

VALLEY FORGE HISTORICAL RESEARCH REPORT

WAYNE K. BODLE

and

JACQUELINE THIBAUT

Volume III

**Jacqueline Thibaut
Coordinating Research Historian
Valley Forge Historical Research Project**

**United States Department of Interior
National Park Service**

**Valley Forge National Historical Park
Wallace B. Elms, Superintendent
Valley Forge, Pennsylvania**

1982

VALLEY FORGE HISTORICAL RESEARCH REPORT

Volume III

**IN THE TRUE RUSTIC ORDER:
HISTORIC RESOURCE STUDY AND
HISTORICAL BASE MAPS OF
THE VALLEY FORGE ENCAMPMENT**

1777-1778

by

Jacqueline Thibaut

Valley Forge National Historical Park

1982

CONTENTS

	PAGE
LIST OF ILLUSTRATIONS IN TEXT	vii
ACKNOWLEDGMENTS	viii
STATEMENT OF RESEARCH POTENTIAL	xiv
INTRODUCTION.	1
I. EIGHTEENTH AND NINETEENTH CENTURY MAPS OF VALLEY FORGE.	14
A. The "Duportail" Map	14
B. The Jared Sparks Copy of the Duportail Map	17
C. Map Labeled "Albert K. Davis"	18
D. Davis-Armstrong-Sparks Map and Related Correspondence.	20
E. The "Pennypacker" Map	23
F. The Ewald Map	26
G. The Joseph Galloway Spy Map	27
H. The Parker Spy Map.	28
II. TOOLS TO BUILD AN ENCAMPMENT.	29
III. BRIGADE ENCAMPMENTS	36
A. Brig. Gen. William Woodford's Brigade	36
B. Brig. Gen. Charles Scott's Brigade	37
C. 1st Pennsylvania Brigade.	37
D. 2nd Pennsylvania Brigade.	38
E. Brig. Gen. Enoch Poor's Brigade	39
F. Brig. Gen. John Glover's Brigade.	40
G. Brig. Gen. Ebenezer Learned's Brigade	40
H. Brig. Gen. John Paterson's Brigade.	41
I. Brig. Gen. George Weedon's Brigade.	41
J. Brig. Gen. Peter Muhlenberg's Brigade	41

	PAGE
K. Brig. Gen. William Maxwell's Brigade	43
L. Brig. Gen. Thomas Conway's (late Conway's) Brigade	44
M. Brig. Gen. Jedediah Huntington's Brigade	44
N. Brig. Gen. James Mitchell Varnum's Brigade	45
O. Brig. Gen. Lachlan McIntosh's Brigade	46
P. Artillery Park	48
Q. Artificers	48
R. Provost Guard	49
S. Commander-in-Chief's Guard	49
T. Dragoons	49
U. Late Arrivals	50
V. Order of Battle	50
 IV. MILITARY STRUCTURES AND FEATURES	 52
A. Huts for Dwelling	52
1. Materials, Specifications, and Techniques	52
2. Number of Dwelling Huts	62
3. Hut-Building Chronology	64
4. Spatial Allotment	69
5. A Hypothetical Brigade Encampment	70
6. Historical Significance	71
B. Camp Hospitals	72
C. Stores and Magazines	76
1. The Clothier's Stores	76
2. Commissary of Military Stores	77
3. Quartermaster Stores	78
4. Commissary's Stalls, Stores and Slaughter Pens	79
D. Provost Guard and Guard Houses	81
E. Sutlers' Booths	83
F. Artificers' Huts	84
G. Fortifications	84
1. Chronology	85
2. Entrenchments	94
3. Redoubts	97
3a. Redoubt on the Left of the First Line of Defense--No. 2, formerly known as "Fort Greene" (LCS 308)	97

	PAGE
3b. Redoubt on the Extreme Left of the First Line of Defense--No. 5	98
3c. Redoubt on the Right of the Second Line of Defense--No. 3, formerly known as "Fort Washington" (LCS 303)	99
3d. Redoubt on the Left of the Second Line of Defense--No. 4, formerly known as "Fort Huntington" (LCS 304)	100
3e. Redoubt Covering Sullivan's Bridge--No. 1, known as the Star Redoubt (LCS 305).	101
4. Redans	103
5. Obstacles.	104
6. General Observations on the Fortifications	105
H. Excavated Features	106
1. Offal Pits	107
2. "Necessaries," or Privies.	108
I. Special Use Areas.	109
1. Parades.	109
2. Continental Horse Yard	110
3. Grave Sites.	111
4. Markets.	112
5. Picket Posts	113
6. The "Bakehouse".	114
J. Schuylkill River Approaches and Roads.	116
1. Sullivan's Bridge.	116
1a. Location.	117
1b. Chronology.	119
1c. Historical Significance	124
2. Schuylkill Docking Areas	125
3. Camp Roads	125
4. Fords.	127
V. CIVILIAN STRUCTURES AND FEATURES	129
A. Dwellings Employed as Officers' Quarters	131
1. The Isaac Potts House (Washington's Headquarters).	133
2. The David Stephens House (traditional site of Varnum's Quarters).	137
3. The Maurice Stephens House (traditional site of Huntington's Quarters).	138

	PAGE
4. The William Currie House (Probable site of Lord Stirling's Quarters)	140
5. The John Brown House (traditional site of Maxwell's Quarters)	141
6. The Samuel Brown House (traditional site of Knox's Quarters)	141
7. The Samuel Havard House (traditional site of Lafayette's Quarters)	142
8. The John Moore House (traditional site of Muhlenberg's Quarters).	143
9. The Mordecai Moore House (traditional site of Morgan's Quarters and the Commissary)	143
10. The Abijah Stephens House (site of Weedon's and de Kalb's Quarters).	144
11. The John Havard House (traditional site of Duportail's Quarters)	145
12. The James White House (probable site of the Adjutant General, Alexander Scammell's, Quarters, possible site of Friedrich von Steuben's Quarters)	146
13. James Vaux and "Vaux Hill,"--now known as "Fatlands"	149
14. Henry Pawling's Farm.	153
15. William Moore's Farm, "Moore Hall".	156
16. Other Traditional Associations.	160
B. Industrial Structures--The Valley Forge and Mill Complex	162
1. Establishment of the Valley, or Mount Joy, Forge	162
2. The Potts Family at Valley Forge	169
3. Valley Forge and the Revolution.	187
C. Topographical Features	
1. Foliation.	196
2. Springs	197
3. Meadows	197
APPENDIX A: SHIPMENT OF CAMP EQUIPAGE FROM MR. ANTHONY BUTLER LATE AGENT FOR CAMP EQUIPAGE, 10 MAY 1778	200
B: LIST OF QUARTERMASTERS' STORES RECEIVED OF THOMAS CRAIG, ASSISTANT DEPUTY QUARTERMASTER, AT VALLEY FORGE IN MAY, 1778.	204

	PAGE
C: GLOSSARY OF MILITARY TERMS	208
BIBLIOGRAPHY.	220

ILLUSTRATIONS

Louis Lebeque de Presle Duportail	Frontispiece
Valley Forge Tract Partition of 1768	Between pages: 181 & 182
Illustration of Fencing	182 & 183

MAPS

Duportail Map	Page 224
Jared Sparks Map	Page 225
Albert Davis Map	Page 226
Davis- Armstrong-Sparks Map	Page 227
Pennypacker Map	Page 228
Galloway Spy Map	Page 229
Parker Spy Map	Page 230
Major Arteries and Landmarks, 1778	Page 231



Louis Lebeque de Presle Duportail

1743-1802

Brigadier General

Commander of the Corps of Engineers

C. W. Peale, c. 1781-1782

Courtesy of Independence National Historical Park

ACKNOWLEDGMENTS

The Valley Forge Historical Research Project and the resulting reports are the products of many minds. It was conceived in 1976 by the late Charles Funnell, historian for the Mid-Atlantic Region of the National Park Service, together with John Bond, Regional Historian, and Dr. S. Sydney Bradford, Associate Director for Planning and Resource Preservation. The burden of sustaining the project through to completion was assumed with grace and forbearance by H. Gilbert Lusk, Superintendent of Valley Forge National Historical Park, and Valley Forge Chief of Interpretation W. Eugene Cox, and their successors, Superintendent Wallace Elms and Chief of Interpretation John Tyler.

The project was launched in August of 1977, employing five research historians to gather photocopies of period documents from over two hundred archives in the United States, England, and France. The success of the project was in large part attributable to the thoroughness of their investigations. The four historians engaged in the project for this collection phase, and whose efforts were so essential to the project, were Wayne Bodle, Michael Lawson, David Rich, and Harry Roach.

At a stage when the first drafts of the reports were nearing completion, in the summer of 1979, Dr. John Shy of the University of Michigan at Ann Arbor was engaged to review the manuscript and provide editorial comment and advice prior to the completion of the report. His extensive suggestions have as far as possible been incorporated in the reports. The author owes a professional as well as personal debt of gratitude to Dr. Shy, one that extends beyond her obvious admiration for his scholarship.

During the course of the project, hundreds of personnel from public and private archives and historical societies gave unstintingly of their time and professional expertise. The highest encomiums were earned by the staff of the Historical Society of Pennsylvania and the special courtesy extended by Dr. James Mooney, Director, and Peter Parker, Director of Manuscripts, and his staff. The many hours expended in the interest of the Valley Forge project by Mr. Parker and his assistant are gratefully acknowledged.

To the directors and staffs of the following archives and repositories the author owes her profound thanks:

Allentown (PA) Public Library
American Antiquarian Society
American Museum of Jewish History
American Philosophical Society
Archives de l'Armée de la Terre (Paris)

Berks County (PA) Historical Society
Bibliothèque Nationale (Paris)
Bishop Mills (PA) Historical Institute
Boston Public Library
British Library
Brown University Libraries
Bucks County (PA) Historical Society

Claremont College (Honnold Library)
William L. Clements Library of Americana (Ann Arbor)
College of Physicians of Philadelphia
Connecticut Historical Society
Connecticut State Library

Delaware County (PA) Historical Society
Delaware Department of Vital Statistics
Delaware Hall of Archives and History
Detroit Public Library
Dickinson College (Spahr Library)
Duke University Library
Duke University Medical Center Library

Eleutherian Mills Historical Library
Essex Institute (Salem, MA)

Franklin Institute
Free Library of Philadelphia
Friends Historical Society (Swarthmore College)

Georgia Department of Archives and History
Georgia Historical Society
Greene County (PA) Historical Society

Harvard University Library
Historical Society of Delaware
Historical Society of Wisconsin
Hopewell Village National Historical Site
Huntington Library (San Marino, CA)

Independence National Historical Park Library
Illinois Historical Survey

Jefferson Medical Library (Philadelphia)

Kent County (England) Archives

Lafayette College Library
Lancaster County (PA) Historical Society
Lehigh County (PA) Historical Society
Library Company of Philadelphia
Library of Congress of the United States

Library of South Caroliniana
Litchfield (CN) Historical Society
Long Island Historical Society

Maryland Historical Society
Massachusetts Historical Society
Massachusetts State Archives
Mills College Library
Ministère des Affaires Étrangères (Paris),
Montgomery County (PA) Court House
Montgomery County (PA) Historical Society,
Moravian Archives (Bethlehem, PA)
Morristown National Historical Park Library
Muhlenberg College Library

National Archives of the United States
National Army Museum (London)
New Hampshire Historical Society
New Haven Colony (CN) Historical Society
New Jersey Bureau of Archives and History
New Jersey Historical Society
New York Historical Society
New York Public Library
New York State Historical Association
New York State Library
North Carolina Department of Archives
Northampton County (PA) Historical Society
Nottingham (England) University Library

Ohio Historical Society

Pennsylvania Historical and Museum Commission
Pennsylvania Hospital Medical Library
Pennsylvania State Archives
Philadelphia City Archives
Philadelphia City Hall
Pierpont Morgan Library
Presbyterian Historical Society
Princeton University Library
Public Records Office (England)

Reed Collections
Rhode Island Historical Society
Rosenbach Foundation (Philadelphia)
Royal Artillery Institution (England)
Royal Maritime Museum (England)
Rutgers University Library

St. John's Seminary (Doheny Library)
Schuylkill County (PA) Historical Society
Schwenkfelder Library (Pennsburg, PA)

Sheffield (England) Public Library
Shippensburg (PA) Public Library
Shippensburg (PA) State College (Lehman Library)
Staten Island Historical Society
South Carolina Archives
South Carolina Historical Society
Sussex County (DE) Court House
Sussex County (DE) Historical Society

Tioga Point Museum (Athens, PA)

Union College Library
United States Military Academy at West Point Library
University of California at Berkeley Library
University of California at Los Angeles Research Library
University of Chicago Library
University of Georgia at Athens Library
University of North Carolina at Chapel Hill Library and
Southern Historical Collection
University of Pennsylvania Libraries
University of Virginia Library

Valley Forge Historical Society
Vermont Public Records Commission
Villanova University Library
Virginia Historical Society
Virginia State Library and Archives
Vermont Historical Society

Washington and Jefferson College Library
Washington's Headquarters at Newburg (NY)
Wayne State University Library
West Chester (PA) State College
Western Reserve Historical Society
Wyoming (PA) Historical and Geologic Society

Yale University (Sterling Library and Beinecke Rare
Book and Manuscript Library)

Mr. John F. Reed graciously opened his private manuscript collection to the project for research, and has also provided important information on various occasions. The staff of the Steuben Papers Project under the direction of Dr. Edith von Zemenzsky very kindly advised the Valley Forge project staff in the

early stages of the undertaking.

Aside from the archives visited by staff research historians, a further 446 were queried by mail. One hundred and seven replied, adding to the harvest of documents and data.

In addition, for their careful and constructive readings of the several drafts, the author wishes to thank National Park Service Chief Historian Ed Bearss, and Park Service historians John Luzader, Joan Marshall, and Charles Snell.

Jacqueline Thibaut

November, 1982

STATEMENT OF RESEARCH POTENTIAL

The information in the ensuing chapters results principally from an extensive documentary search bearing on Valley Forge in the Revolution. The author can confidently state that this search was comprehensive and reasonably complete, as it is detailed in the Acknowledgments section.

The most important remaining focus for research is the local one. During the whole of the research phase of the Valley Forge Historical Research Project the Chester County Historical Society, a vital local archive, was closed to research. The author does not doubt that additional information pertaining to Valley Forge residents in the Chester County portion of the encampment can be gleaned from this repository.

It should also be noted that most major historical societies and research centers contain bodies of documents that are uncatalogued, or but partially catalogued. The possibility exists of an important documentary or cartographic find relating to Valley Forge, and major repositories of Revolutionary period material should be consulted periodically for recent acquisitions or disclosures of newly discovered material.

INTRODUCTION

On December 19, 1777, the "Main Army" of the United States under the command of General George Washington arrived at Valley Forge and pitched their tents on the slopes of Mount Joy. Their position was rendered defensible by the Schuylkill River (by compass to the north, but the Army was camped on its right, or west bank), by Mount Joy and Valley Creek on the west, and by a mile-long ridge on the southeast. (See Historic Base Map).

One of the great advantages attained by the force known as the Continental Army, lay in its complement of men trained to perform tasks far beyond the ken of the European professional soldier; men who were forgemasters, chandlers and bakers, farmers, physicians and carpenters, etc. The result was a force which could, as well as any other army in the western world at the time, look after itself. This panoply of skills (not, admittedly, without lacunae) and the willingness to employ those skills in effective disregard of the military caste strictures which prevailed in European armies, resulted in a virtuoso

display of self-sufficiency during the Valley Forge winter. Brigadier General Jedediah Huntington of the Connecticut line said it best himself:

one Businiss crowds so close upon the Heels of another as to forbid Recreation. The Brigadiers are become Sope boilers, Oilmen, Armourers, ¹ Tanners--Shoemakers and the Lord knows what.

