fort Montgomery required a similar quantity of spoons. Without the required spoons, food would have been eaten with fingers. The spoons in the collection that have been marked with owner's initials or symbols may relate to the importance of these utensils (Figure 12.22).

Animals

Varieties of domestic and wild animals were an important part of daily life at this fort. Animal bones recovered in excavations include food remains, rodents, pets, and raw materials. For example, the cow horn cores found at the Guardhouse and in the trash area at the Main Barracks are the waste products from working horn. Evidence of domestic dogs was found at the Main Barracks and the OCB. Bones recovered from the OCB represented both the brown rat and wood rat. Although these rodents and dogs were present at the fort, the food bones discarded in the trash areas were not chewed (Horton, this volume). The trash areas must have been covered daily with soil.

The food animal bones in the trash of the fort included cows, pigs, sheep, rabbit, chicken, turkey, duck, and passenger pigeon (Appendix VI). Turtle shell, fish bones, and a Great Blue Heron were represented in this collection as well. The absence of deer in the Fort Montgomery collection contrasts with the 1778-79 Camp Reading in Connecticut and the 1776 cantonment at Mount

Figure 12.21. Whieldonware plate.

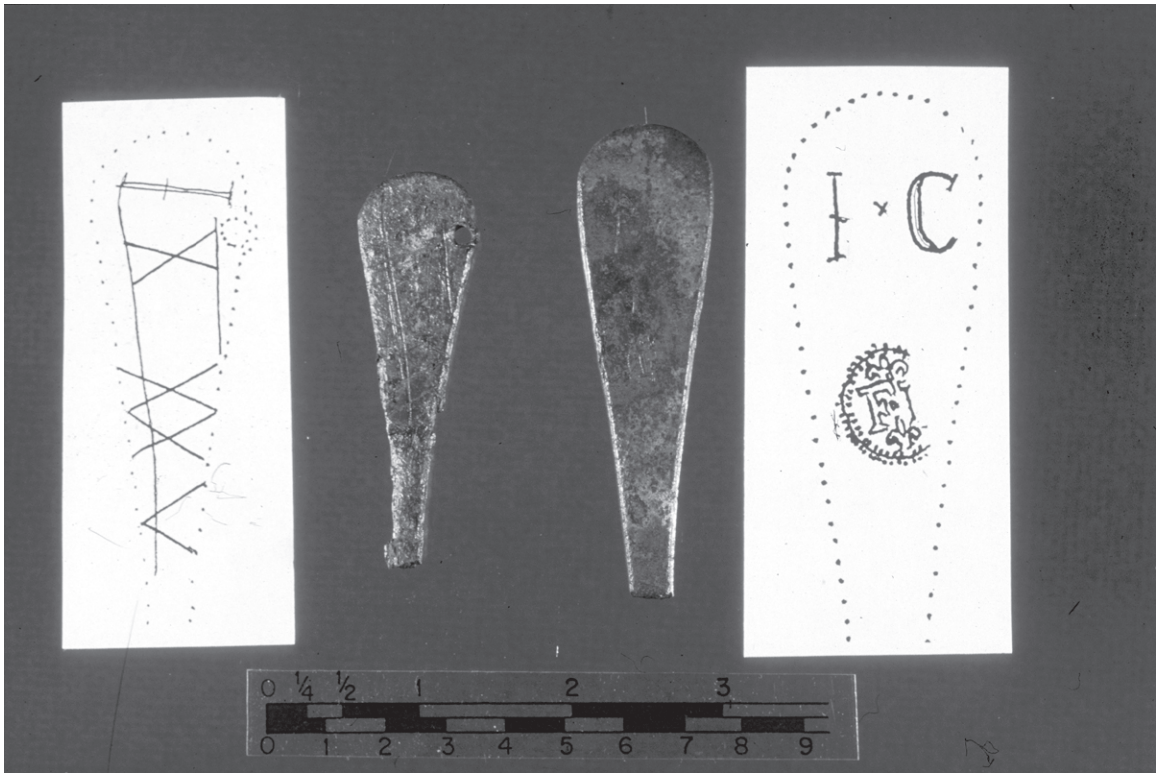

Figure 12.22. Marked spoons from Fort Montgomery with sketch of inscribed designs by J. McEvoy, Office of Parks, Recreation, and Historic Preservation.

Independence, despite orders against hunting (Howe 1996;Poirier 1976). Archaeologists recovered horse remains at Mount Independence that indicated they were part of the soldiers' diet there. Howe (1996:55) has noted that the sheep remains at Mount Independence represent more than food, since sheep were "used by the soldiers to 'make broth for the sick' by order of the Commanding Officer."

At Valley Forge, the majority of the faunal collection was cow, with sheep and pig present in smaller numbers (Parrington, Schenck, and Thibault 1984). Deer, goat, snapping turtle, rabbit, squirrel, and unidentified fish and birds were other animals in the faunal collection. The investigators reported the "nearly complete destruction of the bone, presumably by cracking, chopping and splitting to extract the marrow…[The animals] had been dismembered with an axe and cleaver…" (Parrington, Schenck, and Thibault 1984:52). In addition, poor quality cuts of beef were distributed among the soldiers, such as the lower leg and feet. These same parts were discovered in a butcher's disposal pit at Mount Independence, where they were discarded because they were of no value to the soldiers' diet.

The trash area behind the Main Barracks contained a large number of bones. These bones were butchered within the fort, evident in the representation of parts of the entire animal and marks from chopping. Two of the bones recovered were sawed. Within the OCB, fowl appear to have been an important part of the diet, at least in terms of variety. The bird remains were found together indicating that they were prepared whole, eaten and then discarded as a complete bird. In contrast, the cow parts were not discovered together, but were widely dispersed.

The discovery of a butcher's disposal pit has been reported from Mount Independence that contained 725 cow bones (Howe 1991:17-19). A minimum of 17 cows was represented in this pit. The bones were all from the lower leg (metapodials), where little meat was present. These same parts were distributed to soldiers at Valley Forge, indicating they were necessary due to the lack of food there.

Archaeological excavations did not reveal any specific locations where animals were kept or the methods of maintaining live animals at the fort. The larger animals may have been maintained outside the fort and brought inside when needed. The presence of single pigs' teeth at archaeological sites is usually interpreted as the result of free-ranging pigs, the typical method of raising these animals during the Revolution. Chickens and turkeys may have been allowed to wander within the fort as long as they could be protected from the dogs.

Chapter 13: Faunal Analysis for the Main Barracks, Officer's Commissary, and Guardhouse

by Beth Horton

In less than two years, between 1776 and 1777, Fort Montgomery was built along the Hudson River in New York. It was occupied by the Continental Army and subsequently demolished by the British Regular Army (Lenik *et al*. 1999). Taphonomic evidence indicates specimens in the faunal collection underwent similar post depositional processes. The relative lack of extensive rodent gnawing combined with the absence of weathering evidence on the faunal materials indicates that the bones were not exposed to climatic elements over long periods. The assemblage is provisionally representative of the dietary behavior of the occupants of the fort over a narrow interval of time during the Revolutionary War.

This analysis focused upon bone materials recovered from three buildings at Fort Montgomery: the Main Barracks, the Officer's Commissary, and the Guardhouse. These were selected for the sheer quantity of remains recovered as well as the quality of the faunal preservation. Research was conducted to discern human consumption patterns using the faunal remains recovered from the three buildings.

Methodology

Three areas were examined in this study. First, tallies were completed for the number of identified specimens, minimum number of individuals, and minimum number of wholesale butchery cuts. Mortality patterns for the taxonomic order Artiodactyla (bovids) were generated. Finally, calculations of available amounts of usable meat and the relative percentages per species were generated. Viewed together, these highlighted the relative importance of species consumed.

Bone fragments were identified to the finest taxonomic levels possible through methods detailed by Schmid (1972), Hillson (1996), Gilbert (1993), Chamberlain (1943) and Harvery, Kaiser and Rosenberg (1968). Teeth were identified through the methods discussed in Hillson (1996), Andrews (1982), and Grant (1982). Cattle horn cores were aged according to stages delineated by Armitage (1982). Detailed information recorded included the anatomical element and orientation, taxonomic identification and size assignment, stage of epiphyseal fusion, and taphonomic indicators which included fragmentation patterns, burning patterns, butchery processes, weathering marks, and evidence of mammalian gnawing and digestion processes. Non-diagnostic faunal remains were identified and assigned to a size category (e.g. large, medium, small). Specimens that could not be identified to any skeletal element were recorded as "no size." Skeletal elements identified to *Ovis aries* (sheep) / *Capra hirca* (goat) after further taxonomic refinement were identified as sheep (Boessneck 1969; Payne 1969, 1985; Prummel and Frisch 1986).

Eighty to ninety-nine percent of the faunal collections from each building were randomly sampled. Materials on public display were not included in the sampling procedures. Smaller elements, such as teeth, fish, and small mammal remains, were included to attempt a representative sample of the faunal diversity recovered at Fort Montgomery. A total of 6,031 faunal specimens were examined in this study, 4,245 of which were unidentifiable beyond taxonomic class (i.e. mammal, avian, reptile, fish, etc.). The mammalian fragmentation patterns of the faunal remains analyzed fell into two categories of either large easily identifiable portions of skeletal elements or very small pieces that appear crushed. Fragments that formed one element were listed under a single catalogue number. Shellfish were not included in this analysis.