He was exaggerating only slightly. Colonel Matthias Ogden of the 1st New Jersey Regiment was sent home to New Jersey to produce bayonets and scabbards for the Army, and he was not alone among officers often called upon to resuscitate disused entrepreneurial skills.²

There was, nevertheless, an occasional drastic mismatch of man and task in the Continental Army, particularly when skilled axmen were most needed in camp. The hyperbolic Major General John Sullivan, responsible for constructing a bridge across the Schuylkill and beset with innumerable difficulties, burst out to Washington:

I might have mentioned That Some of the Brigades who are to furnish me with Carpenters Sent me Taylors who had never used an ax in their Lives; ³ kept their good Carpenters at home to Build Huts.

1. Jedediah Huntington to Mathew Irwin, 20 January 1778, Society Collection, HSP.

2. Mattias Ogden to Lord Stirling, 27 April 1778, Dreer Collection: Generals of the Revolution, HSP.

3. Otis G. Hammond, ed., Letters and Papers of Major-General John Sullivan, Continental Army, 2 vols. (Concord, N.H.: New Hampshire Historical Society, 1930), 1:605.

The versatility, however, of the American soldier was much in evidence. In the winter of 1777-1778, and in those which followed, it would enable him to hew out a makeshift environment in which the Army could survive as a concentrated force in the face of harrowing difficulties.

In the litter of succeeding decades it has become difficult to discern how the soldiers and officers at Valley Forge perceived their environment. This was the first time a concentrated, semi-permanent winter post was constructed on the North American continent, and it would never again be attempted at so meager a material advantage. General Huntington was not alone in his wide-eyed astonishment:

I wish I could tell you I was coming to see you, instead I am going to build me a House in the Woods, what do you think if the Armys making two thousand log Houses in all the Regularity of an encampment.⁴

Valley Forge represented an innovation in military practice, and as with most innovations it required a season of experiment before the pattern would be set for future winter cantonments. The resourcefulness of those who composed the stable core of the Continental Army would be strained to the utmost to render the experiment a

4. Jedediah Huntington to Andrew Huntington, 23 December 1777, Jedediah Huntington Papers, ChiHS.

success.⁵

The reader will quickly see that a major change of emphasis permeates the substance of this report. The march of the Army to Valley Forge was not, as so many writers have implied, an admission of defeat. The shocking hardships endured and the regenerative triumph achieved by the Army have had such formidable mythopoetic appeal that certain historical realities have been obscured. The Valley Forge winter fascinated such historical popularizers as Benson J. Lossing, whose effusions were paraphrased a thousand-fold in the press and popular literature of the mid-nineteenth century:

Valley Forge! How dear to the true worshiper at the shrine of Freedom is the name of Valley Forge! There, in the midst of frost and snows, disease and destitution, Liberty erected her altar; and in all the world's history we have no record of purer devotion, holier sincerity, or more pious self-sacrifice, than was there exhibited in the camp of Washington.⁶

In an era in which it was a firm popular belief that all historical episodes had explicit moral consequences,

5. The earlier encampments of the Continental Army at Cambridge, Massachusetts, and Morristown, New Jersey (1777) cannot really be compared, in terms of size and duration. See John Richard Alden, The American Revolution 1775-1783 (New York: Harper & Row, 1962), p. 119.

6. Benson J. Lossing, Pictorial Field Book of the Revolution, 2 vols. (New York: Harper Brothers, 1855), 2:125.

Valley Forge was the most powerful parable to the triumph of virtue and sacrifice that the nation could elicit from its own historical past. The result was that while most of the historical data relating to Valley Forge remained intact, it was inexorably sculpted to fit the parable, not so much from actual elimination of unsuitable data as through the gradual development of a set of emphases. Thus the despondent army came wearily to rest on Mount Joy, laid its sacrifices upon the altar of freedom, and arose transfigured like Parsifal with the Grail. Valley Forge became ineluctably associated with the sacrifice which guarantees victory to the virtuous. Unfortunately for the historian, myth and historical fact can seldom if ever coexist in a symbiotic relationship. They must in the popular consciousness begin to intertwine, and therein lies a particular set of historical problems.

The specific difficulty that this creates for an inquiry into the physical history of the encampment is that to fit the mythical scenario, the Army upon its arrival at Valley Forge had to be characterized as on the brink of collapse. This, despite shortages of proper food and clothing and copious desertions, demonstrably was not so. How could a helpless army produce the prodigious amount of concerted energy required to build the camp and survive in it? The answer is provided by the sparse but telling

letters written by officers themselves in December and January, and these ring with cautious, sometimes reckless, optimism.

General George Washington, casting his eye into the future and viewing from the heights the precarious administrative structure of his Quartermaster's Department, might write with accuracy to the President of Congress that "unless some great and capital change suddenly takes place in that line, this Army must inevitably be reduced to one or other of three things. Starve, dissolve or disperse. . . ." ⁷ Yet it should always be remembered that his epistles were specifically calculated to prod a recalcitrant Congress into action. The famous and oft-quoted "starve, dissolve or disperse" letter, as masterful a rhetorical display as he ever penned, contained an implicit warning. If Congress did not move to alleviate unconscionable shortages, then the Interior of Pennsylvania would be flooded with troops seeking winter quarters in towns, along the lines of an earlier plan favored by the officers and vehemently opposed by Congress.

Indeed the Continental Army was persevering near Philadelphia at the behest of Congress and the Pennsylvania

7. John C. Fitzpatrick, ed. The Writings of George Washington from the Original Manuscript Sources 1745-1744, 39 vols. (Washington, D.C.: Government Printing Office, 1933), 10:192.

government, whose members had best do something to provide. In discerning the actual conditions at camp and the fluctuating state of morale, the letters of officers and the few that survive from enlisted men must be assigned greater weight than Washington's carefully calculated statements to Congress and the Supreme Executive Council of Pennsylvania. These incorporated his genuine fears for the future of the Army, but his observations were drawn from his knowledge of the state of the entire Army and its support mechanisms, a sum of knowledge which only he and his intimates, and a few of his high-ranking officers, possessed.

The vitality evident in the Army, early in the encampment, subdued as it may have been by poor sustenance, clothing, and tools, is best expressed by Thomas Paine, who wrote to Benjamin Franklin reporting on hut-building activities:

General Washington keeps his station at Valley Forge, I was there when the army first began to build huts. They appeared to me like a family of beavers, everyone busy; some carrying logs, others mud, and the rest plastering them together. The whole was raised in a few days and it is a curious collection of buildings, in the true rustic order.
 . . . 8

"Rustic" may have been something of an understatement,

8. "Military Operations Near Philadelphia in the Campaign of 1777-8. Described in a Letter from Thomas Paine to Dr. Franklin," Pennsylvania Magazine of History and Biography 2 (1878): 294.

and Paine's sanguine estimate of the time required to build does not coincide with other contemporary statements, but the image which rises before the reader of a beleaguered but vigorous army is unforgettable. The Continental Army had experienced bad moments, and would face worse before the season was out. Its true hour of trial came later, in February. The often recited litany of hardships at Valley Forge is undeniably true. The Army was bested in battle, ill-shod, ill-clothed, underfed, disease-ridden, and chronically prone to desertions. The officers sought so unremittingly for furloughs and resigned in such numbers that Washington was nearly driven to distraction. Yet it is also true that a shattered army could not have built a grand encampment but eighteen miles from its most formidable enemy.

There are several ways to examine the physical assemblage composing the encampment, ranging from a particularist discussion of a succession of individual structures to the imposition of theoretical systems on the structural assemblage. What follows is an attempt at a balance between these alternatives, including substantive data on the functions, materials, and chronology of structures while at the same time organizing them

beneath a categorical rubric for ease of reference.⁹

There are no areas within the Park, with the exception of those affected by massive nineteenth and twentieth century disturbance, which definitely can be said to have no camp-related significance. This is due to the highly concentrated nature of the encampment, as will be shown in the following pages. The ensuing text deals primarily with the camp nucleus, which now composes Valley Forge National Historical Park and its immediate environs.

The various structures and facilities that composed the Valley Forge encampment presented an appearance very much at odds with commonly encountered pictorial renderings, many of which are disconcertingly feeble. Whether from a poverty of imagination or from inadequate recourse to documentary sources, many popular nineteenth century scenes are disappointingly sterile. Baron Friedrich Wilhelm von Steuben drills his men against the background of a few huts scattered amid plentiful trees, in nearly deserted landscape. Soldiers huddle about isolated campfires, or a lone picket slumps in the snow beneath

9. It is too early to construct a typology of military structures based on their various attributes (materials, form, design) because so little is known. This, however, is not an unreasonable goal for the future, presuming that more data can be obtained archaeologically. Then the simple categorical arrangement of structures as represented here can be refined into a more useful typology, wherein regional variations in structures built by the army might be defined.

the scant protection of a denuded oak. These rather tepid renderings, designed to depict the hostile forces of nature, and which implicitly emphasize the constancy of the soldiers, do not convey the material richness of the surroundings. The actual scenes at camp were very different.

Building the encampment involved feverish, heavy labor, which stripped the countryside around camp of trees. Mount Joy was probably entirely bald. After the camp was established, continual activity was the rule, and it was only lulled in the severest weather. Over the ridge of the 1st line of defense (or outer line), and on the less precipitous slopes of Mount Joy were spread about 2,000 huts and structures, with new ones building as recruits poured in during April and May 1778. These swelled the Army and its support groups to nearly 20,000 men and women. Every day was a market day, and soldiers otherwise unoccupied coursed through the camp to one of the three markets on the periphery to supplement their rations with dried corn, peas, turnips, and other available foods.

The days commenced with brigade parades (wherein work parties were assigned to continual, if at times desultory, work on the fortifications), foraging, or some other labor. Battalions and brigades of 700 or 1000 men drilled daily, practicing von Steuben's maneuvers on the Grand

Parade, from early April. Soldiers compelled to cut wood at ever-increasing distances yoked themselves to carts and hauled it to camp. Hospital wagons daily carried away those who suffered in the recurrent waves of disease which beset the Army, taking the sick to makeshift facilities near camp or to the hospitals at Yellow Springs, Ephrata, and elsewhere. The support groups escalated their labors at the spring commenced. Across Valley Creek the artificers repaired wagons, artillery material, arms, and camp equipage. Their huts rang with blacksmiths' hammers and the mallets of wheelwrights and cartwrights. Hundreds of barrels for provisions were manufactured; wheels were turned out and wagons repaired. The laboratory manufactured paper cartridges for muskets and artillery, and cast lead balls.

During the spring, the camp was permeated with the sights and sounds of the renascent Commissary Department. It took upwards of 200 cattle arriving on the hoof per day to feed the army, supplemented with 100 barrels of flour, and assorted sheep, swine, fresh shad culled from the Schuylkill, barreled beef and pork, and dried shad and herring. Drove of cattle arrived daily throughout the spring, along with wagon brigades hauling barrels of whiskey, flour, hard bread, fish, tallow, salt, and forage for the horses. The live animals were allotted to

brigades, and were then driven to the brigade slaughter pens where butchers toiled to supply the troops with fresh meat.

The scene around Headquarters was probably the most congested of all. Express riders came and went continually, as did officers, visiting committeemen from Congress, petitioners, and all manner of army officials. Washington received and dispensed an average of fifteen important letters per day, plus a host of verbal and written orders of lesser consequence. He was frequently in council with his officers, and almost daily the detailed General Orders proceeded from Headquarters to the brigades and regiments. Washington's secretaries produced a prodigious amount of written work on virtually every day of the encampment.

The brigade encampments, tightly packed along the first line, spread inwards toward the center of the camp, with their officers' huts and hospitals, sutlers, Quartermasters' stores, brigade parades, sinks, and slaughter pens. There was probably very little ground in the encampment which was not allocated for some specific purpose. Huts might be regularly aligned in rows, as in Maxwell's Brigade, or roughly ordered, some above ground and some partially excavated. The muddy roads through camp were constantly churned by men dragging in wood, by the commissary wagons, and by the livestock.

There was no regular refuse removal, and only when the encampment became sufficiently noisome for Washington to notice was the detritus raked together and burned or buried. The brigade slaughter pens were heaped with steaming offal, which the men normally would not eat, and hides waiting for the Commissary of Hides to cart them off to the tanyards in interior Pennsylvania. The pernicious sutlers, springing up again as soon as they were dispersed, hawked their whiskey at prices which made the commissaries flinch. Shallow draft boats coming down the river from Reading floated forage and military equipage to camp, disgorging their contents along the banks of the Schuylkill. The camp was alive with soldiers, boatmen, shouting teamsters, drum signals, thundering express riders, shouts of the drillmasters, and the clatter of shovels and picks from those at work on the fortifications intermingled from dawn to sundown.

I. EIGHTEENTH AND NINETEENTH CENTURY
MAPS OF VALLEY FORGE

Any discussion of the eighteenth and nineteenth century maps of Valley Forge must be prefaced by the qualification that very little is known of their provenience, and that in the past numerous unwarranted assumptions have been made about them. Detailed analysis of the paper and writing on these manuscript maps has been conspicuously wanting. While the search for elusive watermarks and paper manufacturers will go on for some time, some important evidence has recently come to light.

A. The "Duportail" Map

"Brouillion ou Plan Du Camp de Vallée Forge" (Draft or Plan of the Camp at Valley Forge), HSP (see Map 1).

While this map, attributed to the hand of Louis Lebègue Duportail, Washington's Chief Engineer, has long been thought to be contemporaneous with the encampment, it should be noted that there is no conclusive evidence at present which will allow it to be precisely dated. The map is drawn in ink on laid paper, and comparison of the

writing on it with other examples of Duportail's hand at the Historical Society of Pennsylvania discloses it to be compatible with them. The map bears a watermark thus far unidentified. An exact copy of this map exists in the Jared Sparks collection at Cornell University (see Map B), thus disclosing that the Duportail map was known during the historian's lifetime (Sparks died in 1866). According to Duportail's biographer Elisabeth S. Kite, the Duportail map was discovered in the attic of "the old John Harvard [sic] House" (now demolished) by Lawrence McCormick around 1900, and transferred by him to the Historical Society of Pennsylvania.¹

Duportail was Washington's Chief Engineer, attached to the "Main Army," and his commission as Chief of Engineers dated from July 22, 1777.² The map may have been drawn at the beginning of the encampment period, but if so it most certainly sustained later alterations. For instance, it shows Redoubt No. 3 in place, a structure not begun until mid-April following a dispute concerning its proper location (see discussion below under fortifications). While the Duportail map is detailed in its

1. Elisabeth S. Kite, "General Duportail at Valley Forge," PMHB 56 (1932), 345.

2. F. B. Heitman, Historical Register of Officers of the Continental Army (Washington, D.C.: Privately printed, 1893), p. 161.

presentation of springs, meadows, and military features, it contains some inaccuracies which render it difficult to reconcile with the topography as it currently exists. The most glaring of these is in the depiction of Gulph Road, which is shown cutting across camp in a nearly straight east-west line. Both surveys for establishing the road and contemporary deeds indicate that this could not have been the case, and that the road existed in the eighteenth century nearly as it does today. Also, the Road to Jenkins' Mill, surveyed in 1761 to connect the Valley Forge community with the mill, is shown ending near the eastern extremity of the map, while it evidently carried through to the mill east of camp. Duportail does not show a direct connection between the Baptist Road as it enters camp on the south and the Fatland Ford-Sullivan's Bridge area. Such a direct route appears on the Penny-packer map and on the Davis-Armstrong-Sparks map, but it is impossible to say at this juncture whether or not this route, indicated on the Base Map as a "possible trace road," existed at the time of the encampment.