Taxonomic Identifications

Faunal specimens were assigned to twenty-four taxonomic categories and are listed below in Table 13.1. Specimens assigned to size categories were primarily comprised of ribs, vertebrae, and longbone skeletal elements. A minimum of 76 individuals was recovered at Fort Montgomery, distributed among fourteen species of animals, eleven of which were probably eaten. Of the eleven, seven were wild and four were domesticated (cattle, pig, sheep, and chicken) yielding a total of 1,934.875 pounds of usable meat. Six individuals representing three commensal species were identified (dog, wood rat, and rat).

No evidence of butchery was detected on the Great Blue Heron tibiotarsus. Herein this species is treated as a food stuff, yet it is unclear at this time whether the Great Blue Heron remains were collected as curiosities, for secondary uses (its plumage, the raw bone material), or whether the animal died from natural causes at Fort Montgomery. Figures 13.1 and 13.2 depict the portions of skeletal elements identified to species at the Main Barracks, Officer's Commissary, and Guardhouse for the artiodactyls (cattle, pig, and sheep) and three avian species (turkey, chicken, and passenger pigeon). Ribs and vertebrae are not depicted as they were identified to size only. No significant differences in utilized skeletal elements could be discerned for these species between the three buildings.

The bulk of the Fort Montgomery assemblage was identified as mammalian, comprising 93% of the identified fragments (N = 5,621) and 63% of the minimum number of individuals (N = 48). Mammals formed the largest portion of the Fort Montgomery diet as a whole with 97% of the pounds of usable meat available (N = 1,883). Six percent of the identified fragments consisted of avian materials (N = 379) yet accounted for 28% of the minimum number of species (N = 21), and 2.4% of the pounds of usable meat available (N = 45.875). Although avian remains account for a significantly small portion of the diet, they demonstrate the largest amount of species diversity. Reptiles and fish contributed 0.5% of the identified fragments (N = 31), 9% of the minimum number of individuals (N = 7), and 0.3% of the pounds of usable meat available. Reptiles and fish appear incidental to the Fort Montgomery collection, but may be underrepresented due to preservation or deposition biases since the fort was located along the Hudson River, a ready source for these species. The discrepancy between the number of *artidactyl* cranial and foot fragments when compared with the minimum number of individuals, suggests that neither the Main Barracks, the Officer's Commissary, nor the Guardhouse were habitual areas of primary butchering procedures.

Domestic species account for 99% of the usable meat available at Fort Montgomery (N = 1,914). The remaining meat was provided by seven wild species encompassing only 1% of the meat diet (N = 20.875). However, this amount is underrepresented as no data were generated for the amount of usable meat for Great Blue Heron and *Chelonia* spp. (turtle). The four domestic species, cattle, pigs, sheep, and chicken were recovered from the three loci at Fort Montgomery. Of the wild species, only bony fishes were located at all three loci, the remaining six wild species were distributed amongst the Main Barracks, Officer's Commissary, and Guardhouse. The paucity of wild animals suggests that hunting activities were minimal and subsistence strategies at Fort Montgomery were almost entirely based on domestic stock. It is unclear at this time whether this trend reflects a depositional or preferential bias or the need for conservation of resources (gunpowder, shot, and labor).

Meat Sustenance at Fort Montgomery

Although the Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI) are both standard zooarchaeological quantification procedures, inherent to both are several statistical problems. The NISP is an index that emphasizes the importance of larger animals over smaller ones and the MNI index the reverse, stressing smaller animals over larger ones. For example, a cow has much larger bones with thicker cortex than a passenger pigeon, therefore having much higher depositional survival rates and more likely to be recovered during archaeological excavations.

Table 13.1. Taxonomic species identified at Fort Montgomery.

		Number of Identified Specimens (NISP)			Minimum Number of Individuals (MNI)		
Species	**Status***	**Main Barracks**	**Officer's Commissary**	**Guardhouse**	**Main Barracks**	**Officer's Commissary**	**Guardhouse**
Bos taurus (Domestic cattle)	D	170	11	12	7 (Humerus)	1	3 (Acetabulum) 3 (Incisor: I1, I2)
Sus Scrofa (Domestic pig)	D	360	33	33	5 (Femur) 19 (Premolar: P3)	3 (Molar: M2)	3 (Radius)
Ovis aries (Domestic sheep)	D	14	10	4	1	1	1
Canis familiaris. (Domestic dog)	C	1	7	0	1	1	0
Sylvilagus floridanus (Eastern Cottontail)	W	0	1	0	0	1	0
Neotoma floridana (Wood Rat)	C	0	2	0	0	1	0
Rattus spp. (Rat)	C	0	1	0	1**	3 (Scapula)**	1**
Large Mammalian size (Horse, Cattle)		95	56	131			
Medium Mammalian Size (Pig, Sheep, Deer, Goat)		123	34	146			
Small Mammalian Size (Dog, Beaver, Rabbit)		3	5	8			
Micromammalian size (Rat, Mouse)		1	4	3			
Mammalian no size		1489	226	2638			
Meleagris gallopavo (Turkey)	W	0	25	0	0	1	0
Gallus gallus (Domestic chicken)	D	8	116	26	2 (Corocoid)	7 (Femur)	2 (Tarsometarsus)
Anser spp . (Duck)	W	2	0	0	1	0	0
Ardea herodias (Great Blue Heron)	W	0	0	1	0	0	1
Ectopistes migratorius (Passenger Pigeon)	W	10	30	0	2 (Corocoid)	5 (Corocoid)	0
Large Avian size (Turkey)		0	11	0			
Medium Avian size (Chicken, Pheasant)		4	35	7			
Small Avian size (Passenger Pigeon, Crow)		0	7	0			
Avian no size		0	63	34			
Chelonia spp. (Turtle)	W	0	0	12	0	0	1
Class Osteichthyes (Bony fishes)	W	5	12	2	1	4 (Preoperculum)	1
Total		2285	689	3057	35	28	13

* Status: C = Commensal, D = Domestic, W = Wild.

** Includes micromammalian size.

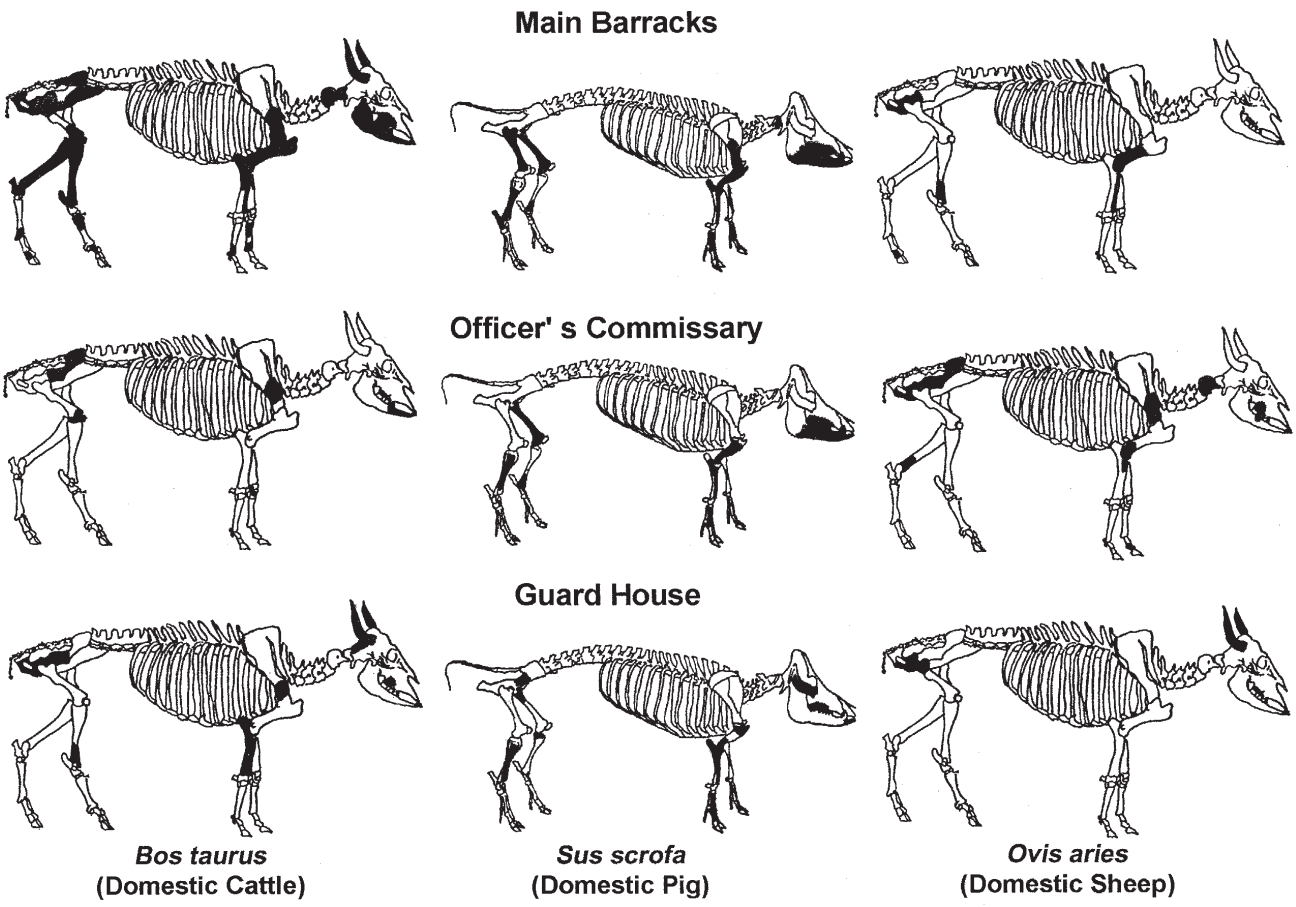

Figure 13.1. Artiodactyla skeletal elements present at Fort Montgomery. (Ribs and vertebrae other than axis and atlas not depicted).