It should be noted as well that between 1795 and 1801, Duportail owned a farm close to the encampment site, on the Swedesford Road, and lived in the area. It is possible but less likely that he devised the map

during this later period.³

The Duportail map provides the following valuable details: location of four redoubts, first and second line defenses, including entrenchments, obstacles, and redans, hutting areas, order of brigades along the first line, domestic and forge-related structures, location of the Provost Guard, Commander's Guard, Sullivan's Bridge, roads, orchards, streams, springs, meadows, and wooded and gladed areas. Unfortunately he did not bother to indicate the brigade locations for the second line and third line of defense, compelling reliance on later maps and documents for the positions of Maxwell's, Conway's, Huntington's, Varnum's, and McIntosh's brigades. Missing also is the second redoubt (No. 5), on the far left of the first line, which was probably begun very late in the encampment period (see discussion of fortifications below).

B. The Jared Sparks Copy of the Duportail Map

This map, labeled "Encampment at Valley Forge 1778" (see Map 2) is housed in the Jared Sparks Collection, Cornell University (Olin) Library. It seems to have been copied directly from the Duportail map, as both maps bear pin-pricks, a common method of copying maps and sketches.

³Kite, "Duportail," 350.

The map was made for Jared Sparks, Washington's biographer and historian of the Revolution, at an uncertain date. Cornell University acquired Sparks's maps in 1872,⁴ and the original catalog entry reads, "a sketch delicately executed for Mr. Sparks, The position of some of the redoubts in this map is believed to have been altered at General Lafayette's suggestion."⁵ This copy follows Duportail exactly, leaving out only a few details, down to the repositioning of Redoubt No. 1 ("Star Redoubt") as indicated on Duportail's plan. Its existence demonstrates that, far from being lost until about 1900, the Duportail map was known during Jared Sparks's lifetime.

C. Map Labeled "Albert K. Davis"

This map is derivative of the Duportail map, and is labeled "Encampment at Valley Forge 1778" (see Map C), in a cartouche in the upper right corner. It is also labeled "Albert K. Davis" in red ink in the upper left corner, and is housed at the Historical Society of Pennsylvania. This map may also have been at one time in the possession of Jared Sparks, for Elizabeth Kite asserts that a copy of

4. Letter appended to photocopy of the Sparks copy of the Duportail map (see below). Barbara Bethelson to Allen Montgomery, 28 June 1976, VFNHP.

5. Ibid.

the Duportail map was transferred from Cornell University to the Historical Society of Pennsylvania through the agency of Governor Samuel W. Pennypacker.⁶ A note in the folder with the map states that it was once owned by Pennypacker.

This map has been assumed by some to be a map contemporary with the encampment period, which is demonstrably not the case. It is drawn in ink on wove paper, the latter being a paper-making process not introduced until the 1790s. The paper bears the watermark ILMOUR, a partial print of GILMOUR & BROTHERS, a paper maker or stationer about which nothing is currently known. Two examples of GILMOUR & BROTHERS paper and one of the truncated ILMOUR & ROTHERS exist in the Pennebacker Watermark Collection at the Henry Francis Dupont Winterthur Museum, two of which bear textual material dating to the 1830s. It is likely that the map derives from the early nineteenth century.

The map is much cruder than the Duportail plan, and is a principal source for locating the brigade encampments on the second line. The Road to Jenkins' Mill is mislabeled "Gulf Road," and the rest of the arteries through camp are copied from Duportail. Some of them are crossed

6. Kite, "Duportail," 345.

out, and a dotted line shows a direct link between the Baptist Road and the Fatland Ford-Sullivan's Bridge area. The map also locates the Artificers across Valley Creek to the west of Headquarters.

D. Davis-Armstrong-Sparks Map and Related Correspondence

This map (see Map D) is currently lodged in the Jared Sparks Collection, Cornell University (Olin) Library. It was made for Jared Sparks by William Davis, then residing in the John Havard house at Valley Forge, during the summer of 1833. The map is a principal source for the location of officers' quarters, and the following information is useful in judging its veracity:

Jared Sparks, historian and President of Harvard University from 1849 to 1853, published numerous historical studies including his Life of George Washington (1839) and the first compilation of Washington's writings. While he was at work on the latter in 1832 he began corresponding with John Armstrong, Jr., veteran of the Revolution and one-time Secretary of War, then living in retirement at Red Hook, NY. Armstrong, son of John Armstrong, the militia general, had served as aide to General Hugh Mercer and in various other volunteer capacities. In the summer of 1833, Sparks wrote to Armstrong seeking a reliable informant who could provide him with the layout of

the Valley Forge encampment in detail, and Armstrong replied:

The Pennsylvania line, made part of the army forming the Cantonment of 77-8 at Valley Forge, and I shall endeavor to find among the Survivors, some one competent to give the information you seek, with respect to Corps, and the positions given them. It is, however, not probable, that anything so minute as the enumeration & specification of Regiments, can now be obtained. Brigades, Divisions or Lines, may be remembered.⁷

Armstrong was as good as his word, and wrote again to Sparks in August:

I have the following answer to the enquiry made concerning the Camp at Valley Forge. "Capt. Markland, the only survivor of the Penna. line possessed of mind & memory sufficiently sound to answer your question is in the country -- I shall watch his return to the city, and see him immediately after it. I shall also see Mr. I Wayne, the Gen's son, living in Chester County -- who may know some one -- who, like Markland, will be able to give the information you want."⁸

By September 10, 1833, Armstrong had received a communication from Markland (quoted below in the discussion of Brigade Encampments). Markland, who had served at Valley Forge as a lieutenant in the 9th Pennsylvania Regiment, was to all appearances a reliable, if aged,

7. John Armstrong, Jr., to Jared Sparks, 27 July 1833, Jared Sparks Collection, Houghton Library, HU.

8. John Armstrong, Jr., to Jared Sparks, 22 August 1833, Jared Sparks Collection, Houghton Library, HU.

informant.⁹

In addition, Isaac Wayne had written to Armstrong, enclosing a map he had obtained from William Davis (see Map D). On the reverse of this map, which Armstrong simply folded and posted from Red Hook, is the following letter addressed to Sparks:

Dear Sir,
 you will find enclosed a rough draught of Valley Forge, with the positions of the different Brigades comprising the army which wintered here in 77-8. There is little [divergence?] between the latter as given here & that furnished by Capt. Markland lately transmitted to you. The present was obtained thro' M. Wayne, son of the Gen. of that name -- from Wm Davis, Esq. "a remarkably active & intelligent man -- who resided within" the limits of the Camp during its continuance there -- Mr Wayne adds "I know of no living person who is so likely to fulfill the intentions of the enquiry, as this gentleman, whose recollections of the most minute occurrences of the period, are entirely unaffected by age."¹⁰

Henry Woodman, in his 1850 History of Valley Forge, states that Davis was John Havard's son-in-law and that he "possessed a good memory, and retained his bodily and mental powers, to the close of his life. . . ." ¹¹

9. Heitman, Historical Register, p. 284.

10. John Armstrong, Jr. to Jared Sparks (on the reverse of a draft map of Valley Forge), 23 September 1833, Jared Sparks Collection, Olin Library, Cornell University.

11. Henry Woodman, The History of Valley Forge (Oaks, Pa.: John U. Francis, Sr., 1922), pp. 112-113.

In addition to the arrangement of the brigade encampments, the Davis-Armstrong-Sparks map roughly indicates the locations of Stirling's, Knox's, Lafayette's, Dupont's, Wayne's, Kalb's, Muhlenberg's, Huntington's, and Varnum's quarters. Roads are roughly indicated, together with the Artificers' encampment, breastworks, and three of the redoubts, Nos. 1, 2, and 4.

E. The "Pennypacker" Map

As with the other two maps housed at the Historical Society of Pennsylvania, discussed above, provenience information concerning this map (see Map E) is slight. In this case, the author of the map is unknown, but it was certainly drawn by a practiced hand, either British or American. It was apparently found and purchased by Governor Samuel Pennypacker, while on a trip to The Netherlands. It is drawn in ink and watercolor on laid paper, bearing a watermark which appears as follows:



British watermark authority Edward Heawood located at least two examples of this watermark, one dated Portsmouth, England, 1762, and the other London,

1766.¹² The paper is certainly of the Revolutionary period, and may have been done at the time of the encampment.

This map bears certain similarities to the map of Valley Forge which appears in the diary of Capt. Johann Ewald, who served during the Valley Forge period under the British flag in Lt. Gen. Wilhelm von Knyphausen's Field-Jäger Corps.

The Pennypacker Map clearly shows the roads on the perimeter of the Valley Forge encampment, even giving mileages between crossroads, but it is sketchy in delineating features within the camp. It differs from other depictions of the encampment in several important respects. The cartographer inserts Huntington's Brigade on the first line of defense between Wayne's and Poor's, and omits Learned's Brigade entirely. On the second line he begins properly with the "Jersey Brig." (Maxwell's) on the right, then the "Pensylvania Br.," followed by Varnum and "Macdougals." New York troops are placed at the junction of the Gulph and Jenkins' Mill roads, and the North Carolina Brigade appears to the west of Valley Creek.

12. Edward Heawood, Watermarks, Mainly of the 17th and 18th Centuries, The Paper Publications Society, Monumentum Chartae Papyraceae Historiam Illustrantia, vol. 1 (Hilvesum, Holland), illustrations 2970 and 2971. (All volumes of this series published to date have been checked for this and the other watermarks of early Valley Forge maps.)

The McDougall identification is readily explained, as both Varnum's and Huntington's brigades were still technically the two components of McDougall's Division. (This map, incidentally, is the only one which indicates Stirling's, Greene's, LaFayette's, and McDougall's divisional commands.) The map also shows two redoubts at the left of the first line.

It is possible that this map was done by an American. Washington commissioned Surveyor Benjamin Lodge to map the area around camp in February of 1778, for which duty he swore a special oath of allegiance to insure secrecy.¹³ Because of some interesting similarities with the Ewald map, however, it is plausible that this is the most sophisticated of the British spy maps of the encampment. Ewald shows Huntington's and Conway's brigades on the first line of defense, and omits Learned. He also shows two redoubts on the left of the first line, places McDougall ("Douglas") on the left of the second line, and locates the North Carolina troops west of Valley Creek. If this were the British conception of the Patriot camp at Valley Forge, the Pennypacker Map is suggestively similar to it.

This leaves us with the question of the reliability

13. Oath of Benjamin Lodge, et al., Society Miscellaneous Collection, HSP.

of the Pennypacker map. The placement of Huntington's brigade and the omission of Learned's appear, from the order of battle suggested by Duportail (see discussion below under Brigade Encampments) to be in error. The position of the North Carolina troops (discussed below under Brigade Encampments) may, because of other evidence, be correct.

F. The Ewald Map

This map, which is in a private collection, was published in the English translation of the diary of Captain Johann Ewald in 1979,¹⁴ In its recognizable but skewed topography appear four of the redoubts (No. 4 is missing), and the brigades, with the discrepancies noted above, on the first and second lines of defense. Only first line entrenchments are shown. The names of brigadier generals are creatively germanicized. Ewald, by his own account, was actively engaged patrolling the British lines, and in forays into disputed territory during the period of the British occupation of Philadelphia, Ewald does not appear to have seen the American camp himself, but a fellow officer or deserter may have given him the information

14. Johann Ewald, Diary of the American War, A Hessian Journal, trans. and ed. Joseph P. Tustin (New Haven: Yale University Press, 1979), pp. 124-125. The editor misidentifies some of the brigades in the map caption, p. 124.

from which his map was derived.

G. The Joseph Galloway Spy Map

Somehow in March 1778, loyalist Joseph Galloway obtained a copy of a spy map of the Valley Forge encampment, which he forwarded to the Earl of Dartmouth on March 24, 1778 (see Map F).¹⁵ Although undeniably crude, the map nevertheless shows the camp at an early stage in its evolution, corresponding excellently with a report on the fortifications submitted by von Steuben on March 5, which reported only two redoubts in camp to date, on the left wing. Viewing the encampment from Valley Creek, it appears that von Steuben was speaking of Redoubt No. 1 and a redoubt on the far left of the first line of defense, the only redoubts appearing on the Galloway Spy map (see below, "Fortifications" for a further discussion). The Redoubt No. 1 is represented as a hexagon, and first and second line huttings are roughly dotted in. No second line works appear, in accordance with von Steuben's March 5 report. A notation on the map states that the redoubt on far left of the first line is not yet begun, which could mean either that the spy was privy to the planned fortifications of the encampment or that he saw the work being

15. Benjamin F. Stevens, Facsimiles of Manuscripts in European Archives Relating to America, 26 vols. (London: 1889-1895), 24: Ms. #2093.

staked out on the ground, as was customary practice.

H. The Parker Spy Map

The Parker Spy map is labeled on the reverse, "Plan of Washington's Position, Mr. Parker, late a Merchant in Virginia, now in Philadelphia"¹⁶ (see Map G). Presumably it was executed before the British evacuation of Philadelphia, but after the Galloway Spy Map, as the later stage of the defenses indicate. The poor perception of the relationship between Sullivan's Bridge, the roads leading to it, redoubt No. 1 (the star redoubt), and David Stephens' house suggest that the spy had limited or no acquaintance with that portion of camp, but may have ridden through the center. Redoubt No. 3 and the first line defenses are in place, thus probably post-dating it to the Galloway map. The only brigade located is the Carolina (McIntosh's) Brigade, and Parker describes the abatis before the second line as "deep brush 20 yards in front" (presumably of the huts).¹⁷

16. "Plan of Washington's Position, Mr. Parker, late a Merchant in Virginia, now in Philadelphia," Clinton Papers, WLC. (Copy in the VFNHPL).

17. Ibid.

II. TOOLS TO BUILD AN ENCAMPMENT

The ability to build depends upon the level of skill achieved by the workman, the technology available to him in the form of knowledge and implements, and the materials at hand. The keenly felt shortage of proper implements at camp in December and January attenuated the construction not only of the bridge over the Schuylkill but also of the modest huts and auxiliary structures built by the enlisted men and officers. Insight into the tool assemblage is of particular importance in framing a reliable hypothetical description of the structures which resulted.

The ax was the essential tool of the Continental soldier. The ability to wield an ax expertly was not a universally enjoyed skill, and experienced axmen were detached from their units to form special fatigue details charged with cutting roads and preparing new camps. In September 1777, about 150 axmen were dispatched to clear a new encampment site for Washington's "Main Army" and

were sent ahead of the troops.¹ The eighteenth century felling ax was, however, a much less cooperative instrument than its modern forged steel counterpart. Ax manufacture was the laborious task of highly skilled blacksmiths, who welded together a wedge of steel in an iron bit, the quality of the weld dictating the subsequent performance of the tool. The operation, like all tool manufacture of the period, was a one-by-one production process with no standardization or regularity and subject to the idiosyncrasies which marked the skill or limitations of the individual worker. Many axes were forged without steel bits, and it appears that Sullivan's bridge builders may have been the unhappy recipients of these poor quality tools:

I Took my people the first Day to try their axes -- when they found them Break Surprisingly (as I expected) they had no Grindstone till the Second Day near five of Clock.²

The felling ax had, by the Revolution, developed a heavy poll to counterbalance it and render it suitable for the multifarious tasks to which it was applied on this side of the Atlantic, such as log and rail splitting. Its

1. Orderly Book of Colonel C. Hughes, entry for 27 September 1777, Papers of the Valley Forge Park Commission, PA. Hughes does not appear in Heitman's Officers of the Continental Army, which may indicate that he was a Colonel of Pennsylvania Militia.

2. Hammond, Sullivan Papers, 2:604.

center of gravity was near the eye as opposed to well forward on the blade, as with English-style axes.³

The paucity of tools for hut building is suggested in a letter of Surgeon's Mate Jonathan Todd to his father, claiming that he and his hutmates "have one Dull ax to build a Logg Hutt When it will be done knows not."⁴ By January 1, 1778, it was announced in General Orders that "A considerable number of Froes and some Axxes are ready to be issued at the Quarter Master General's Stores."⁵ It is apparent that hut-building had been impeded by shortages of even these rudimentary tools.

By mid-April there were still insufficient axes in

3. For ax manufacture, see Henry J. Kauffman, American Axes: A Survey of Their Development and Their Makers (Brattleboro, Vt.: The Stephen Greene Press, 1972), pp. 16-29. For their use by the Continental soldier, see Harold L. Peterson, The Book of the Continental Soldier (Harrisburg, Pa.: The Stackpole Company, 1968), pp. 183-185. For a discussion of English and American axes recovered archaeologically at Fort Stanwix, see Lee Hanson and Dick Ping Hsu, Casemates and Cannonballs: Archaeological Investigation at Fort Stanwix, Rome, New York (Washington, D.C.: United States Department of the Interior, National Park Service, 1975), pp. 102-104. An eared hatchet emerged from the excavations of Fort Laurens, Ohio, which was occupied by American troops in 1778-1779. See Richard Michael Gramly, Fort Laurens 1778-9: The Archaeological Record (Richmond, Va.: The William Byrd Press, Inc.), p. 75.

4. Jonathan Todd to Timothy Todd, 25 December 1777, M806, RG15, NA.

5. General Orders of 1 January 1778, Washington Papers, LC.

Camp, as Major General Nathanael Greene, by then Quartermaster General, was compelled to call in axes from Varnum's Brigade for some unspecified purpose, probably the building of fortifications or the cutting of palisades.⁶ In May, however, Greene's energetic efforts to re-equip the Army for the ensuing campaign were yielding results. There exist two lengthy invoices for tools delivered to the Quartermaster's Stores in Camp (see Appendices A and B). The first delivery, dated May 10, includes only eleven axes and fifteen broadaxes, the second of May 16, notes a mere six axes.⁷ A third list, containing all the tools delivered to Valley Forge in May, gives a total of 528 axes with handles, 400 without, 200 old axes needing repair, and 64 broadaxes, illustrating a dramatic improvement over the previous December.⁸

Other tools which would have been necessary to

6. Nathanael Greene to James Mitchell Varnum, 17 April 1778, Nathanael Greene Papers, WLC. Washington was vexed by the poor quality axes which constantly required repair, blaming the Armourer's Department for the problem. George Washington to the Board of War, 6 March 1778, GWP, LC.

7. Invoice of camp equipage sent by Anthony Butler to Nathanael Greene, 10 May 1778, with partial invoice for 16 May 1778, Lloyd W. Smith Collection, MNHPL.

8. List of Quarter Masters' stores received of Thomas Craig at Valley Forge in May, 1778, Weiss Manuscripts, HSP.

efficient hut building were froes and augers, allowing for the splitting of shakes and the tying together of cross-members. The froe was the basic tool for splitting shakes or shingles from logs cut to the desired length of the shake. The blade of the froe was driven into the log end with a mallet, and the shake split off. It is possible to perform this operation with an ax, but it is considerably more difficult and time-consuming. Commonly, shakes were smoothed and tapered with a draw knife, but lack of time and tools argues against this being the procedure at Valley Forge. Wedges for splitting logs would have been useful and were common in Revolutionary period encampments, but no references to them have been encountered in documents pertaining to Valley Forge. Froes, as mentioned earlier, became generally available on January 1, but there is no mention of augers in General

Orders or in orderly books.⁹ Tools with application to digging, and used in fortification and hut construction, arrived in quantity on December 29, when a shipment of 500 picks, 1000 spades, and 1000 shovels came in from Colonel Mark Bird, Quartermaster at Reading.¹⁰

The general effect of the inadequate quantities of tools available at camp when the preponderance of

9. If axes were balky, eighteenth century "pod" and "nose" augers were equally difficult to use. For an excellent discussion of the use of this tool accompanied by drawings see Aldren A. Watson, Country Furniture (New York: Thomas Y. Crowell, 1974), pp. 96-99.

On shake-splitting and roofing processes see: N. A., "Making Split and Shaved Shingles," American Agriculturalist, XXXVIII: 6 (June, 1879). Bradford Angier, "Shake Roof," The Beaver, The Chronicle of the Early American Industries Association, I:6 (July, 1934). A froe was found in archaeological investigations of Ft. Stanwix, Rome, New York, although the context may have been pre-Revolutionary. See Hanson and Ping Hsu, Casemates and Cannonballs, p. 104. A wedge emerged from the same excavations. Six wedges, which also may date from pre-Revolutionary occupations, were recovered at Fort Michilimackinac.

Standard works treating wood-working tools of the period are: W. L. Goodman, The History of Woodworking Tools (London: G. Bell & Sons, 1964), Henry Chapman Mercer, The Tools of the Nation Maker, Bucks County Historical Society Collections, vol. 3 (1909). See Also Bucks County Historical Society, Ancient Carpenters' Tools (Doylestown, Pa.: Bucks County Historical Society, 1951).

10. Receipt of Deputy Assistant Quarter Master General Andrew Grey, 22 December 1777, ChiHS.

construction was taking place can be summarized as follows: critical shortages of basic tools attenuated all construction activities into January, 1778. Construction of earthworks was not delayed by a shortage of tools, but fell behind in the face of the compelling necessity for shelter, inclement weather, and because of difficulty in forcing the troops and field officers to work on them.

III. BRIGADE ENCAMPMENTS

First Line of Defense ("Outer Line"), right to left:

A. Brig. Gen. William Woodford's Brigade--3rd, 7th, 11th, and 15th Virginia regiments. Four regiments, 1,369 officers and men, of whom 266 were present and fit for duty on December 31, 1777. The brigade numbered 1,213 officers and men, of whom 654 were present and fit for duty May 30, 1778.¹

The Duportail, Davis-Armstrong-Sparks, and Penny-packer maps agree in positioning Woodford's Brigade first on the right of the right of the first line, in a somewhat isolated position across a swale and to the right of Scott's Brigade, on the southern slope of "Mount Joy." As with the remaining brigades in the first line, Duportail's map indicates a breastwork or entrenchment fronting the brigade.

1. Charles H. Lesser, ed., The Sinews of Independence: Monthly Strength Reports of the Continental Army (Chicago: The University of Chicago Press, 1976), pp. 54, 68.

B. Brig. Gen. Charles Scott's Brigade--4th, 8th, and 12th Virginia regiments, and Col. William Grayson's and Col. John Patton's Additional Continental regiments. Five regiments, 1,300 officers and men, of whom 535 were present and fit for duty on December 31, 1777. On May 30, 1778, the brigade numbered 1,156 officers and men, of whom 634 were present and fit for duty.²

The Duportail, Pennypacker, and Davis-Armstrong-Sparks maps agree in placing this brigade second from the right of the first line of defense, to the right of the two Pennsylvania brigades.

C. 1st Pennsylvania Brigade--1st, 2nd, 7th, and 10th Pennsylvania regiments, and Col. Thomas Hartley's Additional Continental regiment. Hartley's regiment was detached and sent to York, Pa., before the end of February, 1778, and did not appear on the general returns again before the end of May. The 1st and 2nd Pennsylvania brigades, during the absence of Maj. Gen. Arthur St. Clair during the entirety of the encampment, were under the command of Brig. Gen. Anthony Wayne. The 1st Brigade, as indicated by Commissary Department returns, was at least nominally under the command of Col. James Chambers of the

2. Ibid., pp. 54, 68.

1st Pennsylvania Regiment.³ Five regiments in December, 1777, numbered 1,272 officers and men, of whom 524 were present and fit for duty on December 31. On May 30, 1778, the brigade numbered 937 officers and men, in four regiments, with 569 present and fit for duty.⁴

Duportail places this brigade third on the right of the first line of defense. The Pennypacker and Davis-Armstrong-Sparks maps do not distinguish between the two Pennsylvania brigades in this location.

D. 2nd Pennsylvania Brigade--4th, 5th, 8th, and 11th Pennsylvania regiments. Commissary Department returns indicate that this brigade, under Wayne's temporary divisional command like the 1st Pennsylvania Brigade, was commanded by Col. Daniel Brodhead during the Valley Forge encampment.⁵ The four regiments included 1,125 officers and men, with 630 present and fit for duty December 31, 1777. It numbered 1,022 officers and men, with 672 present and fit for duty on May 30, 1778.⁶

3. See, for instance, Return of Provisions received by Thomas Jones, May 1778, Charles Stewart Papers, NYSHA.

4. Lesser, Sinews, pp. 54, 68.

5. This is reflected in the list of brigade commanders appearing in commissary returns, as for instance the Return of Provisions received by Thomas Jones, May 1778, Charles Stewart Papers, NYSHA.

6. Lesser, Sinews, pp. 54, 68.

Duportail places this brigade fourth from the right of the first line of defense. The Pennypacker and Davis-Armstrong-Sparks maps do not distinguish between the two Pennsylvania brigades in this location.

E. Brig. Gen. Enoch Poor's Brigade--1st, 2nd, and 3rd New Hampshire regiments, and 2nd and 4th New York regiments. These five regiments numbered 1,660 officers and men, with 965 present and fit for duty on December 31, 1777. There were 1,698 officers and men in the brigade, with 944 present and fit for duty, on May 30, 1778.⁷

The Duportail and Davis-Armstrong-Sparks maps agree that this brigade was sixth from the left on the first, or outer line of defense, positioned south of the Gulph Road. The Pennypacker map, however, shows New York troops at another location, to the rear of the second, or inner, line, straddling the road to Jenkins' Mill. Duportail shows troops in this location as well, but does not specify who they were. While this encampment area has on the evidence of the Davis-Armstrong-Sparks map been associated with North Carolina troops, this location cannot be entirely discounted as a possible encampment for some or all of the New York regiments.

7. Ibid., pp. 55, 68.

F. Brig. Gen. John Glover's Brigade--1st, 4th, 13th, and 15th Massachusetts regiments. Four regiments with 1,735 officers and men, 1,073 present and fit for duty on December 31, 1777. The brigade numbered 1,486 officers and men, with 939 present and fit for duty on May 30, 1778.⁸

The Duportail and Davis-Armstrong-Sparks maps agree that this brigade was fifth on the left of the first line of defense. The Pennypacker map shows the brigade south of the Gulph Road. The Davis-Armstrong-Sparks map shows it on the north, and the Duportail map does not specify. Because of this conflicting data it is difficult to state definitely where the brigade was in relation to the Gulph Road, although it was almost certainly to the immediate north or south of this thoroughfare.

G. Brig. Gen. Ebenezer Learned's Brigade--2nd, 8th, and 9th Massachusetts regiments. Three regiments, numbering 1,252 officers and men, with 801 present and fit for duty December 31, 1777. The brigade included 1,096 officers and men, with 633 present and fit for duty May 30, 1778.⁹

The Duportail and Davis-Armstrong-Sparks maps agree in positioning Learned's brigade fourth from the left of

8. Ibid., pp. 55, 68.

9. Ibid., pp. 55, 68.

the first line of defense. The brigade is omitted on the Pennypacker map.

H. Brig. Gen. John Paterson's Brigade--10th, 11th, 12th, and 14th Massachusetts regiments. Four regiments, 1,531 officers and men, with 935 present and fit for duty December 31, 1777. The brigade numbered 1,300 officers and men, with 795 present and fit for duty on May 30, 1778.¹⁰

The Duportail, Pennypacker, and Davis-Armstrong-Sparks maps agree in placing this brigade third on the left of the first line of defense.

I. Brig. Gen. George Weedon's Brigade--2nd, 6th, 10th, and 14th Virginia regiments, and the 13th Pennsylvania regiment. Five regiments, 2,380 officers and men, 849 present and fit for duty December 31, 1777. The brigade numbered 1,490 officers and men, with 920 present and fit for duty on May 30, 1778.¹¹

J. Brig. Gen. Peter Muhlenberg's Brigade--1st, 5th, 9th, and 13th Virginia regiments, the German Regiment, and the 1st Virginia State Regiment. Six regiments, 1,553 officers

10. Ibid., 66, 58.

11. Ibid., pp. 54, 68.

and men, with 678 present and fit for duty December 31, 1777. The brigade numbered 1,328 officers and men, with 775 present and fit for duty on May 30, 1778.¹²

The Duportail, Pennypacker, and Davis-Armstrong-Sparks maps agree that this brigade was first on the left of the first line of defense.

First Line of Defense (Outer Line)--Summary

The Duportail map appears to be the most reliable source for the positioning of the brigades on the first line. Its information is corroborated by two later maps, the Davis-Armstrong-Sparks map and the Albert K. Davis map. The Pennypacker map differs with these sources in three respects: the omission of Learned's Brigade, the location of the New York troops, and the insertion of Huntington's Brigade between Poor's and Wayne's, apparently an error.

Presuming the Duportail layout to be correct, there were about 7,256 men encamped on the first line, from Muhlenberg's Brigade on the left to Woodford's on the far right, at the end of December 1777. In May there were about 7,535 officers and men in this location, representing a slight increase over the December figure.¹³

12. Ibid., pp. 54, 68.

13. Ibid., pp. 54-55, 68-69.

Second Line of Defense ("Inner Line"), right to left:

The brigade locations in this line are more problematic, as Duportail does not indicate their arrangement on his map. Evidence derives principally from later maps and verbal descriptions, noted below.

K. Brig. Gen. William Maxwell's Brigade--1st, 2nd, 3rd, and 4th New Jersey Regiments. Four regiments, including 1,070 officers and men, 745 present and fit for duty on December 31, 1777. The brigade was detached to New Jersey in May 1778.¹⁴

The Davis-Armstrong-Sparks and Pennypacker maps agree in positioning this brigade first on the right of the second line, just south of the Gulph Road. In addition, John Markland, who had been a 2nd lieutenant in the 9th Pennsylvania (Conway's Brigade) penned this description of the second line in 1833:

On the right of the second line was Maxwell's brigade of Jersey troops--on their left, Conway's brigade, composed of the 3^d 6th 9th & 12th Pennsylvania regim^{ts}, with a detachment of Malcom's [sic]--these two brigades formed the division of Lord Stirling's and in the same line were the New England troops, the names and numbers of whose regim^{ts}, I know not.¹⁵

14. Ibid., pp. 54, 68.

15. John Markland quoted in John Armstrong, Jr., to Jared Sparks, 10 September 1833, Jared Sparks Collection, Houghton Library, HU.

Markland's recollections, so far as they went, were consonant with the arrangement of units on the second line as shown on the Davis-Armstrong-Sparks, Albert K. Davis, and Pennypacker maps.

L. Brig. Gen. Thomas Conway's (late Conway's) Brigade--3rd, 6th, 9th, and 12th Pennsylvania regiments, together with Malcolm's and Spencer's Additional Continental regiments. Six regiments, 940 officers and men, with 818 present and fit for duty December 31, 1777. The brigade numbered 1,187 officers and men, with 705 present and fit for duty on May 30, 1778.¹⁶ This brigade lacked a commanding brigadier general during the Valley Forge encampment, as a result of the promotion of General Conway to Inspector General with the rank of major general on December 13, 1777.¹⁷

The Davis-Armstrong-Sparks map shows Conway's brigade just north of the Gulph Road on the second line, as does the Pennypacker map (it is referred to as the "Pennsylvania Br." on the latter). This positioning agrees with the Markland description quoted above.