Within the Officer's Commissary, at least five passenger pigeons and one cow were recovered. It is unlikely that the pigeon contributes five times as much to the inhabitants' diet as indicated by the MNI index. In addition, the MNI ignores the possibility that the entire animal may not be represented at one building within Fort Montgomery, as is often the case in historical contexts.

Species consumed for subsistence are similar across Fort Montgomery with the exception of occasional wild species. In order to alleviate some of these difficulties inherent with NISP and MNI indices a count of the Minimum Number of Butchery Cuts (MNBC) was calculated since the MNBC provides a more accurate representation of what was utilized rather than what was available for use (Lyman 1987). For cattle, pigs and sheep MNBC amounts were based on larger wholesale portions and are given in Table 13.2. Only skeletal elements that could be directly linked to a specific

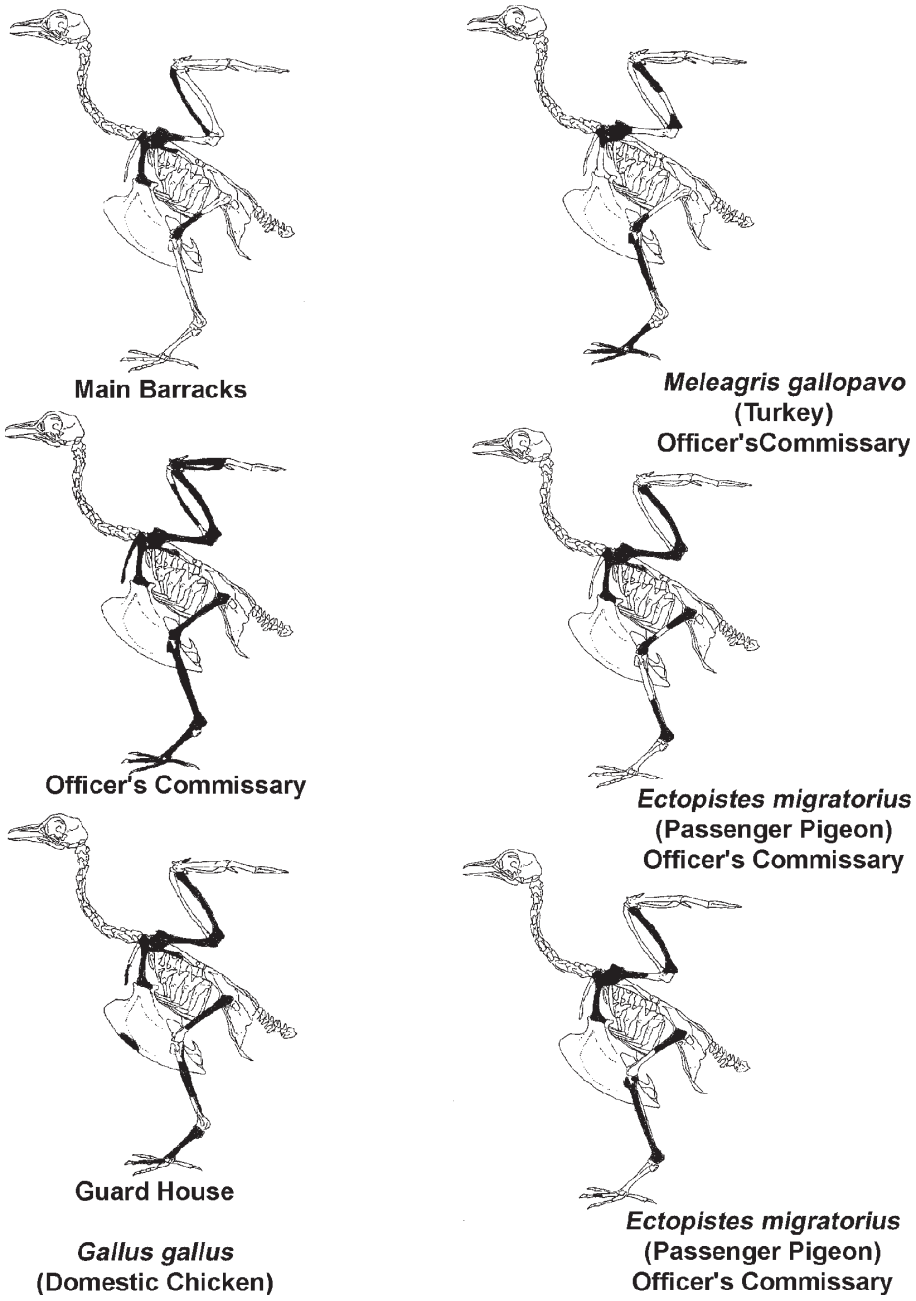

Figure 13.2. Avian skeletal elements present at Fort Montgomery. (Ribs and vertebrae other than axis and atlas not depicted).

Table 13.2. Artiodactyla *Minimum Number of Butchery Cuts (MNBC) identified at Fort Montgomery.*

MNBC: Wholesale Portions	*Bos taurus* (Domestic Cattle)			*Sus scrofa* (Domestic Pig)			*Ovis aries* (Domestic Sheep)		
	Main Barracks	Officer's Commissary	Guardhouse	Main Barracks	Officer's Commissary	Guardhouse	Main Barracks	Officer's Commissary	Guardhouse
Cranial / Cheek *	3	1	1	19	3	1	2	1	1
Fore limb	10 (3L 7R)	1	3 (1L 2R)	6 (3L 3R)	2 (1L 1R)	4 (2L 2R)	1	2 (1L 1R)	
Ribs/Loin	1	1	1	1	1	1	Combined with *Sus scrofa* totals.		
Hind limb	7 (4L 3R)	2 (1L 1R)	4 (1L 3R)	7 (5 L 2R)	2 (1L 1R)	3 (1L 2R)	2 (1L 1R)	2 (1L 1R)	1
Feet	13 (11 Hind)	0	1	5 (1 L 4R)	2 (1L 1R)	2 (1L 1R)	1	1	
Tail	0	1	1	0	0	1			

* Based on dentition.

cut of meat were included in the analysis. MNBC data for animals that are traditionally obtained as whole entities (fowl, reptile, and fish) were based upon the MNI index. Portions of the inhabitants' diet at the fort may have comprised canned, pickled, or salted or otherwise preserved meat, resulting in either meats with no bone remains or remains that disintegrate rapidly. If salting, or 'corning' of meat processes were undertaken at Fort Montgomery it is most likely they were not conducted at the Main Barracks, Officer's Commissary, or Guardhouse as no costal cartilage (located by the sternum) was recovered. These meat preservation processes may explain differences in tallies of the MNI for pigs. When based on the femur, five individuals were identified, but the number rose to nineteen when dentition was analyzed. The amount of meat selected for salting and/or storing at the fort cannot be determined.

Weights were assigned to the cuts identified at Fort Montgomery using Barber (1976), Bowen (1975), Guilday (1970), Lyman (1987), Webster and Parkes (1845), as presented in Table 13.3 and Figure 13.3. The eleven subsistence species identified at Fort Montgomery yielded a total of 1934.875 pounds of usable meat available to the soldiers.

At both the Main Barracks and the Guardhouse cattle provided between 82 and 85% of the diet. The Officer's Commissary cattle, however, comprised only 64% of the usable meat. Pork was utilized 12 to 15% in the diet at all three buildings. A greater proportion of sheep were consumed at the Officer's Commissary (10%) than at either the Main Barracks or the Guardhouse (~2%). More than five times as much chicken was eaten at the Officer's Commissary, and at least twice as many wild species were consumed at the Officer's Commissary (4.4%) than at the Main Barracks (~0.3%) and the Guardhouse (2.2%). Although cattle provided the bulk of the diet at the three loci at Fort Montgomery, inhabitants of the Officer's Commissary had access to wild species for variety in meat consumption.

Artiodactyla Mortality Patterns (Cattle, Pigs, Sheep)

The ages of the animals at slaughter were calculated for cattle, pigs and sheep based upon the epiphyseal fusion rates of diagnostic skeletal ele-

Table 13.3. Pounds of usable meat by species identified at Fort Montgomery.

Species	Main Barracks		Officer's Commissary		Guardhouse		Total	
	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%
Bos taurus (Cattle)	925	85	215	64	415	82	1555	80
Sus scrofa (Pig)	132	12	51	15	77	15	260	13
Ovis aries (Sheep)	25	2.3	32	10	9	2	66	3
Sylvilagus floridanus (Eastern Cottontail)			2	0.6			2	0.1
Meleagris gallopavo (Turkey)			9	3			9	0.5
Gallus gallus (Chicken)	6	0.6	21	6.3	6	1.2	33	2
Anser spp . (Duck)	3	0.3					3	0.2
Ardea herodias (Great Blue Heron)*					*	*	*	*
Ectopistes migratorius (Passenger Pigeon)	0.25	>0.001	0.625	0.2			0.875	>0.001
Chelonia spp . (Turtle)					*	*	*	*
Class Osteichthyes (Bony fishes)	1	>0.001	4	1.2	1	2	6	0.3
Total	1092.25	100.2	334.625	100.3	508	102.2	1934.875	99.1

* Cannot be determined at this time.

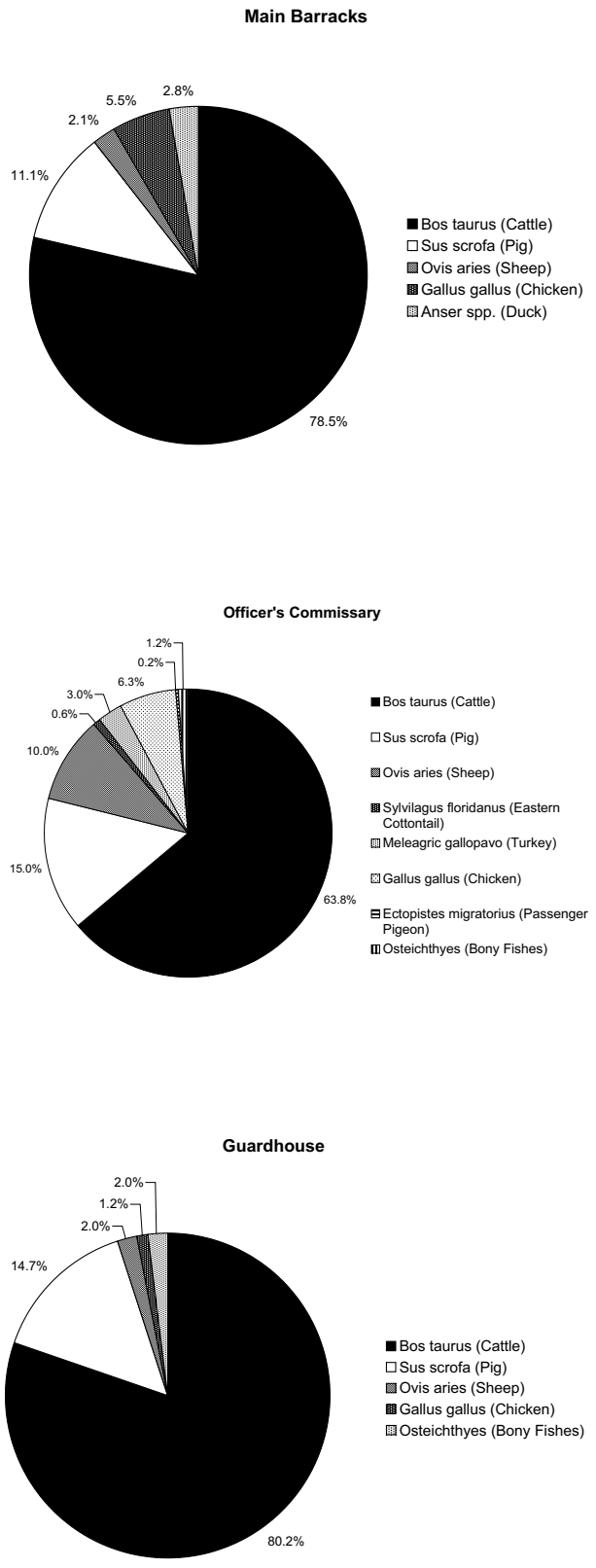

Figure 13.3. Distribution of butchery cuts by pounds of usable meat at Fort Montgomery.

ments (Silver 1969). When animals are younger, their epiphyses (articulating ends of bones) are not fused to the corresponding diaphyses (bone shaft). As mammals mature, these bone portions join in a regular temporal sequence. Higher rates of fused diagnostic epiphyses are equated with more mature animals. Given the narrow occupation time at Fort Montgomery epiphyseal fusion data gathered from the three buildings were combined in order to generate a broader view of bovid mortality patterns (see Figure 13.4). The percentage of fused skeletal elements represents the percentage of animals that attained that age stage before death. Indeterminate fusion rates represent those elements that yielded no fusion data, which may increase the percentage of the herd population that survived certain age stages. Unfortunately, influences on the fusion data such as nutrition rates or maturing rates of specific sub-species are not known and may slightly affect the results. The age stages presented for these mammals are not absolute, but are to be utilized as indicators of the mortality patterns of the herds from which they were culled.

The cattle at Fort Montgomery are primarily from an adult population, with over 75% of animals older than one year when they died. Half of the cattle survived up to three years, with 21% surviving past four years. The large proportion of animals reaching adulthood may be indicative of either exportation of juveniles, milking, or importation of adult animals to Fort Montgomery, the latter being the most likely. Given the cattle population structure, the most probable scenario is that a small number of cows were kept for milking while the majority of animals were slaughtered for food production. Thirty-five fragments of cattle horn cores were assigned to age stages based on Armitage (1982). No horn cores were recovered from the Officer's Commissary. At the Main Barracks, 29 out of 31 fragments were indicative of younger juvenile animals while the remaining fragments reflected adult animals. At the Guardhouse, three horn core fragments were from adult animals (one could not be aged). As the horn cores were highly fragmented, no more than one individual was assigned to an age stage. However, the horn cores reflected an emphasis on adults (N = 4) over

juveniles (N = 2) supporting the mortality patterns demonstrated in the fusion data.

The majority of pigs lived to adulthood, approximately half as long as the cattle. Twenty-six percent of pigs did not survive beyond 12 months, while 64% were slaughtered before reaching 2 to 2.5 years. The data are insufficient to determine the number of animals that survived beyond three years. The high mortality rates of pigs killed between one and two years is indicative of meat production for consumption, either through importation or raising livestock on site.

One-eighth of the sheep were slaughtered as lambs. The data indicate that the rest of the sheep survived the first 1.5 to 2 years, with half slaughtered before they reached 2.5 to 3 years. The data is insufficient to determine the number of animals surviving beyond three years. The cull pattern for sheep shows little decline during the majority of the first four years rather than a quick drop-off after birth, indicating a meat rather than a milk economy for these bovids. In addition, wool production may have been a factor in allowing the sheep to reach adulthood before their utilization at Fort Montgomery.

Unlike fusion rates, Artiodactyla tooth eruption sequences and wear patterns give an indication of the age of adult mammals as well as juveniles at the time of death. As teeth wear with age patterns are produced on the occlusal (grinding) surface of mammalian dentition in graded sequences. No statistical comparisons were conducted, as the majority of the teeth were loose and not in situ, which would allow mandibular wear patterns to emerge (Grant 1982). However, some general observations of the teeth are noted here. Molars recovered through excavation indicate that cattle and sheep survived to adulthood due to extensive wearing on the occlusal surface. The presence of one sheep mandible with deciduous premolars (dp_3, dp_4) indicates that lambs were consumed at Fort Montgomery. The majority of teeth from the Main Barracks, Officer's Commissary, and Guardhouse were identified as pigs. Out of fifteen third mandibular molars (M_3), none demonstrated marks of wear. The wear patterns detected in the Artiodactlya support the mortality

Figure 13.4. Artiodactyla *mortality patterns at Fort Montgomery.*

patterns discerned in the fusion data.

The mortality patterns of the domestic stock indicate heavy reliance on adult animals for consumption by the inhabitants of Fort Montgomery. The range of skeletal elements identified, including feet and cranial fragments, suggests that the animals were brought into Fort Montgomery "on the hoof" for utilization. The short occupation period of Fort Montgomery (less than two years) in conjunction with the predominantly adult stock utilized, indicates that the majority of the cattle, pigs, and sheep were not raised to adulthood within the fort but were most likely procured from the surrounding countryside.

Taphonomic Influences

Weathering, scavenging, burning, and butchery marks are presented in Table 13.4. Weathering and gnawing patterns were examined to assess the integrity of the faunal assemblage. Burn marks and dismembering patterns were recorded to explore butchering practices of the Fort Montgomery inhabitants.

Out of 6031 bone fragments analyzed, less than 2% display evidence of weathering (N = 9). Less than 1% of the fragments demonstrated rodent gnaw marks of micromammalian size (0.3%, N = 19). Whether these represent opportunistic or selective rodent activities cannot be determined. No evidence of carnivore gnawing was detected. In addition, the proximal and distal ends of the metatarsals and tibias show no significant degrees of variation in survival rates, which is typical of assemblages with high carnivore interaction. Weathering processes and gnawing marks were limited to domesticate species at each building. Historic documentation indicates that General George Clinton declared that "[t]wo or more persons are to be appointed whose Duty it shall be to daily remove all Filth and Nastiness from about the Barracks and Garrisons" (Hastings 1899: 269). These duties may have included the burial of faunal refuse. The lack of evidence of post depositional destruction suggests that the assemblage is representative of the dietary behavior of the occupants.