M. Brig. Gen. Jedediah Huntington's Brigade--1st, 2nd, 5th, and 7th Connecticut regiments. Four regiments,

16. Lesser, Sinews, pp. 54, 69.

17. Heitman, Historical Register, p. 133.

numbering 1,939 officers and men, with 1,290 present and fit for duty December 31, 1777. The brigade included 1,594 officers and men, with 1,075 present and fit for duty on May 30, 1778.¹⁸

The Davis-Armstrong-Sparks map shows this brigade positioned just south of the road to Jenkins' Mill, fronting Redoubt No. 4. The Pennypacker map features this brigade on the first line of defense, probably an error as this positioning conflicts with the order of battle disclosed on the Duportail map and in the general returns of the Army (see discussion below).

N. Brig. Gen. James Mitchell Varnum's Brigade--4th and 8th Connecticut regiments, and the 1st and 2nd Rhode Island regiments. Four regiments, including 1,715 officers and men, with 1,023 present and fit for duty December 31, 1777. The brigade numbered 1,263 officers and men, with 874 present and fit for duty, on May 30, 1778.¹⁹

The Davis-Armstrong-Sparks map locates Varnum's Brigade on the Road to Jenkins' Mill, east of the redoubt covering Sullivan's Bridge. Duportail indicates huts in this location, but does not specify the brigade. The Pennypacker map shows no troops in this location, placing

18. Lesser, Sinews, pp. 55, 69.

19. Ibid., pp. 55, 69.

Varnum's men farther to the right on the second line.

Second Line of Defense--Summary

Presuming that Huntington's troops were positioned on the second line, there were 4,201 officers and men on this line of defense at the end of December 1777. Maxwell's Brigade was detached to New Jersey in May, and thus there were at least 2,654 officers and men on the second line on May 30, 1778. It is probable that recruits and units arriving at Valley Forge to reinforce the Army used the huts vacated by the New Jersey troops.

Third Line of Defense

O. Brig. Gen. Lachlan McIntosh's Brigade--1st through the 9th North Carolina regiments (consolidated into three regiments, January 1778), with the 10th North Carolina regiment arriving in May 1778. The brigade included 1,412 officers and men, with 905 present and fit for duty December 31, 1777. Four regiments on May 30, 1778, had 1,397 officers and men, of whom 803 were present and fit for duty.²⁰

The position of McIntosh's Brigade, forming a third or rear line of defense, is open to question, there being two possible locations. Some sources indicate a site

20. Ibid., pp. 55, 69.

between the Gulph Road and the road to Jenkins' Mill, southeast of Headquarters, others suggest a location across Valley Creek, to the rear of camp. Evidence for the latter location derives from the Pennypacker Map, which shows North Carolina troops across the creek from Headquarters, between Nutt's Road and the Schuylkill River. Duportail indicates huts in this location, but does not disclose what troops were positioned here. John Markland, in his description penned to John Armstrong, Jr., in 1833, wrote "The third and last line, composed of the North Carolina regiments (late Nash's brigade)²¹ and others, names not recollected--was formed in the rear of Head Quarters. . . ." ²² If Markland meant "rear" in the military sense, the troops were across Valley Creek. Armstrong put this interpretation on it, because in a sketch he sent to Jared Sparks he placed the North Carolina troops across Valley Creek. One can argue circumstantially for this positioning of the North Carolina troops, as it seems unlikely that Washington would have left the rear of camp, and particularly Headquarters, unguarded.

21. Markland's memory served him well here. Brig. Gen. Francis Nash had commanded the North Carolina Brigade prior to McIntosh. He was wounded at Germantown on October 4, 1777, and died of his injuries on October 17. See Heitman, Historical Register, p. 306.

22. John Markland quoted in John Armstrong, Jr., to Jared Sparks, 10 September 1833, Jared Sparks Collection, Houghton Library, HU. The Parker spy map places North Carolina troops between Headquarters and the second line.

The Davis-Armstrong-Sparks map, however, shows North Carolina troops east of Headquarters, between Gulph Road and the road to Jenkins' Mill.

P. Artillery Park

The Duportail Map, as well as all other maps, places the Artillery Park and troops on the right between the first and second lines of defense. Brig. Gen. Henry Knox commanded the artillery with the "Main Army," and at Valley Forge the contingent included portions of the 2nd, 3rd, and 4th Continental regiments of artillery, with 630 officers and men and 522 present and fit for duty on February 29, 1778. By May 30, the artillery complement with Washington's Army consisted of seven companies of the 3rd Regiment, five companies of the 2nd, and all of the 1st and 4th regiments, plus three undesignated companies. On this date the contingent numbered 1,133 officers and men with 1,035 present and fit for duty.²³

Q. Artificers

The Regiment of Artificers, which consisted of all manner of armorers, smiths, coopers, wheel- and wagon-wrights, etc., was commanded by Col. Benjamin Flower. Their numbers do not appear in the general returns of the

23. Lesser, Sinews, pp. 59, 69.

Army. The Davis-Armstrong-Sparks map shows their camp to be across Valley Creek, south of Nutt's Road.

Duportail indicates unlabeled huts in this location.

R. Provost Guard

Duportail locates this police unit on the road to Jenkins' Mill, behind the first line of defense in the left (see below).

S. Commander-in-Chief's Guard

The Duportail and Davis-Armstrong-Sparks maps indicate that Washington's personal guard was huted just east of Headquarters.

T. Dragoons

The body of the four regiments of Continental Dragoons (1st, Col. Theodoric Bland's; 4th, Col. Stephen Moylan's; 3rd, Col. George Baylor's; and 2nd, Col. Elisha Sheldon's), appear not to have had a permanent encampment site at Valley Forge. Although listed on the December general returns as being in the Valley Forge "area," they were ordered to separate quarters in New Jersey on December 31, 1777. Small detachments of dragoons served as advanced pickets between Valley Forge and Philadelphia, particularly in the late winter and spring of 1778.²⁴

24. Lesser, Sinews, pp. 55-56.

U. Late Arrivals

The May 30, 1778, general return of the Army indicates that during the previous month the following troops had arrived in camp (their hut or tenting locations unknown): the 1st Maryland Brigade (1st, 3rd, 5th, and 7th Maryland regiments, and the Delaware Regiment), the 1st New York, and the 2nd Virginia State Regiment.²⁵

V. Order of Battle

The order of battle adopted by the Army at Valley Forge, as reflected in the monthly general returns, supports the sequence of brigades outlined above. The December, 1777, general returns listed the brigades in this sequence: 1st Maryland, 2nd Maryland, Muhlenberg, Weedon, Woodford, Scott, 1st Pennsylvania, 2nd Pennsylvania, Maxwell's, Late Conway's, Poor's, Glover's, Learned's, Paterson's, Varnum's, and Huntington's. In the January return, however, the listing of brigades was altered, apparently reflecting the order of battle prevailing during the encampment. They remained as follows through the encampment period: Woodford's, Scott's, 1st Pennsylvania, 2nd Pennsylvania, Poor's, Glover's, Learned's, Paterson's, Weedon's, Muhlenberg's,

25. Lesser, Sinews, pp. 68-70.

Maxwell's, Late Conway's, Huntington's, Varnum's, and McIntosh's.²⁶ This is compatible with the arrangement of brigades, from right to left, as indicated on the Duportail and Davis-Armstrong-Sparks maps:

<u>First Line</u>	<u>Second Line</u>	<u>Third Line</u>
Woodford	Maxwell	McIntosh
Scott	Late Conway	
1st Pennsylvania	Huntington	
2nd Pennsylvania	Varnum	
Poor		
Glover		
Learned		
Paterson		
Weedon		
Muhlenberg		

We can with some confidence infer that the insertion of Huntington's brigade and the omission of Learned's on the Pennypacker map, are errors.

Furthermore, the order of regiments established within the brigades in the general returns is maintained throughout the encampment period. For instance, Glover's Brigade included the 4th, 13th, 1st, and 15th Massachusetts regiments, invariably listed in this order. It is likely that this was the arrangement of regiments established in the brigade encampment, from right to left (see Historic Base Map).

26. See the monthly returns, December through May 1777-1778, Lesser, Sinews, pp. 54-70.

IV. MILITARY STRUCTURES AND FEATURES

A. Huts for Dwelling

1. Materials, Specifications, and Techniques

The regional disparity of soldiers constituting the Continental Army dictated a variety of building techniques brought to bear on hut construction, although the mandate for regularity stated in General Orders of December 18, 1777, is firm:

The Major Generals and officers commanding divisions, are to appoint an active field officer in and for each of their respective brigades, to superintend the business of hutting, agreeable to the directions they shall receive; and in addition to these, the commanding officer of each regiment is to appoint an officer to oversee the building of huts for his own regiment; which officer is to take his orders from the field officer of the brigade he belongs to, who is to mark out the precise spot, that every hut, for officers and soldiers, is to be placed on, that uniformity and order may be observed.

An exact return of all the tools, now in the hands of every regiment, is to be made immediately to the Qr. Mr. General, who, with the Adjutant General, is to see that they, together with those in store, are duly and justly allotted to the regimental overseers of the work; who are to keep an account of the men's names, into whose hands they are placed, that they may

be accountable for them. The Superintendents and Overseers are to be exempt from all other duty, and will moreover be allowed for their trouble.

The Colonels, or commanding officer of regiments, with their Captains, are immediately to cause their men to be divided into squads of twelve, and see that each squad have their proportion of tools, and set about a hut for themselves: And as an encouragement to industry and art, the General promises to reward the party in each regiment, which finishes their hut in the quickest, and most workmanlike manner, with twelve dollars. And as there is reason to believe, that boards, for covering, may be found scarce and difficult to be got; He offers One hundred dollars to any officer or soldier, who in the opinion of three Gentlemen, he shall appoint as judges, shall substitute some other covering, that may be cheaper and quicker made, and will in every respect answer the end.

The Soldier's huts are to be the following dimensions, viz: fourteen by sixteen each, sides, ends and roofs made of logs, and the roof made tight with split slabs, or in some other way; and sides made tight with clay, fireplace made of wood and secured with clay on the inside eighteen inches thick, this fireplace to be in the rear of the hut; the door to be in the end next the street; the doors to be made of split oak-slabs, unless boards can be procured. Side-walls to be six and half feet high. The officers huts to form a line in the rear of the troops, one hut to be allowed for each General Officer, one to the Staff of each brigade, one to the field officers of each regiment, one to the Staff of each regiment, one to the commissioned officers of two companies, and one to every twelve non-commissioned officers and soldiers.¹

1. John C. Fitzpatrick, ed. The Writing of George Washington (hereafter WGW), 10:170-171. For the definition of the terms Regiment, Battalion, Brigade, and Division, see the "Glossary of Military Terms," Appendix C.

It is clear from contemporary accounts that, despite these explicit instructions, there was a diversity of methods, materials, and resultant quality in hut construction at Valley Forge, representing a more profound material variety than later permitted at Morristown and New Windsor.²

2. At Morristown, two winters later, the following orders were issued by the Adjutant General: "Huts are to be laid out in an exact line or pulled down." No such order was given at Valley Forge. New Jersey Letters 1779, Container A, Department of Special Collections, RUL. A General Order issued at Middlebrook, December 14, 1778, explicitly implies that many of the huts built the previous winter at Valley Forge were partially excavated. "Much of the sickness among the Troops seems to have been occasioned by the improper method adopted in forming many of the Hutts last Winter Some being sunk in the ground and other covered with Earth;..." See Fitzpatrick, *WGW*, vol. 13, p. 395.

Much has been made over the introduction of log construction methods into the north American colonies. (For discussion of the subject see Fred Kniffen and Henry Glassie, "Building in Wood in the Eastern United States: A Time-Place Perspective." The Geographical Review, 36 (1966) 1: 28-65, and Harold R. Shurtleff, The Log Cabin Myth (Cambridge, Mass.: Harvard University Press, 1939). Conjectural analysis of construction types possibly used at Valley Forge will be found in the research report of the Schnadelbach Braun Partnership, "Reconstruction of Soldiers' Huts, Valley Forge State Park, Research Documentation," 1975, unpublished report, VFNHPL. Although much of the information contained therein dates from encampments subsequent to Valley Forge, good isometric renderings of log notching techniques are provided. What is important to remember in the consideration of log construction techniques is that they were in common use by the time of the Revolution and had developed regional variations. V-notch, half-dovetail, and full-dovetail notching were all possible forms of construction. The Pennsylvania Germans apparently favored V-notching, although not exclusively, and early dovetail examples still exist in Virginia. With limited quantities of poor quality tools, however, simple saddle notching may have been the easiest expedient in constructing the log huts.

The almost ludicrous lack of proper tools was decried by Surgeon's Mate Jonathan Todd of the 7th Connecticut Regiment, who wrote to his father on Christmas Day:

We are now about to build Hutts for shelter this winter Expect in a few days to be comfortable, tho we have nothing convenion to work with--Axes are very Scarce--the D. Ajutant, QM, Chaplain, Paymaster & 2 Doctors are all to live in one Hutt we have but one Dull ax to build a Logg Hutt When it will be done knows not. . . .³

And indeed, according to Todd, they built something of a palatial ediface with their "one Dull ax," as he reported again to his father on the nineteenth of January. Todd offers us the best description found to date of a typical officers' hut at Valley Forge:

I will give you a description of our hutt which is built Nearly after the same Model of the Others--it is 18 Feet Long & 16 broad two rooms and two chimneys at opposite Cornors of the house--the Floor is made of split Loggs as is the Partition & Door--the Whole of it was made with one Poor ax & not other Tool--we were not more than a fortnight in making of it although Never more than three men Work'd at once--the Roof is not the best in Wet weather oak slabs Cover'd with Turf & Earth--Our Inards work is not yet Completed--⁴

John Buss, one of the few literate enlisted men whose letters from Valley Forge have survived, was also

3. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M806, Rg 15, NA.

4. Jonathan Todd to Timothy Todd, 19 January 1778, Roll 1561, M806, RG 15, NA.

from Connecticut. He wrote to his parents on January 2, 1778, that the hut in which he and his eleven mates would live was completed. The structure was sixteen feet square, "our Chimbley is made of wood and Roof Covered with Tirfe and dirt we moved into our the 28 of December & find it much better the living then it was in tents these Cold Nights. . . ."5

Possibly the Connecticut men on the east slopes of Mount Joy fared better than the New Hampshire troops away on the windswept outer line. General Poor wrote to the New Hampshire Council on January 21 that his men were needful of clothing because they were "living in log huts without doors or floors. . . ."6

It appears that compared to the men in Poor's Brigade, the Jerseymen under Maxwell's command were enjoying the lap of luxury, perhaps because their huts were constructed at a fairly leisurely pace permitting greater expenditure of effort and the collection of superior materials. Captain William Gifford of the 3rd New Jersey Regiment wrote on January 24:

5. John Buss to his family, 2 January 1778, Knollenberg Collection, Sterling Memorial Library, YU.

6. Enoch Poor to the New Hampshire Council, 21 January 1778, Peter Force Transcripts, Series 7-E, LC.

our men are in huts 16 by 18 covered with Oak Shingles, and now are pretty Comfortable-- Since we have got to live in 'em, we lay in tents untill the 20 instant, an instance of the kind hardly known in any Country whatever, but what can't brave Americans endure. . . .⁷

General observations, largely produced, it should be remembered, by outside observers and officers whose lot may have been relatively comfortable, were favorable to the novel constructions. General Greene wrote, probably in mid-January, that the men were "busy for some time past in building their Hutts which are now nearly compleat, and will be very comfortable. . . ."⁸

Tench Tilghman observed to John Cadwalader on January 18 that "Our men have got comfortably covered in their Huts and better quarters are not in the World, I mean as to warmth and I believe will turn out so as to health. But the event will shew it."⁹

Ebenezer Crosby, surgeon with the Connecticut troops, wrote lavish praise in April:

It would please you to see this Log-City, part of which is as regular as Phila. and affords

7. William Gifford to Benjamin Holme, 24 January 1778, Revolutionary Era Documents, NJHS.

8. Nathanael Greene to ?, Manuscript Collection, VFHS.

9. Tench Tilghman to John Cadwalader, 18 January 1778, Cadwalader Collection, HSP.

much better quarters than you would imagine, if you consider the materials, season & hurry in which it was built.¹⁰

From these and a number of similar observations one cannot help but conclude that the hardships of camp life were, if not welcomed, at least tolerated with a certain tough ebullience. To be sure, by May these heavily used quarters which had housed unwashed men and food refuse all winter became singularly noisome, requiring the removal of chinking from between the logs to allow for circulation of air. Musket cartridges were ordered burned in the huts each day to clear the atmosphere.¹¹ General Muhlenberg complained on May 7 that the huts housing his troops were crowded and "sickly"¹² and indeed before very long these overcrowded, damp, and garbage-laden chambers had provoked a variety of camp ailments, periodically helping to swell the sick call throughout the spring. The Army vacated the fetid environs on June 10 to encamp in tents near the old log encampment because of this unwholesomeness.¹³ The huts,

10. Ebenezer Crosby to ?, 14 April 1778, Houghton Library, HU.

11. Fitzpatrick, WGW, 11:463.

12. Henry Muhlenberg to Nathanael Greene, 8 May 1778, Gratz Collection, HSP.

13. Fitzpatrick, WGW, 12:40.

however, were probably at first rather snug, when the weather was not too bad, especially in comparison to tents.

This may certainly be said of the officers' huts, as demonstrated in Todd's missive quoted above. Apparently most lower ranking officers built their own huts. Many officers' huts probably had doors made from sawn boards, as indicated in a return of sawn wood available compiled by Deputy Quartermaster Henry Lutterloh. He had on hand enough wood to make doors for the officers of eight brigades, although some of this material may have been diverted for use in Sullivan's Bridge.¹⁴ Certainly most officers' huts were of the modest character described by Jonathan Todd. Possibly those, however, built for general officers for whom there were no available farm houses were more elaborate.

The Baron Johan de Kalb wrote a revealing description of the "hut" which was being built for him to his friend in Paris, the Vicomte de Mauroy. He described the construction of huts in general by observing that they were made of logs notched at the corners, and that planks were provided for the doors only. Interstices were plastered with clay, and the chimneys made of field stone. The

¹⁴ Report of Henry Lutterloh, 26 December 1777, Roll 96, M859, RG 93, NA.

latter were placed generally on the ends facing the doors, which faced south as often as possible. He went on to state that his rather grandiose structure would be 32 feet in length, and would have three fireplaces. It would also have a kitchen, a dormitory for servants, and a stable. His military family would also be housed in a log hut, built like those of the troops. It is possible that this structure was built, although De Kalb is known later to have been quartered with the Abijah Stephens family. When Von Steuben arrived in camp at the end of February, he was placed in quarters vacated by De Kalb, and possibly he succeeded the former French officer in his magnificent hut.¹⁵

It is clear from evidence obtained from manuscripts that uniformity in hut building was not rigidly enforced, neither in size nor materials. The fact that huts generally seem to have been larger than specified in General Orders perhaps stems from a later order of December 20, which required the troops to reserve from

15. Baron de Kalb to the Vicomte de Mauroy, 25 December 1777, K1364, No. 170, Archives Nationale, Paris, France. In describing his quarters de Kalb writes: "La miene aura 32 pieds de long sur din de large, il y aura Trois pieces a feu. Il y en aura aussy une pour ma famille (Expression usitée pour signifier aides de Camp et tout ceux qui sont partie de la Maison d'un offer. général,) comme celles des troupes."

their firewood timbers of 16 and 18 feet to use in the huts. Much as been made of meager archaeological evidence which has indicated that hut interiors were generally smaller than specified in orders, yet many of those huts excavated have not been positively identified as dwelling huts, and may indeed have served other purposes.¹⁶

Some roofs were of oak shakes, some of turf and dirt, and some apparently of a combination of all three. General Washington complained on January 6 that many huts were still roofed with tent canvas, thus reducing the already sparse tent supply for the spring campaign.¹⁷

Walls are universally said to have been logs, and it is doubtful that these were hewn square. The shortage of axes early in the campment would argue for them having been left round. They were chinked with mud and probably anything else that may have been handy to act

16. Fitzpatrick, WGW, 10:180. See also report of the Schnadelbach and Braun Partnership: "Reconstruction of Soldiers' Huts, Valley Forge State Park, PA," c. 1975, which includes excavation reports on hut sites. See also B. J. Egloff, V. Packard, J. de M. Ramsey, "The Excavation of Four Hut Sites at the Outer Defensive Line of Valley Forge," unpublished report, pp. 8-9, VFNHPL. This states that huts were smaller than ordered and randomly scattered, but presents no conclusive evidence that the huts excavated were dwelling huts.

17. Fitzpatrick, WGW, 10:271.

as a binder. Walls were to have been six feet in height, although the prevalence of hut depressions still visible, the frequent nineteenth-century references to them, and archaeological investigations of 1972 suggest that, contrary to orders, huts were sometimes partially excavated. If the archaeological evidence of 1972 does indeed pertain to dwelling huts, chimney placement was intriguingly whimsical among the troops on the first line with chimneys on the ends, sides, and corners of huts, in turn dictating a variety of interior arrangements.¹⁸ Doors in the huts of at least one regiment of Maxwell's brigade were placed on the south side, and there was apparently a general inclination to follow this practice.

2. Number of Dwelling Huts

Deputy Quartermaster Lutterloh's memorandum mentioned above gives us the best indication of how many officers' huts were contemplated. General Orders of December 27 required that each brigade quartermaster submit a return that afternoon stating the number of officers' huts which would be needed for each brigade. These returns, now unfortunately lost, were forwarded

18. B. J. Egloff, et al., "Four Hut Sites," pp. 3-10.

to Lutterloh, along with a request from Washington's aide John Laurens that Lutterloh investigate the claim that neighborhood sawmills were not working to capacity. Washington was pressing for enough boards to build a bridge across the Schuylkill near camp. In his reply Lutterloh calculated:

According to the Returns of the Brigades I find that from 33 to 36 officers Hutts will be made [per Brigade] and the calculations my Carpenter has made me 600 Feet will be wanting to make 33 doors. Therefore the above quantity [5,100 feet] will furnish Eight Brigades.¹⁹

This statement is arresting on several counts, most importantly because one can fashion a rough estimate of the number of officers' huts required for the Army. Based on the statement that 33 to 36 huts were necessary for each brigade, it is clear that Lutterloh estimated that 264 to 288 huts would be built for the eight brigades, for which he had timber for doors. If one assumes that 33 to 36 huts were necessary to house the officers of each brigade of the Army, the total number of officers' huts required for all the brigades was between 462 and 504, based on the fifteen brigades which eventually settled in. If the officers alone were going to be provided with this number of huts, then the traditional figure of

19. Report of Henry Lutterloh, 26 December 1777, Roll 96, M859, RG 93, NA. See also Fitzpatrick, WG, 10:215.

from 800 to 900 huts for the entire encampment seems something of an underestimate. There is, however, no evidence that all of the estimated number of officers' huts were built, and it should be remembered that officers applied successfully for furloughs.

Huts for enlisted men and noncommissioned officers were to house twelve men. With approximately 12,928 men present at Valley Forge at the end of January, 1778, the force would have required about 1,077 huts. In May the number of men present in camp had expanded to 15,690 (excluding support service personnel, women, etc.) who would have required 1,307 huts divided between the various brigade encampments.²⁰

3. Hut-Building Chronology

It is stated in popular histories of Valley Forge that the troops were in huts within a week following their arrival on December 19, 1777, but numerous sources demonstrate the actuality to have been quite different. It took a month to house the troops completely, and new huts were built as recruits began to arrive in the spring. Construction activity, although concentrated in December and January, was probably continuous into the beginning of May, as tents were not reissued to the

20. Lesser, Sinews, pp. 58, 68-70.

troops until June.

Pursuant to General Orders of December 28, the troops may have begun hut building almost upon arrival, and perhaps a general plan for the encampment was already in circulation, but the engineers were not ordered to lay out the grounds until the 20th. The first indication of progress, or more precisely the lack of it, comes from a December 22 entry in the Orderly Book of the 1st Rhode Island Regiment, Varnum's Brigade:

the officers of Each Regt. in Genl. Varnums Brigade appointed to superintend hutting are Desired to attend at Genl. Varnums Quarters & will shew them the Ground for their Respective Regts they are likewise Desired to send all the axes in Each Regt to be Found at [?] Quarters I find other Brigades have begun their Works & I could Wish our Brigade to be formost therefore Desire that no Time be lost in beginning Our Works.²¹

Surgeon Todd of Huntington's Brigade had not yet begun his hut by December 25.²² Lord Stirling's (William Alexander's) troops were ordered to camp on the 28th so that they might begin their huts, on which day enlisted man John Buss, probably of Huntington's Brigade, moved into his turf-roofed dwelling.²³ As late as

21. Orderly Book of Christopher Greene, entry of 22 December 1777, Christopher Greene Collection, RIHS. For order to engineers, see Fitzpatrick, WGW, 10:180.

22. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M806, RG 15, NA.

23. George Washington to Lord Stirling, 28 December 1777, Autograph Letters of George Washington, Pierpont Morgan Library, New York, NY. John Buss to his parents, 2 January 1778, Knollenberg Collection, Sterling Memorial Library, YU.

January 4, General Orders stipulated that "As fast as the men go into Hutts the tents are to be returned immediately to the Quarter Master General. . . ,"²⁴ thus indicating that a number of the troops were still under canvas or in incomplete huts.

Timothy Pickering visited camp in early January and reported to his wife, on the 5th, that lack of tools was impeding progress,²⁵ and two days later General Washington, upon inspecting the encampment, was distressed to observe that numerous huts were still roofed with tent canvas.²⁶ Ensign George Ewing of the 3rd New Jersey Regiment (Maxwell's Brigade) did not get into his hut until January 10,²⁷ whereas William Gifford of the same Regiment claimed later that he was not under cover until the 20th.²⁸ By January 18, however, Tench Tilghman was

24. Fitzpatrick, WGW, 10:362.

25. Enos Reeves, "Extracts from the Letter-Books of Lieutenant Enos Reeves, of the Pennsylvania Line," The Pennsylvania Magazine of History and Biography vol. 21 (1897), 235.

26. Fitzpatrick, WGW, 10:271.

27. Thomas Ewing, ed., Military Journal of George Ewing (1754-1824), A Soldier at Valley Forge (Yonkers, NY: privately printed, 1928), p. 26.

28. William Gifford to Benjamin Holme, 24 January 1778, Revolutionary War Documents, NJHS. William Gifford to Benjamin Holme, 12 January 1779, NJHS.

reporting that the troops were in huts, as did Gifford on January 24.²⁹ Proof of sporadic construction in May comes from General Muhlenberg, who on May 8 requested wagons from General Greene to use for the building of "more huts for the new recruits,"³⁰ as the older ones were crowded and unhealthy.

The huts were barely tenable by May, when on the 27th Washington ordered that the mud chinking be removed from the interstices between the logs for ventilation. On June 10 the troops decamped and moved into tents.³¹

After the removal of the Army from the area in its pursuit of General Sir Henry Clinton's columns in June, the camp remained a hospital center and ordnance depot as late as 1780. The motley assortment of structures, however, faced a predictably rapacious populace eager to raze the buildings for timber and to return portions of the land to cultivation.³² The Barrack Master General, Isaac Melcher, inspected the encampment site in November

29. Tench Tilghman to John Cadwalader, 18 January 1778, Cadwalader Collection, HSP.

30. Henry Muhlenberg to Nathanael Greene, 8 May 1778, Gratz Collection, HSP.

31. Fitzpatrick, WGW, 11:463 and 12:40.

32. For details pertaining to Valley Forge on an ordnance depot and hospital see this report, p. 76, and ordnance returns, MRWD, RG93, M859, NA.

of 1778 and reported to Congress that:

it would be much the advantage of the United States to dispose of the logs, timber, Shingles, etc contained in the Hutts, as that part of the country are much in want of those articles; it is apprehended the sooner such step is taken the better, as many of the buildings will no doubt be carried off in the course of the Winter by the people in [?] of the Camp for fuel and other purposes--33

There is no indication that Congress acted upon Melcher's memorandum. Enos Reeves, Adjutant of the 11th Pennsylvania Regiment, returned to the site in September of 1781, and noted that he:

came through our old Encampment, or rather the first huts of the whole army. Some of the Officers' huts are inhabited, but the greatest part are decayed, some are split up into rails. . . .³⁴

The encampment was permitted to moulder away, some of the structures apparently finding use as auxiliary farm buildings or even as dwellings. By 1840, when local resident Henry Woodman recorded his memories of the encampment site, only hut depressions marked the locations of former structures and the landscape was once more composed of cultivated fields and woodlots. A few

33. Isaac Melcher to Congress, 16 November 1778, Roll 99, M247, RG 93, NA.

34. Enos Reeves, "Extracts from the Letter-Books of Lieutenant Enos Reeves, of the Pennsylvania Line," Pennsylvania Magazine of History of Biography, 21 (1897): 235.

tenacious earthworks clung to the unarable slopes of Mount Joy.³⁵

4. Spatial Allotment

The Duportail plan specified hutting locales for the troops, and the guiding principle appears to have been to have the troops within and close to the earthworks enclosing the encampment. Thus hutting was dictated by topographic features, principally defensible heights and eminences. The Duportail map shows a distribution of huts along the first line and before the second line entrenchments, which one cannot help but think would pose something of a problem in the event of a British assault. There is an indication that troops were hutted so that they would be close to designated alarm posts should the British threaten the camp.³⁶

The only description of hut arrangement comes from Maxwell's Brigade, which appears to have erected model huts, and maintained an unusual degree of order in their arrangement:

the huts are built in three lines each line four deep five yards asunder the huts eighteen by sixteen feet long six feet to the eves built

35. Henry Woodman, The History of Valley Forge (Oaks, Pa.: John U. Francis, 1921), pp. 85-86.

36. Report of Baron von Steuben, 5 March 1778, ChiHS.

of logs and covered with staves the chimney in the east end the door in the South side the Officers huts in the rear of the mens twelve men in each hut and two cores of Officers in a hut. . . .³⁷

These would house 144 enlisted men, or about one reduced regiment. This neat arrangement, however, can hardly be applied to the entire encampment, as divergent descriptions and the archaeological investigations mentioned earlier have suggested that some brigade encampments may have been considerably more random.