Burn marks were assigned to one of four categories: partially burnt, burnt (blackened), half burnt and half calcined, and calcined (whitened). Thirty-six percent of the faunal specimens at Fort Montgomery displayed evidence of burning (N = 2,139). Of these, 8% was partially burnt (N = 167), 15% was burnt (N = 309), 6% was both burnt and calcined (N = 126), while the majority (72%) was calcined (N = 1,537). Of all the burned materials, only 4% could be identified to taxonomic class (mammal, avian, etc.; N = 75) and 0.3% to species (N = 8). Except two fish vertebrae recovered from the Officer's Commissary, all of the identified burned elements were derived from domestic species. The majority of burned materials consisted of small fragments without species specific morphological indicators.

Of the burned materials, 28% was recovered from the Main Barracks (N = 592), 4% from the Officer's Commissary (N = 87), and 68% from the Guardhouse (N = 1460). These figures represent 26% of all specimens recovered from the Main Barracks, 13% of materials from the Officer's Commissary, and nearly half (48%) of the fragments from the Guardhouse. This suggests that higher amounts of small portions of large animals may have been utilized at the Guardhouse than either the Main Barracks or the Officer's Commissary, or simply that greater amounts of bone came in direct contact with fire at the Guardhouse.

Three markers of butchering processes were recorded for Fort Montgomery; hand-sawed (none were machine sawed), cut marks, and chop/hack marks (including disarticulation). Seven percent of all faunal materials from Fort Montgomery demonstrated evidence of butchery (N = 426). Of these, over half (50.5%) was recovered from the Main Barracks (N = 215), 15% from the Officer's Commissary (N = 62), and 35% from the Guardhouse (N = 149). Four specimens displayed evidence of hand-sawing (0.9%), two from the Main Barracks and two from the Officer's Commissary. Chopping and hacking marks were discerned on 45% of the butchered material (N = 194); 21% from the Main Barracks, 8% from the Officer's Commissary, and 17% at the Guardhouse. Fifty-two percent of the faunal specimens contained cut marks (N = 228). Half of these was recovered from the

Table 13.4. Number of Individual Specimens with evidence of taphonomy.

Taphonomic Influence	Main Barracks	Officer's Commissary	Guardhouse
Partially burnt	32 (1.4%)	3 (0.44%)	132 (4.35%)
Burnt (blackened)	42 (1.84%)	6 (0.87%)	261 (8.54%)
1/2 Burnt & 1/2 Calcined	31 (1.36%)	1 (0.15%)	94 (3.08%)
Calcined (white)	487 (21.3%)	77 (11.18%)	973 (27.75%)
Hand-sawed	2 (0.09%)	2 (0.29%)	0
Chop marks (Dismemberment)	89 (3.9%)	32 (4.64%)	73 (2.08%)
Cut marks	124 (5.4%)	28 (4.06%)	76 (2.17%)
Weathered	7 (0.31%)	1 (0.15%)	1 (0.03%)
Gnawed (Rodent)	1 (0.04%)	3 (0.44%)	15 (0.43%)

Main Barracks, 12% from the Officer's Commissary, and the remaining third from the Guardhouse.

Chopping and/or cut marks were predominantly located at major muscle attachments and joint articulations. Of the Artiodactyla, cattle exhibit the greatest number of fragments with chopping and/or cut marks (N = 71), and of these 86% originated from deposits at the Main Barracks (N = 61). Sixty-five percent (N = 17) of the 19 pig and 40% of the sheep (N = 4) elements identified were recovered from the Main Barracks as well. The Officer's Commissary yielded 9% of the cattle (N = 6), 8% of the pigs (N = 2) and 50% of the sheep materials (N = 5) with chopping and/or cut marks. The remaining 6% of the cattle, 27% of the pig, and 10% of the sheep components were located within the Guardhouse deposits.

The greatest deposit of chopped and cut fragments was recovered at the Main Barracks. Combined with the location of butchery evidence and the higher frequency of cut marks, the data suggest that larger portions of meat were utilized at the Main Barracks than at either the Officer's Commissary or the Guardhouse. This may reflect cooking techniques adapted to sustain a greater number of soldiers lodged at the Main Barracks.

Summary

Results indicate that subsistence based on animal protein at Fort Montgomery was derived from a meat oriented economy primarily comprised of adult cattle, pigs, and sheep with juvenile domesticates and wild species supplementing the primary foodstuffs. Adult domestic stock was not raised within the fort, but procured outside the fort, most likely from the surrounding countryside. Although the use of bovids demonstrates a meat-oriented economy, these species can provide additional subsistence items not seen in the faunal remains. These include milk and cheese as well as raw materials (wool, leather, horn, and bone) in addition to the animals' labor capacity. Domestic species were most likely procured from local and/or regional sources. Diners at the Officer's Commissary consumed a wider variety of species than soldiers at either the Main Barracks or the Guardhouse. Larger portions of meat were likely utilized at the Main Barracks, which may reflect military cooking techniques for the larger population of soldiers housed at that location.

Chapter 14: Summary of the Study

by Charles L. Fisher

Archaeological excavations at Fort Montgomery produced a large collection of artifacts and associated records that included field notes, maps, and photographs. This collection was obtained from the excavation of entire buildings and features located within the fort to the east of the current alignment of Route 9W. These buildings and features consist of the Main Barracks, L-Shaped Barracks, Storehouse, North Redoubt, Grand Battery, Bakehouse, Guardhouse, Necessary, and Powder Magazine. Although the Bakehouse was located archaeologically, it was not completely excavated.

The main objective of this study was the archaeological description of the fort, the buildings, and the activities of the occupants. This archaeological information may be combined with historical research in order to provide a detailed account of the fort and the lives of the soldiers that is not available from either source alone. This research resulted in new interpretations of Fort Montgomery and the level of engineering, construction, and organization invested by the new republic here.

Archaeological excavations have provided the details of the fort's construction, which indicate it was planned and constructed to be a major, permanent fortification. This is evident especially in the section across the parapet of the North Redoubt, the construction details of the Grand Battery, and those of the Powder Magazine. The military stores were secured in the Storehouse that had foundation walls about three feet wide and the barracks cellars that had limited access. The buildings, except the Powder Magazine, Grand Battery, and Necessary, all evidenced living quarters. The specialization implied in the building names was not the exclusive use of these structures.

Discipline and order were maintained within the fort. The barracks were kept clean and trash removed to specific places where it was buried on a daily basis along with animal butchering waste. The Necessary, located in the center of the fort, was not used on a regular basis but apparently reserved for times the soldiers could not leave the fort.

The relationships among social groups within the fort were publicly displayed in architecture. For example, the Officers' Commissary and Barracks exhibited elaborated construction methods, including mortared and finished walls, dressed fireplaces, and brick hearths in front of the fireplaces that were absent from the Enlisted Men's Barracks. The officers' quarter in the Storehouse was both plastered and painted red.

The large ceramic collection indicates that food preparation and consumption varied among the social groups present at the fort. Creamware, for example, was associated with officers' quarters and represented meals of dry meat served on flatware and consumed with knives and forks. In contrast, the soldiers primary ceramics were hollowwares of slip decorated yellowware. These were used to hold liquid based foods that were consumed with the aid of spoons or with bare hands.

Other artifacts, such as the lead shot and buttons, reveal aspects of military life at the fort. The buttons indicate American and British Regiments that were likely to have been at the fort. These included the British 19th, 63rd, 57th, and the American 2nd, 7th, 8th, 12th, 14th, 16th, 18th, 21st, 24th regiments. Marked buttons with the "USA," "NY," and "7th Mass," along with buttons made in the French style provide the political affiliation of the soldiers as well. The lead shot sizes represent weapons present at various locations within the fort. The majority of the shot was for use with the common .75 inch diameter musket and the second

largest number of shot had diameters suitable for muskets with a .69 inch diameter. A smaller number of shot with diameters between .49 and .57 inch may have been used in rifles or pistols. This range of shot sizes points to an absence of a standard weapon within the fort. There was greater variation among the lead shot from the Officers' Barracks, in comparison to that from the soldiers' barracks. This resulted from the wide range of officers' weapons.

The large collection of material items from Fort Montgomery seems unusual in contrast to the small collections from numerous other Revolutionary War sites in the Hudson Valley. While this amount of material does not mean that shortages of critical items did not exist, it does indicate the military importance of the fort, where extensive supplies were present.

This study of the previous archaeology at Fort Montgomery was possible due to the careful excavation and curation of the collection. John H. Mead and his crews from Trailside Museum conducted systematic scientific excavations under pressure of artifact collectors and the planned fort reconstruction. Both the Trailside Museum and the New York Office of Parks, Recreation, and Historic Preservation have maintained the artifacts and their associated records. The preservation of this collection has provided the documentation necessary to this analysis.

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Appendix I: The Spatial Distribution Plots

by J. Scott Cardinal and Lihua Whelan

The spatial distributions of selected artifact types were plotted for six of the ten sites investigated at Fort Montgomery (the Military Dump and Round Hill Redoubt were excluded from this study). Distribution plots were generated using Geographic Information Systems (GIS) software linked to a relational database of proveniences and artifact inventories for all excavations of the site. The other structures were not plotted due to either limited surface area excavated or small number of artifacts found during excavation. In other words, spatial distributions of artifacts were plotted if it was felt that such graphic representation may likely illuminate possible patterns in the spatial clustering of artifacts within the area excavated (Table I.1). For the structures plotted, only catalog numbers that could be identified to specific, single excavation units are included in the spatial distribution plots (Table I.2). This excludes miscellaneous surface collections, wall scrapings, combined unit excavations (unless consistent through all stratigraphic levels), or other general provenience material. For each excavation unit, all stratigraphic levels were combined into the artifact totals. This was considered appropriate since there does not appear to be substantial stratigraphic differentiation of artifact material, and distribution plots were selected for primarily eighteenth-century artifact types thereby obviating the necessity of discriminating vertical provenience.

Distribution plots were created using ESRI ArcView® v3.2a, AutoCAD® 2000, and Microsoft Access97®. The catalog for the Fort Montgomery collection was entered into a database by archaeologists at the Bureau of Historic Sites, Office of Parks, Recreation and Historic Preservation. The proveniences of each catalog number were correlated to map excavation units and added into the database. The artifact inventory was then classified in order to facilitate analysis according to *Artifact Class, Artifact Type,* and *Artifact Subtype* based on the artifact descriptions provided. Queries were designed for each structure and artifact type of interpretive interest. These queries were passed directly from the database (MS Access) to the GIS software (ArcView), and plotted in the corresponding map locations.

Two types of distribution plots were generated: graduated color scale and dot pattern. Most of the graduated color scale plots represent artifact counts across the site area with each change in grouping based on natural breaks in the counts per unit. A second type of graduated color plot based on standard deviation rather than artifact count was used in some situations. Standard deviation scales were used where artifacts were distributed across the majority of the site area or where subtle variations in the concentrations of an artifact type may be more informative. In these cases, the color scale represents the number of standard deviations from the mean represented by the artifacts in an excavation unit. Standard deviations are calculated only from excavation units that contained artifacts (N=0 is indicated as "No Data"), and statistical data are included with these plots. The second type of distribution plot – dot pattern – was used in cases where the number of artifacts per unit was low or not widely distributed by area. Symbols on these plots represent a given number of items per symbol and placed randomly within the map squares. Note: *The location of these symbols does not represent point proveniences*! Symbols are placed *randomly* on the map indicating only the density of the artifact type within an excavation unit, not the specific location that an artifact was found.

Table I.1. Number of units excavated and artifacts found.

Structure	# of Units	# of Artifacts	Plotted
Guardhouse	87	6,782	Yes
Soldier's Necessary	18	934	No
North Redoubt	189	3,414	Yes
Main Barracks	227	20,737	Yes
Powder Magazine	40	540	No
Bake House	19	652	No
Grand Battery	108	1,199	No
Storehouse	111	10,758	Yes
Officer's Commissary	86	19,780	Yes
One-story Barracks	169	75,809	Yes

Table I.2. Catalog numbers excluded due to uncertain or overlapping proveniences.

Structure	Catalog #s	Catalog #s Excluded
Guardhouse	1-95	1-6, 21, 71, 93-95
North Redoubt	114-385, 391	220, 241, 275-277, 382-384
Main Barracks	392-654	454, 557, 559, 623-654
Storehouse	860-1182	1085-1086, 1174-1180, 1182
Officer's Commissary	1183-1457	1266.1, 1433-1447, 1451-1453
Enlisted Mens Barracks	1458-2030	1476-1477, 1483, 1497, 1503, 1552, 1558, 1563-1590, 1605, 1619, 1645-1646, 1716, 1759, 1772, 1956, 1983-2004, 2006-2027, 2029-2030

Appendix II: Summary Table of Artifacts from Fort Montgomery

Artifact Class	Artifact Type	Artifact Subtype	Total
Food/drink	Ceramic Sherds	Bennington Stoneware	3
		Buff Earthenware	119
		Creamware	3,038
		Delftware	822
		Ironstone	8,916
		Jackfield Redware	928
		Majolica (19th c.)	13
		Pearlware	222
		Porcelain	1,197
		Redware	850
		Stoneware	853
		Whieldonware	543
		White Salt-glazed Stoneware	1,120
		Whiteware	617
		Yellowware	7,601
		Other Ceramic Vessels	42
		Unidentified Ceramic Vessels	78
	Ceramic Sherds Total		26,962
	Glassware	Bottle Glass (wine)	11,060
		Bottle Glass (other)	887
		Case Glass	97
		Lead Glass (stem and tableware)	803
		Milkglass	215
		Other Glassware	21,581
	Glassware Total		34,643
	Refuse	Botanical	34
		Faunal	9,778
		Shell	1,837
	Refuse Total		11,649
	Other Food/drink	Can Openers	4
		Containers	53
		Cookware	33
		Cutlery (pewter)	41
		Cutlery (other)	86
		Hot Plate	4
		Kettle	205
		Other	75
		Stove Parts	45
		Tin Cups	6
	Other Food/drink Total		552
Food/drink Total			73,806
Personal	Clothing	Buckles	403
		Buttons (bone)	99

Artifact Class	Artifact Type	Artifact Subtype	Total
		Buttons (brass)	280
		Buttons (glass)	111
		Buttons (iron)	21
		Buttons (pewter)	179
		Buttons (silver)	38
		Buttons (wood)	2
		Buttons (other)	167
		Clothing Fasteners	160
		Cuff Links	117
		Garter	8
		Leather	10
		Pins	42
		Shoes	21
		Suspenders	177
		Textile	13
		Other Clothing Items	23
	Clothing Total		1,871
	Equestrian	Harness/Tack	2
		Horseshoes/Nails	28
	Equestrian Total		30
	Furnishings	Chamberpots	33
		Coat Hook	3
		Cup Hook	5
		Fireplace	6
		Flowerpots	101
		Furniture	68
		Lighting	525
		Trunk	18
		Other Furnishings	1
	Furnishings Total		760
	Glass	Medicine Bottles	2
		Other Glass	44
	Glass Total		46
	Metal	Other Metal	113
	Metal Total		113
	Military/Defense	Bar Shot	1
		Bayonet	10
		Cannon	3
		Canteen	2
		Cartridge Boxes	3
		Firearms/Parts	62
		Gunflint	622
		Iron Bar Shot	1

Artifact Class	Artifact Type	Artifact Subtype	Total
		Iron Cannister Shot	2
		Iron Grape Shot	47
		Lead Buck Shot	102
		Lead Musket Shot	598
		Lead Rifle Shot	16
		Other Iron Shot	1
		Other Lead Shot	39
		Other Shot	6
		Shot Making	11
		Ramrod	28
		Shotgun Shell	298
		Sword	5
		Uniform Related	8
		Other Military/Defense	20
	Military/Defense Total		1,885
	Personal Items	Beads	57
		Coins	46
		Crucible	3
		Eyeglasses	2
		Figurines	4
		Grooming	24
		Jewelry	46
		Keys	18
		Knives	4
		Medicine Bottles	932
		Medicine Pot	1
		Mirror	1
		Musical Instruments	16
		Sewing	12
		Watch/Clock	13
		Other Personal Items	24
	Personal Items Total		1,203
	Tobacco Related	White Clay Pipe	3,475
		Red Clay Pipe	4
		Snuff Box	1
		Other Tobacco Related	9
	Tobacco Related Total		3,489
	Tools	Axe	10
		Bucket	5
		Chisel	1
		Drill	12
		File	9
		Hammer	2

Artifact Class	Artifact Type	Artifact Subtype	Total
		Wrench	3
		Pliers	4
		Saw	1
		Scissors	1
		Screw Driver	1
		Shovel	4
		Wedge	22
		Whetstone	22
		Other Tools	3
	Tools Total		100
	Toys	Children's Tableware	8
		Dice/Dominoes	6
		Doll (porcelain)	99
		Doll (other)	44
		Marbles (clay)	52
		Marbles (glass)	4
		Marbles (other)	3
		Other Toys	19
	Toys Total		235
	Writing	Inkwells	8
		Lead and Slate Pencils	126
		Pens	2
	Writing Total		136
Personal Total			9,868
Structural	Glass	Other Glass	12
	Glass Total		12
	Hardware	Barbed Wire	13
		Chain	25
		Door Hardware	61
		Electrical	169
		Hardware Fasteners	523
		Hook	7
		Iron Strap	67
		Locks	9
		Plumbing	30
		Other Hardware	19
	Hardware Total		923
	Masonry	Bricks	606
		Ceramic Tiles	2
		Mortar/Plaster	3,895
		Other Masonry	409
	Masonry Total		4,912
	Metal	Other Metal	21