5. A Hypothetical Brigade Encampment

The arrangement of regimental and brigade encampments in western armies during this period generally followed a standard pattern. To the front of the encampment would be a parade area, and proceeding towards the rear an observer would encounter first the tents of enlisted men and noncommissioned officers, followed by field and staff officers. The rearmost quarters belonged to the regimental colonels, behind which, and presumably considerably removed, would be found sutlers, butchers, and if the encampment was in proximity to an enemy, a rear guard.³⁸ The Valley Forge brigade encampments probably followed,

37. Ewing, Diary of George Ewing, p. 25.

38. For an illustration of a British encampment of a battalion in the field, see George Smith, An Universal Military Dictionary . . . (1779; reprint ed., Ottawa, Canada: Museum Restoration Service, 1969), plate 8, facing p. 38. Not all of the components illustrated, for example kitchens, had counterparts at Valley Forge.

in a very general sense, this pattern long established by custom. In addition, there were brigade hospitals (see below), which General Orders specified should be between one and three hundred yards of the brigade encampment proper. At Valley Forge this was probably the rearmost facility in any brigade. Brigades on the first line of defense presumably had plenty of space, but those on the second line may have been more compacted.

6. Historical Significance

The hut was the dominant physical feature of the Valley Forge encampment, and it has accrued powerful symbolic significance relating to the suffering of the Continental soldier. Hut sites will also constitute the most numerous archaeological features encountered within the encampment area. The number of huts eventually constructed, which may have approached 2,000, prompted the derisive remark from Sir William Howe to the effect that the soldiers were living in "Log Town."³⁹ It provoked also the admiration of Thomas Paine and a number of other visitors. Snug at the beginning of the encampment, the huts became dank caverns of disease as the

39. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M809, RG 15, NA. See postscript of document.

winter turned to spring, a condition exacerbated by the filth and offal which accumulated in and around them.

The only indication of regimental organization of huts comes from Maxwell's brigade. In the absence of further documentary discoveries, archaeological investigation will be necessary to disclose the brigade and regimental patterns in which the huts were built.

B. Camp Hospitals

There were three distinct types of military hospitals in use during the winter of 1777-1778. These were:

(a) the large, outlying stations known as General Hospitals, housing the seriously ill and convalescent. The closest of these was the model hospital at Yellow Springs. Others were opened in the interior of the state at Bethlehem, Lititz, Reading, Ephrata, and other locations. Closer to camp were:

(b) a series of impressed auxiliary structures, such as meeting houses and barns within a few miles of camp, opened as emergency hospitals when the sick overflowed from the camp hospitals. (c) The hospitals at camp, with which we are chiefly concerned, were built to house the less seriously ill and those recuperating from the massive smallpox inoculation program launched by the Hospital Department in the late winter. Inoculants were expected to develop a mild, sometimes a serious, case of the disease, and required hospital treatment.

Details pertaining to the camp hospitals themselves, beyond the official dimension stipulated in General Orders, are disappointingly sparse, and there is even some confusion in terminology.

General Orders most often used the term "brigade hospital," whereas many of the physicians referred to themselves as being attached to the "Flying Hospital." This term referred to that branch of the Hospital Department which served in the field, and perhaps had reference to the camp administrative office with which the physicians were associated.⁴⁰

The brigade hospitals apparently were built by their respective brigades. Most, if not all, of the units were without hospital structures until mid-January. The day after Christmas the invaluable informant Jonathan Todd, surgeon to the 7th Connecticut Regiment, reported to his father that the first man to die in the regiment was "Jethro, A Negro from Guilford belonging to Capt. [Stephen] Hall's Compy, Died in his Tent. . . ."41

40. Dr. John Cochran, chief physician at Valley Forge, most frequently docketed his letters "Flying Hospital." See correspondence in papers of Jonathan Potts, HSP.

41. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M809, RG 15, NA.

It was not until January 9, 1778, that a General Order was issued pertaining to hospital huts:

The Major Generals and Brigadiers (or officers commanding the brigades) of each division are to fix on some suitable ground near their respective Brigades where hospitals may be erected, one for the sick of each Brigade, and as soon as the men can be possibly spared from working at the huts, they are to erect their hospitals. The Officers who shall be appointed to superintend this work will receive directions therefor at the Adjutant Genl.'s Office.⁴²

The overall dimensions were worked out by January 13 and issued in General Orders, and it was presumably then that work really began:

The flying hospital huts are to be fifteen feet wide and 25 feet long, in the clear and the story at least nine feet high; to be covered with boards or shingles only, without any dirt. A window made in each side and a chimney at one end. Two such hospitals to be made for each brigade in their rear, as near the center as may be; and if the ground admits of it not more than three, not less and one hundred yards from it.⁴³

Poor's brigade started designating fatigue details for hospital hut construction on January 15, when it was ordered that officers and men from the 2nd New York Regiment and the 1st New Hampshire Regiment superintend the building of the huts. Spare wagons and the work detail were to parade the following morning at sunrise.

42. Fitzpatrick, WGW, 10:284.

43. Fitzpatrick, WGW, 10:300.

There follows a breakdown of: two sergeants, two corporals, and twenty enlisted men from the four regiments of the brigade, the same detail being called out on the sixteenth and a larger party specified for the eighteenth. No further work details are noted in the orderly book, and apparently the hospital for Poor's brigade was finished on the eighteenth.⁴⁴

General Orders of January 15 directed the Quartermaster General to supply straw for the sick, "when they are removed to hutts assign'd for hospitals. . . ."⁴⁵ Presumably the huts received heavy use during February and March, for by March 22 between 3,000 and 4,000 troops had received inoculations for smallpox by the hospital surgeons. Most of the inoculants seem to have been from New England, presumably placing the hospitals of Poor's, Huntington's, Varnum's, Learned's, Paterson's, and Glover's brigades in constant use.⁴⁶ The brigade hospitals were still heavily occupied in June when the Army marched from camp, and according to regimental returns, remained so at least until the autumn of

44. Manuscript HM660 (Orderly Book), entry for 15 January 1778, HL.

45. Fitzpatrick, WGW, 10:306.

46. S. Tenny to Dr. Peter Turner, 22 March 1778, Ms 215-0723, Dr. Peter Turner Papers, LC. Ebenezer Crosby to Norton Quincy, 14 April 1778, Houghton Library, HU.

1778.⁴⁷ Colonel Philip van Cortlandt, commanding the 2nd New York Regiment, was ordered to stay behind "to superintend the sick on the Ground when the Army moves. . . ."48

It is perhaps more than a coincidence that Poor's brigade was particularly involved with seeing to the sick in camp, although it is still too early to speculate on any division of labor or responsibilities among the brigades. This deserves further investigation.

No contemporary descriptions have been found relating to the hospital huts subsequent to their construction.

C. Stores and Magazines

There are numerous references to stores at Valley Forge, particularly in General Orders and Brigade Orders, but these seldom specify locations or offer any description.

1. The Clothier's Stores

In the vicinity of camp there was a structure or complex of structures referred to toward the beginning of the encampment as the Clothier's Store, where at least

47. Muster Rolls for 1st New Hampshire Regiment, 1778, Roll 44, M246, RG 93, NA.

48. Fitzpatrick, WGW, 12:4.

on one occasion the Commissary General of Prisoners, Elias Boudinot, collected clothing and other necessities for the American prisoners in Philadelphia:

a Flag of truce will go into Philadelphia tomorrow morning if any person wanting to Send anything to the prisoners must apply to the Commissary Genl. of Prisoners at the Clothier's Store.⁴⁹

No clue as to its location is offered. Some Clothier's supplies, however, were being housed at the "Black Bull," probably the Bull Tavern on the road to Moore Hall. (For Moore Hall, see below, C.3, Quartermaster's Stores.) A Brigade Order for Weedon's troops specified that shoes for the Virginia troops were to be found at "black Bull."⁵⁰

2. Commissary of Military Stores

Presumably the Commissary of Military Stores (this title usually referred to Benjamin Flower, Colonel of Artificers), had store houses for his exclusive use. On January 2 it was ordered that all spare cartridges be packed in paper obtained from the Commissary General of Stores (possibly the same as military stores?), and

49. Valley Forge Orderly Book of General George Weedon of the Continental Army under Command of General George Washington (New York: Dodd, Mead and Company, 1902), p. 173.

50. Ibid., p. 218.

delivered to an unspecified location.⁵¹ The General Orders required that all tin canisters (these were designed as substitutes for cartridge-boxes), be returned to the Commissary of Military Stores.⁵² No location is specified.

3. Quartermaster Stores

The Quartermasters stores at Valley Forge, from which military equipage and harness was distributed to brigade quartermasters and wagonmasters, was at Moore Hall, the estate of William Moore, Esq., about three miles west of Valley Creek, off Nutt's Road. Between February 7 and 12, upon taking up the duties relative to the Quartermaster Department, Nathanael Greene moved his quarters to this location.⁵³ Evidently harness and military stores were stockpiled at this site upon arrival from Reading and other western points during the spring.⁵⁴

On June 23, 1778, after the Army's removal, Deputy Quartermaster James Abeel wrote to Assistant Quartermaster

51. Ibid., p. 175.

52. Ibid.

53. Greene, Letters, II, p. 282.

54. Moore Hall also became the quarters of Greene's subordinate Clement Biddle, the Forage Master General, and his two assistants, John Cox and Charles Pettit.

John Cox, explaining that he was sending a brigade of wagons to pick up articles left at Moore Hall, "as there are many stores to be removed. . . ."55

In addition, each brigade had a Quartermaster, and it may be assumed that he had storage quarters within the brigade encampment to house knapsacks, canteens, and other items which came under his jurisdiction.

4. Commissary's Stalls, Stores and Slaughter Pens

The Commissary of Issues and his assistants and deputies were responsible for distributing rations to the troops. At an unspecified location in camp were built "Commissaries Stalls," which may have housed livestock before slaughter. On March 13, 1778, a General Order required the troops to tidy up what had obviously become an unpleasant situation, as "ye Offal near many of ye Commissaries Stalls, still lay unburied."⁵⁶ These stalls may have been part of the same complex as the brigade slaughter pens, subject to further discrediting mention in April, "The Brigade Quarter Masters, are to see that the offal of their Slaughter pens for the respective brigades, is buried daily."⁵⁷ This points toward the

55. James Abeel to John Cox, 23 June 1778, JAL, LC. See also this report pp. 156-160.

56. Valley Forge Orderly Book, p. 254.

57. Ibid., p. 289.

interesting conclusion that all or most brigades ran their own slaughter operations, and that slaughter pens were distributed throughout the brigade encampments, adding to the general noisomeness of camp during the spring.

It is certain that there were locations and structures in camp for the storage of grains and other rations that were not on the hoof. Shortly after the Army arrived, an order went out from Charles Stewart, Commissary General of Issues, to Captain Moses Greenleaf of Paterson's Brigade, 11th Massachusetts Regiment, to gather wheat, flour, beef, hogs, and pork from the country beyond Howell's tavern and return them "as fast as possible to Colonel [Thomas] Jones' Magazine at Camp,"⁵⁸ where the first of the winter's critical food shortages was under way. Presumably no structures had been built as yet to house the incoming forage and food, so Jones, Commissary of Issues at camp, was probably operating out of existing structures. Jones's office was at Henry Pawling's house during February and March, 1778. After dwelling huts were completed, Poor's brigade at least set about building their own Commissary's Store, on January 18.⁵⁹

58. Charles Stewart to Captain Greenleaf, 22 December 1777, MHS.

59. Manuscript HM 660 (Orderly Book), entry for 15 and 18 January 1778, HL.

Traditionally, a "provision store," housing unspecified items, existed at the house of Frederic Geerhart, to the west of camp, superintended by the father of Valley Forge's first informal historian, Henry Woodman.⁶⁰

D. Provost Guard and Guard Houses

On General Duportail's plan, along the road known to have led to Jenkins' Mill, is located the Provost Guard, the eighteenth century equivalent to the military police and guard house. Toward the end of December 1777, the officers of the Army had been so preoccupied, with sheltering themselves and their troops and with the multifarious doings of a new encampment, that no courts martial had been summoned. The Provost Guard, apparently a stone barn pressed into service, was beginning to assume the character of a military prison at its worst. Prisoners were packed into the Provost Guard, when General Orders summoned a court martial to sit, beginning January 1, to clear up the congestion. The order stated that, "Great numbers of Prisoners are now in the Provost suffering severely from the severity of the season."⁶¹ One is left to imagine what the unheated and overcrowded barn

60. Woodman, History of Valley Forge, p. 87.

61. Valley Forge Orderly Book, p. 173.

was like. Conditions can hardly have improved when on January 3 John McClure, apparently a civilian under arrest for illegal hawking in camp, was tried and released because of the "suffering in the Provost"⁶² he had already incurred.

Orderly books attest to the substantial number of soldiers and officers tried by courts martial during the encampment period, and it is little wonder that the Quartermaster General was ordered on January 15 to choose "Ground proper between or near the Lines where Huts may be erected for prisoners under the provost Guard. . . ."⁶³ Very little is subsequently heard of these diminutive dens of iniquity, but a court martial in McIntosh's Brigade offers us one of the few comical moments in military justice. Sergeant Joseph West was tried for being drunk in the (presumably brigade) guard house while his prisoners cavorted and played ball outside.⁶⁴

Another structure is referred to in General Orders as a guard house, although it was a check point on the west bank of the Schuylkill at Sullivan's Bridge. Troops

62. Ibid., p. 177.

63. Ibid., p. 193.

64. Court Martial proceedings, Thomas Clark, President, 2 May 1778, Lachlan McIntosh Collection, GHS.

were apparently making nocturnal forays over the bridge without proper authorization, resulting in a General Order of February 23, 1778, requiring the Quartermaster General to construct "A Guard House at ye new Bridge over Schuylkill . . . to be Immediately built on this Side."⁶⁵

As is unfortunately the case with most auxiliary military structures in camp, locations of the buildings are not specified in General Orders, yet a small structure near Sullivan's Bridge does appear on the Duportail map.

E. Sutlers' Booths

Civilian sutlers were much in evidence during the encampment, offering their spirits at substantial prices which defied regulation. They had some sort of stalls within brigade encampments, as is suggested in the following General Order: "The Commander in Chief directs, that only one Sutler be allow'd to each Brigade, who shall have one Sutling Boothe within the limits of the Brigade & shall sell his liquor at no other. . . ."⁶⁶ The implication is that these stalls may have been semi-permanent structures housing those who dispensed spirits and food

65. Valley Forge Orderly Book, p. 248. Fitzpatrick, WG, 11:18.

66. Ibid., p. 290.

supplementing the rations to the soldiery.

F. Artificers' Huts

Although a good deal is known of the artificers, those skillful artisans who kept the Army mobile by repairing wagons, artillery, carriages, sadlery, and building barrels, etc., little is known of the structures in which they worked. The Davis-Armstrong-Sparks map shows the artificers huts as being on the west bank of Valley Creek,⁶⁷ south of Nutt's Road. The Albert K. Davis map shows Artificers on both sides of this road.

G. Fortifications

General Washington took seriously the threat of a British attack on his cantonment at Valley Forge. The winnowing of the Continental Horse Yard, where hundreds of beasts died and foundered from lack of forage, severely curtailed the mobility of the Army. While work on the fortifications was of secondary importance to hutting the troops and constructing a means of access to the east side of the Schuylkill (Sullivan's Bridge), the earthworks became increasingly important in April and May. Although Washington never stated this motive, fortification fatigue work may also have served to occupy

67. Map of Valley Forge, Jared Sparks Collection, CUL. Copy at VFNHPL.

the time of an idle army, constructively dissipating those energies not expended on the parade ground. That Washington, however, was convinced of the need for strong earthworks is demonstrated by his repeated references to them in General Orders and in the recorded observations of his subordinates. This is compatible with the character of his military thinking, as the lesson of Bunker Hill had long before determined his positive attitude toward serviceable field fortifications.