Artifact Class	Artifact Type	Artifact Subtype	Total
	Metal Total		21
	Nails	Brass Nails	33
		Cast Iron Nails	518
		Cut Nails	4,253
		Cut Spikes	6
		Wire Nails	9,324
		Wrought Nails	11,361
		Wrought Spikes	40
		Other Nails	126
		Other Spikes	8
		Unidentified Nails	3,214
	Nails Total		28,883
	Structural Samples	Charcoal	1,413
		Wood Samples	78
	Structural Samples Total		1,491
	Window Glass	Window Glass	6,231
		Window Glass (modern)	6,552
	Window Glass Total		12,783
Structural Total			49,025
Miscellaneous	Debris	Chert	29
		Coal	104
		Lime	6
		Limestone	50
		Melted Glass	644
		Mica	7
		Organic	2
		Paint	5
		Plastic	27
		Quartz/Quartzite	29
		Rubber	6
		Sandstone	3
		Slate	35
		Tar	3
		Other Debris	55
	Debris Total		1,005
	Glass	Other Glass	2
	Glass Total		2
	Samples	Charcoal	1,932
		Wood Samples	103
		Soil Samples	61
	Samples Total		2,096
	Unidentified Objects	Unidentified Brass Object	125
		Unidentified Iron Object	110

Artifact Class	Artifact Type	Artifact Subtype	Total
		Unidentified Lead Object	398
		Unidentified Pewter Object	46
		Unidentified Stone	61
		Other/Unidentified Metal	3,876
	Unidentified Objects Total		4,616
Miscellaneous Total			7,719
Grand Total			140,418

Appendix III: Table of Artifact Groups by Excavated Location

Structure	Food/drink	Personal	Structural	Miscellaneous	Grand Total
Bakehouse	337	30	271	14	652
Grand Battery	161	39	718	235	1,153
Guardhouse	4,353	414	1,324	687	6,778
Main Barracks	11,266	2,582	6,174	683	20,705
Necessary	470	46	352	66	934
North Redoubt	1,245	528	809	794	3,376
Officer's Commissary	7,850	1,168	9,449	1,313	19,780
Enlisted Mens Barracks	42,133	4,407	25,771	3,485	75,796
Powder Magazine	111	10	397	20	538
Storehouse	5,880	644	3,760	422	10,706
Grand Total	73,806	9,868	49,025	7,719	140,418

Appendix IV: Table of Artifacts by Excavated Location

Artifact Class	Artifact Type	Artifact Subtype	Bakehouse	Grand Battery	Guardhouse	Main Barracks	Necessary	North Redoubt	Officer's Commissary	Enlisted Mens Barracks	Powder Magazine	Storehouse
Food/drink	Ceramic Sherds	Bennington Stoneware	0	0	0	0	0	0	2	1	0	0
		Buff Earthenware	0	0	92	24	1	0	2	0	0	0
		Creamware	26	95	73	542	0	16	796	631	0	859
		Delftware	1	0	18	116	0	9	209	372	0	97
		Ironstone	0	2	0	12	7	0	807	8,076	0	12
		Jackfield Redware	8	4	0	544	2	12	69	201	0	88
		Majolica (19th c.)	0	0	0	0	0	0	0	13	0	0
		Pearlware	0	0	9	16	0	5	9	30	0	153
		Porcelain	5	0	1	187	0	26	101	752	0	125
		Redware	0	1	26	214	2	236	135	225	0	11
		Stoneware	10	0	2	138	0	20	83	511	0	89
		Whieldonware	34	0	1	161	0	0	88	176	0	83
		White Salt-glazed Stoneware	7	0	1	471	0	17	298	299	0	27
		Whiteware	0	6	8	4	3	0	62	316	0	218
		Yellowware	49	0	78	1,610	1	13	447	5,249	1	153
		Other Ceramic Vessels	0	0	3	21	0	0	11	5	0	2
		Unidentified Ceramic Vessels	0	0	11	39	0	0	14	14	0	0
	Glassware	Bottle Glass (wine)	101	19	55	2,076	241	332	1,494	3,292	6	3,444
		Bottle Glass (other)	0	0	35	147	195	44	355	85	1	25
		Case Glass	0	0	11	55	0	0	0	31	0	0
		Lead Glass (stem and tableware)	1	3	3	396	0	28	149	149	1	73
		Milkglass	0	0	0	1	0	2	22	187	0	3
		Other Glassware	86	22	87	2,378	6	20	1,552	17,302	1	127
	Refuse	Botanical	0	0	6	10	0	2	5	10	0	1
		Faunal	2	1	3,048	1,927	5	372	846	3,290	41	246
		Shell	0	8	784	88	5	82	193	593	59	25
	Other Food/drink	Can Openers	0	0	0	0	0	0	1	3	0	0
		Containers	0	0	0	2	0	0	20	31	0	0
		Cookware	0	0	0	1	0	4	10	18	0	0
		Cutlery (pewter)	0	0	0	10	0	1	3	23	0	4
		Cutlery (other)	0	0	1	23	0	3	5	52	1	1
		Hot Plate	0	0	0	0	0	0	0	4	0	0
		Kettle	7	0	0	51	2	1	44	89	0	11
		Other	0	0	0	0	0	0	10	63	0	2
		Stove Parts	0	0	0	0	0	0	7	37	0	1
		Tin Cups	0	0	0	2	0	0	1	3	0	0
Personal	Clothing	Buckles	1	0	5	104	0	11	64	214	0	4
		Buttons (bone)	0	0	5	23	0	2	19	48	0	2
		Buttons (brass)	1	4	5	85	0	7	36	135	1	6
		Buttons (glass)	0	0	1	0	0	1	12	97	0	0
		Buttons (iron)	0	0	1	3	0	5	2	10	0	0
		Buttons (pewter)	0	2	7	47	9	23	37	52	0	2
		Buttons (silver)	0	0	4	15	0	0	0	17	1	1
		Buttons (wood)	0	0	0	0	0	0	0	2	0	0
		Buttons (other)	1	0	7	33	5	13	18	90	0	0
		Clothing Fasteners	0	0	1	2	0	0	16	141	0	0
		Cuff Links	0	0	4	38	0	3	18	50	1	3
		Garter	0	0	0	0	0	0	2	6	0	0
		Leather	0	0	0	0	0	0	0	10	0	0
		Pins	0	0	0	4	0	0	12	25	0	1
		Shoes	0	0	0	0	0	0	3	18	0	0
		Suspenders	0	0	0	0	0	0	55	121	0	1
		Textile	0	0	1	1	0	7	1	3	0	0
		Other Clothing Items	0	0	1	4	0	1	3	14	0	0

Artifact Class	Artifact Type	Artifact Subtype	Bakehouse	Grand Battery	Guardhouse	Main Barracks	Necessary	North Redoubt	Officer's Commissary	Enlisted Mens Barracks	Powder Magazine	Storehouse
	Equestrian	Harness/Tack	0	0	0	1	0	0	0	0	0	1
		Horseshoes/Nails	1	0	0	7	0	2	5	13	0	0
	Furnishings	Chamberpots	0	0	0	0	0	0	0	33	0	0
		Coat Hook	0	0	0	0	0	0	3	0	0	0
		Cup Hook	0	0	0	0	0	0	0	5	0	0
		Fireplace	0	0	0	0	0	0	3	2	0	1
		Flowerpots	0	0	0	0	0	0	17	84	0	0
		Furniture	0	0	0	20	0	0	22	25	0	1
		Lighting	0	0	0	2	0	0	29	494	0	0
		Trunk	0	0	0	11	0	0	3	4	0	0
		Other Furnishings	0	0	1	0	0	0	0	0	0	0
	Glass	Medicine Bottles	0	0	0	2	0	0	0	0	0	0
		Other Glass	0	0	0	3	0	21	2	18	0	0
	Metal	Other Metal	0	0	90	4	0	1	8	10	0	0
	Military/Defense	Bar Shot	0	0	0	0	0	0	0	0	0	1
		Bayonet	0	0	0	4	0	2	0	4	0	0
		Cannon	0	0	0	0	0	1	2	0	0	0
		Canteen	0	0	0	1	0	0	0	1	0	0
		Cartridge Boxes	0	0	1	0	0	1	0	0	0	1
		Firearms/Parts	2	0	1	13	0	9	10	23	1	3
		Gunflint	4	1	53	189	1	23	76	227	3	45
		Iron Bar Shot	0	0	0	0	0	0	1	0	0	0
		Iron Cannister Shot	0	0	0	0	0	1	0	0	0	1
		Iron Grape Shot	0	6	0	3	0	0	2	10	0	26
		Lead Buck Shot	3	3	6	9	2	45	4	16	0	14
		Lead Musket Shot	2	7	13	65	0	262	35	194	0	20
		Lead Rifle Shot	0	0	0	0	0	16	0	0	0	0
		Other Iron Shot	0	0	0	0	0	0	1	0	0	0
		Other Lead Shot	2	0	3	26	0	3	0	5	0	0
		Other Shot	0	0	0	6	0	0	0	0	0	0
		Shot Making	0	0	0	6	0	0	1	4	0	0
		Ramrod	0	0	1	2	0	6	8	9	0	2
		Shotgun Shell	0	1	2	0	0	2	43	250	0	0
		Sword	0	0	1	2	0	0	0	2	0	0
		Uniform Related	0	0	0	4	0	0	2	1	0	1
		Other Military/Defense	0	5	2	2	1	3	3	4	0	0
	Personal Items	Beads	0	0	1	2	0	0	8	46	0	0
		Coins	0	1	3	5	0	0	7	29	1	0
		Crucible	0	0	0	0	0	0	3	0	0	0
		Eyeglasses	0	0	0	0	0	0	1	1	0	0
		Figurines	0	0	0	0	0	0	0	4	0	0
		Grooming	0	0	0	2	0	0	3	19	0	0
		Jewelry	0	0	1	0	0	0	9	36	0	0
		Keys	0	1	0	0	0	1	2	14	0	0
		Knives	0	0	0	1	0	0	1	2	0	0
		Medicine Bottles	0	0	0	483	0	0	45	41	0	363
		Medicine Pot	0	0	0	0	0	0	0	0	0	1
		Mirror	0	0	1	0	0	0	0	0	0	0
		Musical Instruments	0	0	0	0	0	0	2	14	0	0
		Sewing	0	0	0	0	0	0	2	7	0	3
		Watch/Clock	0	0	1	0	0	0	3	9	0	0
		Other Personal Items	0	2	0	1	0	0	8	13	0	0
	Tobacco Related	White Clay Pipe	13	5	184	1,311	26	50	386	1,363	2	135
		Red Clay Pipe	0	0	0	0	0	0	0	4	0	0

Artifact Class	Artifact Type	Artifact Subtype	Bakehouse	Grand Battery	Guardhouse	Main Barracks	Necessary	North Redoubt	Officer's Commissary	Enlisted Mens Barracks	Powder Magazine	Storehouse
		Snuff Box	0	0	0	0	0	1	0	0	0	0
		Other Tobacco Related	0	0	0	0	0	0	0	9	0	0
	Tools	Axe	0	0	0	2	0	1	2	5	0	0
		Bucket	0	1	0	0	2	0	0	2	0	0
		Chisel	0	0	0	0	0	0	1	0	0	0
		Drill	0	0	1	1	0	0	1	7	0	2
		File	0	0	0	0	0	0	3	6	0	0
		Hammer	0	0	0	0	0	0	0	2	0	0
		Wrench	0	0	0	0	0	0	1	2	0	0
		Pliers	0	0	1	0	0	0	0	3	0	0
		Saw	0	0	0	0	0	0	0	1	0	0
		Scissors	0	0	0	0	0	0	0	1	0	0
		Screw Driver	0	0	0	1	0	0	0	0	0	0
		Shovel	0	0	0	1	0	1	1	1	0	0
		Wedge	0	0	1	0	0	0	7	14	0	0
		Whetstone	0	0	2	13	0	0	4	3	0	0
		Other Tools	0	0	0	0	0	0	0	3	0	0
	Toys	Children's Tableware	0	0	0	0	0	0	0	8	0	0
		Dice/Dominoes	0	0	0	0	0	0	6	0	0	0
		Doll (porcelain)	0	0	0	0	0	0	30	69	0	0
		Doll (other)	0	0	0	0	0	1	9	34	0	0
		Marbles (clay)	0	0	0	2	0	0	11	37	0	2
		Marbles (glass)	0	0	0	0	0	0	2	2	0	0
		Marbles (other)	0	0	0	1	0	1	1	0	0	0
		Other Toys	0	0	0	0	0	0	2	17	0	0
	Writing	Inkwells	0	0	0	8	0	0	0	0	0	0
		Lead and Slate Pencils	0	0	2	7	0	1	28	87	0	1
		Pens	0	0	0	0	0	0	1	1	0	0
Structural	Glass	Other Glass	0	0	0	0	0	0	0	1	0	11
	Hardware	Barbed Wire	9	0	0	0	0	0	0	0	0	4
		Chain	0	0	0	0	0	2	2	5	0	16
		Door Hardware	1	0	6	15	0	3	6	28	1	1
		Electrical	0	0	1	3	0	0	37	128	0	0
		Hardware Fasteners	0	1	27	10	0	2	74	404	0	5
		Hook	0	0	1	0	0	0	3	3	0	0
		Iron Strap	0	1	4	21	0	33	0	4	1	3
		Locks	0	0	0	0	0	1	1	7	0	0
		Plumbing	0	0	2	0	0	0	5	22	0	1
		Other Hardware	0	0	1	2	0	0	3	12	1	0
	Masonry	Bricks	0	63	206	85	2	63	66	67	12	42
		Ceramic Tiles	1	0	0	0	0	0	0	1	0	0
		Mortar/Plaster	0	103	163	1,292	0	0	1,485	388	299	165
		Other Masonry	0	0	5	2	0	0	400	0	2	0
	Metal	Other Metal	0	1	1	0	0	2	6	11	0	0
	Nails	Brass Nails	0	0	0	0	0	0	18	15	0	0
		Cast Iron Nails	0	0	0	7	0	0	5	0	0	506
		Cut Nails	0	0	1	0	0	0	1,018	3,233	0	1
		Cut Spikes	0	0	0	0	0	0	3	3	0	0
		Wire Nails	10	0	11	0	5	0	1,851	7,445	0	2
		Wrought Nails	25	26	290	2,974	14	306	1,705	3,846	47	2,128
		Wrought Spikes	0	5	0	3	0	1	6	24	0	1
		Other Nails	0	3	4	50	1	5	17	42	0	4
		Other Spikes	0	0	0	0	0	0	0	8	0	0
		Unidentified Nails	205	12	0	1,583	318	20	225	673	9	169

Artifact Class	Artifact Type	Artifact Subtype	Bakehouse	Grand Battery	Guardhouse	Main Barracks	Necessary	North Redoubt	Officer's Commissary	Enlisted Mens Barracks	Powder Magazine	Storehouse
	Structural Samples	Charcoal	8	503	574	0	0	309	0	0	0	19
		Wood Samples	0	0	0	4	0	47	0	2	25	0
	Window Glass	Window Glass	12	0	27	123	12	15	1,421	4,100	0	521
		Window Glass (modern)	0	0	0	0	0	0	1,092	5,299	0	161
Miscellaneous	Debris	Chert	0	0	2	14	0	0	0	0	0	13
		Coal	0	7	32	36	0	16	1	8	1	3
		Lime	0	0	1	5	0	0	0	0	0	0
		Limestone	0	0	1	3	0	0	8	12	5	21
		Melted Glass	0	0	15	363	0	0	255	11	0	0
		Mica	0	0	0	3	0	2	0	0	0	2
		Organic	0	0	0	0	0	2	0	0	0	0
		Paint	0	0	0	0	1	0	0	4	0	0
		Plastic	0	0	0	0	0	0	1	26	0	0
		Quartz/Quartzite	0	0	17	10	0	2	0	0	0	0
		Rubber	0	0	0	0	0	0	0	6	0	0
		Sandstone	0	0	0	2	0	0	0	1	0	0
		Slate	0	0	19	1	0	0	9	6	0	0
		Tar	0	0	3	0	0	0	0	0	0	0
		Other Debris	0	0	0	0	0	0	1	52	2	0
	Glass	Other Glass	0	0	1	0	0	0	1	0	0	0
	Samples	Charcoal	1	162	473	27	62	546	338	174	4	145
		Wood Samples	0	1	21	11	0	51	0	10	7	2
		Soil Samples	0	1	3	8	0	28	4	6	0	11
	Unidentified Objects	Unidentified Brass Object	0	1	3	10	0	0	23	88	0	0
		Unidentified Iron Object	0	14	2	18	0	11	36	16	0	13
		Unidentified Lead Object	6	5	20	74	1	21	43	187	0	41
		Unidentified Pewter Object	0	0	1	4	0	6	0	31	0	4
		Unidentified Stone	1	3	26	6	0	0	3	12	0	10
		Other/Unidentified Metal	6	41	47	88	2	109	590	2,835	1	157
Grand Total			652	1,153	6,778	20,705	934	3,376	19,780	75,796	538	10,706

Appendix V: Tables of Native American Artifacts by Excavated Location

Table V.1. Projectile point types by excavated location.

		Location					
Time Period	**Projectile Point Type**	**Grand Battery**	**North Redoubt**	**Guard House**	**Enlisted Mens Barracks**	**Main Barracks**	**Total**
Late Woodland	Levanna	1					1
Middle Woodland	Fox Creek		1				1
Early Woodland	Adena		1				1
Transitional							0
Archaic	Genesee		1				1
	Normanskill	2					2
	Lamoka	9	1				10
	Bare Island	2			1		3
	Narrow stemmed	3					3
	Vosburg	3	1				4
	Brewerton	1					1
	Stark		1				1
	Neville	1					1
Unidentified or fragmented		7	3	1		2	13
Total		29	9	1	1	2	42

Table V.2. Other stone tools by excavated location.

Location	**Bifaces***	**Scrapers**	**Flakes**	**Hammerstones**	**Abrading Stone**	**Net Sinkers**	**Total**
Grand Battery	3	2	5	5		2	17
Guard House			3				3
Main Barracks	8	1	16	1	3		29
North Redoubt			18	9			27
Enlisted Mens Barracks	1		9	1		1	12
Powder Magazine			2				2
Storehouse			51	1			52
Total	12	3	104	17	3	3	142

*Note – projectile points are not included in this table.

Table V.3. Lithic flakes by material and location.

Location	**Chert**	**Quartz**	**Jasper**	**Total**
Grand Battery	4	1		5
Guard House	2	1		3
Main Barracks	16			16
North Redoubt	17	1		18
Enlisted Mens Barracks	9			9
Powder Magazine	2			2
Storehouse	49	1	1	51
Total	99	4	1	104