1. Chronology

The arrangement of huts and fortifications was interdependent, as noted in the General Orders of December 20. The location of the works, as was invariably the case, was dictated by the topographical character of the site:

The Major Generals accompanied by the Engineers are to view the ground attentively and fix upon the proper spot and mode for hutting so as to render the camp as strong and inaccessible as possible. . . .⁶⁸

This was one operation at camp which presumably was not impeded by lack of proper tools, for Deputy Quartermaster Mark Bird's shipment of 500 picks, 1,000 spades, and 1,000 shovels had arrived at the end of December.⁶⁹

68. General Order of 20 December 1777, GWP, LC.

69. Invoice of Mark Bird, 22 December 1777, Manuscript Collections, ChiHS.

The weather, however, posed a very real deterrent, as the work must have slowed or halted when the ground froze solid. By February 7 work may hardly have progressed beyond the starting point, as is implied in a letter of General Varnum to Maj. Gen. Alexander McDougall, "His Excellency has been in Expectation of an Attack, in Consequence we have begun to fortify the Camp. . . ." ⁷⁰

When Friedrich von Steuben arrived in camp at the end of February, one of his first tasks was to inspect the fortifications in progress, and he offered a critique of the works on March 5. At that time two redoubts were under construction on the left of the encampment and the first line entrenchments were not finished. The second line entrenchments were begun but no redoubts were yet being raised in that sector. No mention is specifically made of a redoubt to cover the bridge over the Schuylkill (by then completed), but when one views the Galloway spy map forwarded to Lord Dartmouth in March from the perspective of Valley Creek, it becomes clear that the two redoubts to which von Steuben referred were Redoubt No. 1, the star redoubt, on the left near Sullivan's Bridge, and Redoubt No. 2 on the far left of the first line, referred to on the map as not yet begun. ⁷¹

70. James Mitchell Varnum to Alexander McDougall, 7 February 1778, NYHS.

71. Report of Baron von Steuben, 5 March 1778, ChiHS. Original French copy: AAS.

Work progressed so lethargically that Washington decided on a formal division of labor on March 27, calling for a meeting of the brigadiers whose troops occupied the first line to "assign to each Brigade its proportion which they will cause to be executed under the inspection of the Engineer with as much dispatch as possible."⁷² The first line, however, seems still to have been incomplete, for on March 31 the Orderly Book of the 2nd Pennsylvania Regiment records a brigade order requiring a fatigue party to "finish the Works. . . ."⁷³

The redoubts and obstacles received a flurry of attention in mid-April, as incoming intelligence brought fears of a British assault. Apparently at this time there was a controversy raging over the usefulness of redoubts in strengthening the linear defenses. In a report dated April 7, General Duportail came out strongly against their use, revealing the desultory fashion in which the work had gone forward, and confirming the fact that until that date work on only two of the redoubts was in progress:

It is by no means doubtful that the addition of a few Redouts will increase the strength of

72. Fitzpatrick, WGW, 11:161.

73. Orderly Book of the 2nd Pennsylvania Regiment, entry for 31 March 1778, HSP.

our position--but in my opinion they may be regarded as a superfluous exertion of Strength--if in order to make a proper estimation of the advantages of our position, we take notice that the Enemy begins to be subject to our fire at the extreme range of Musket and Case-Shot. that in order to join us, they must pass over that space of ground thick set with obstacles, without being able to fire a single shot--and that the time required to perform it will be at least five minutes, during which our men may fire fifteen rounds with good Aim--we shall agree I think, that our position needs no new reinforcements and if we cannot maintain such advantageous ground--where shall we find better during the Campaign, even seconded by all the assistance of Art?

As for the Redouts I must confess that I am altogether discouraged from proposing and undertaking them--altho I love them as much as any body--but every body knows that I have never been able to accomplish half a redout--officers and Soldiers finding the work too long, and taking disgust at it--Was I not forced in this very Camp to abandon my first plan of fortifying with Redouts--and afterwards were not the only two I retained of my first plan, (because they were indispensable,) left rudely sketched, altho' we had the whole winter to work--

Besides, even if we were to make redouts, it appears to me more advisable at present, to finish what is necessary to put us in a state of defense--than to undertake redouts to the prejudice of what little remains to be done--when that is complete, we might reinforce certain points.⁷⁴

Until mid-April, judging from Duportail's comments, only two of the redoubts were nearing completion, and the entrenchments, probably those of the first line, were as yet unfinished. On the 13th, twelve wagons were

74. Report of Louis Duportail, 7 April 1778, NYPL.

ordered to parade before Woodford's Brigade "in order to draw in Sods to the Redoubts."⁷⁵ A memorandum from Duportail of the same date cryptically mentions a controversy over where a redoubt on Mount Joy should be placed.⁷⁶

On the fourteenth, redoubt-fever seems to have taken hold, with Washington's Secretary John Laurens dashing off a request to Assistant Quartermaster General Charles Pettit for cord to lay out the work. Laurens wrote, "The Engineers are prevented from tracing a few redoubts which the General is very anxious to have finished for want of proper quantity of Cord or small Line. . . ."⁷⁷ Laurens needed 200 fathoms, or 1200 feet, of this necessary article. Rather than heeding Duportail's advice on redoubts, Washington apparently was listening to other counsels.

Ebenezer Crosby described the progress at mid-April in general terms:

75. Lord Stirling to Charles Pettit, 13 April 1778, ChiHS.

76. Louis Duportail to George Washington, 13 April 1778, GWP, LC.

77. John Laurens to Charles Pettit, 14 April 1778, Dreer Collection, HPS. Twelve hundred feet of cord was sufficient to lay out three four-sided redoubts, 100 feet on a side.

The front line is built on a ridge, near a mile and half in length, having a breastwork thrown up from one end to the other of it: the left wing of the whole is supported by Schuylkill, and the right by a very large height, extending itself just in the rear of the center-line, quite to the river, this is also fortified. It was necessary to fortify the Camp, as we could not move for want of horses. . . .⁷⁸

At the same time Lord Stirling (Maj. Gen. William Alexander), charged with overseeing the works, found a cache of rails from an old British encampment on the road to Moore Hall. He impressed these into service as palisades. They were to be carried to a point before Maxwell's Brigade to be used in conjunction with the second-line defenses.⁷⁹ But Stirling's coup and small moment of triumph, for which he received congratulations from John Laurens, was short-lived, as he was soon under more pressure than ever to see the works completed. On May 2 Colonel Caleb North, overseer of the work at "Redoubt No. 4," complained to Stirling that wagons he had requested had not yet arrived, it being 11 a.m. and his men were sitting idle at the site.⁸⁰ This missive,

78. Ebenezer Crosby to Norton Quincy, 14 April 1778, Houghton Library, HU.

79. Lord Stirling to Charles Pettit, 16 April 1778, Dreer Collection: Generals of the American Revolution, HSP.

80. Caleb North to Lord Stirling, 2 May 1778, Mrs. Archibald Crossley Autograph Collection, MMC, LC.

in which North made no effort to conceal his anger, supplies the only indication of what the redoubts were called during the encampment. Apparently the officers were adhering to the standard military practice of numbering them. As the redoubt covering the bridge on the Schuylkill and one of the works on the far left of the first line were already underway, and as Duportail had been considering the proper positioning of Redoubt No. 3 from early April, it is very likely that this "Redoubt No. 4" was the work on the left of the second line of defense, or inner line.

Work continued well into May, when on the 9th Washington reported that three engineers were still busy overseeing the construction.⁸¹ He was profoundly displeased, however, now that the ground had thawed, with the "languid Progress"⁸² on the works, and he chastised those officers responsible in a General Order of May 9. Lord Stirling must have shot back an aggrieved reply, which provoked a rather chilly response from Washington on May 11th:

My Lord: I have received your letter of yesterdays date. I had no particular person in view when I issued the order respecting the slow

81. Fitzpatrick, WGW, 11:368.

82. Fitzpatrick, WGW, 11:367.

progress of the Works, at the same time I acknowledge, I am exceedingly mortified at seeing, and beholding the delay of them, whether avoidable, or not, I do not undertake to determine.⁸³

By April 26, the second line was "Picketted from end to end . . ."⁸⁴ in the words of George Ewing, but it is unclear if the obstacles he was referring to were palisades or abatis. At least two references to abatis before the second line suggest that it was probably the latter. The Parker spy map shows brush twenty yards before the second line and a Brigade order for Conway's brigade required on May 15 that "all Kinds of Dirt & filth is taken out of Camp at a proper Distance between the Hutts & Abittees & Either Buried or Burn'd. . . ."⁸⁵

Another Brigade order for Conway's late brigade is something of a mystery. On May 14 a large fatigue party consisting of three captains, six subalterns, six sergeants, and 187 rank and file was ordered to parade before Conway's brigade "where the Engineer will attend to shew the Work. . . ."⁸⁶ This project, to be overseen

83. Fitzpatrick, *WGW*, 11:374.

84. Ewing, Diary of George Ewing, p. 42.

85. *Orderly Book of Malcolm's Additional Continental Regiment*, kept by Peter Trulman, Adjutant, Brigade Orders (late Conway's) for 15 May 1778, NYHS. See also Duportail map.

86. Ibid., entry for 19 May 1778.

by Colonel Christian Febiger, may have been a continuation of the work on Redoubt No. 4 mentioned earlier. The work was apparently incomplete by May 22, when troops from Paterson's, Weedon's, and Learned's brigades were ordered to work on it until finished.⁸⁷ This unspecified work before Conway's late brigade, however, could have related to the entrenchments or the construction of redans, although the size of the fatigue parties suggests a subject of greater magnitude.

When one considers the uneven work pace sustained throughout the spring, it is entirely possible that the works may not have been completed before the army decamped in June. At some time, probably very late in the encampment, work was begun on a second redoubt on the far left of the second line. It appears on the Penny-packer map, which is incorrect in several instances, but it is also mentioned by Henry Woodman as having survived long after the encampment.⁸⁸ This may be the defense reconstructed in 1948 as Fort Greene, but probably it was a structure closer to the river. No mention of work on this feature has been located to date.

87. Fitzpatrick, *WGW*, 11:433. Orderly Book of the 8th Massachusetts Regiment, entry of 22 May 1778, HL.

88. Woodman, History of Valley Forge, pp. 85-86.

The evidence suggests the following order for construction of the redoubts:

1. Redoubt covering the bridge on the Schuylkill (No. 1).
2. First redoubt on the first line (No. 2) begun before March 5, but later than the Redoubt, No. 1.
3. Redoubt on Mount Joy previously known as Fort Washington, begun after April 13 (No. 3).
4. Redoubt No. 4, previously known as Fort Huntington, begun around May 2 and perhaps not completed until about May 22.
5. Second redoubt on the first line (No. 5) --date unknown but because of lack of cartographic evidence probably begun late in the encampment period.

2. Entrenchments

The most detailed description of the Valley Forge entrenchments came from the British officer Thomas Anburey, who published his Travels Through the Interior Parts of North America in 1789. This account, published as a series of letters from an officer of General John Burgoyne's Army on his way to internment in Virginia, seems to have been heavily revised before publication. He nevertheless probably observed, or heard tell of, the Valley Forge encampment as it appeared in December of 1778. These are his comments:

I had a full opportunity to reconnoitre the whole camp: on the east and south side were

entrenchments, with a ditch six feet wide and three deep, the mound not four feet high, very narrow, and easily to have been beat down with cannon; two redoubts were also begun, but not completed. . . . the defences were exceedingly weak, and this is the only instance I ever saw of the Americans having such slight works, these were such as a six-pounder could easily have battered down; the ditches were not more than three feet deep, and so narrow, that a drum-boy might with ease leap over.⁸⁹

Anburey was clearly unimpressed with the entrenchments, but his acquaintance with the camp seems somewhat limited as he only mentions two redoubts. If his observations of the entrenchments are accurate, they do seem to have been slight, even by eighteenth century standards. Yet this observation is in accordance with a General Order of April 3, which complains that the entrenchments were "carelessly executed in many parts . . . principally owing to the weakness of the Stakes, and those of the exterior face being plac'd too Perpendicularly."⁹⁰ This order gives some structural detail: apparently the entrenchments were shored up on the exterior faces with stakes, which was certainly a novel arrangement, perhaps adopted in the absence of sufficient sod in winter. Duportail also noted that

89. Thomas Anburey, Travels Through the Interior Part of North America (Boston: Houghton-Mifflin, 1923), pp. 170-71.

90. Valley Forge Orderly Book, p. 279.

it would benefit the works to "strengthen the profiles."⁹¹

The entrenchments were begun in January, and they stretched continuously along the first line by June. The first line entrenchments were almost entirely leveled subsequent to the encampment by plowing, a fate spared those of the second line on account of the unarable terrain. Portions of the second line entrenchments are clearly visible today. Archaeological investigations should be able to disclose the location of the first line entrenchments.⁹²

91. Louis Duportail to George Washington, 13 April 1778, Washington Papers, LC.

92. An archaeological excavation of very limited scope was carried out on the second line entrenchments in 1976 by Dr. Richard Jordan, Department of Anthropology, Bryn Mawr College. A test trench was used to section the entrenchments at a point southwest of Redoubt No. 4. The work disclosed no pertinent cultural remains, but it demonstrated entrenchments at this location were composed of earth and some stone. The profile rendering included with the Bryn Mawr report disclosed that the entrenchments followed the typical form of the period. A ditch was excavated in front, and earth was heaped up to the rear to supply protection to the soldiers manning the works. It is possible, but not yet confirmed, that some of the second line entrenchments were shored up by the Valley Forge State Park Commission. This may have been the case with the portion sectioned by the Bryn Mawr excavation. (See report of Dr. Richard Jordan and Pamela de Toledo, "A Report on the 1975-1976 Archaeological Investigations of the Inner Line Fortifications at Valley Forge Park," VFNHPL.)

3. Redoubts

As suggested in the section above, any discussion of the chronology of redoubt construction is necessarily complex. It follows:

3a. Redoubt on the Left of the First Line of Defense-- No. 2, formerly known as "Fort Greene" (LCS 308)

This fort, probably the one known early in this century as Fort Mordecai Moore, appears today as a four-sided redoubt reconstructed in 1948 on the basis of aerial photography and archaeological investigation and discovery of the sub-surface remains of the fortification. A United States Air Force aerial survey disclosed an anomaly resembling a diamond-shaped earthwork, and subsequent archaeological testing of the site revealed the ditch of the redoubt. It was reconstructed on a design similar to that used in the reconstruction of Redoubt No. 3, upon its original site.⁹³

When von Steuben inspected the works and reported on March 5, he recommended building "a small work on a Height more towards Schuylkill. . . ,"⁹⁴ the implication being that the one that existed on the left of the first

93. See files, VFNHPL, Fort Greene, and Map Cases, VFNHPL, for photographs and plans.

94. Report of Baron von Steuben, 5 March 1778, Manuscript Collection, ChiHS.

line was not sufficiently close to the river to protect adequately the left of the encampment. The redoubt which he viewed already in place was probably Redoubt No. 2, previously known as "Fort Greene."

3b. Redoubt on the Extreme Left of the First Line of Defense--No. 5

The site of this redoubt is currently unmarked. It is shown on the Base Map at a location suggested by the appearance of an anomaly visible in aerial photographs of Valley Forge in the files of the Museum Applied Science Center for Archaeology, University Museum of the University of Pennsylvania. The location is appropriate in that it is on an eminence which commands terrain to the east and south of the first line of defense.

If the above surmises are correct, the redoubt heretofore known as "Fort Muhlenberg" (LCS 309), reconstructed at a hypothetical location in 1940, has no historical validity. Redoubt No. 5, in its correct historical location, was probably the work known as "Fort John Moore" in the nineteenth and early twentieth centuries. This conclusion is supported by the fact that a map executed in 1905 by surveyor Samuel M. Garrigues and appended to the 1922 edition of Henry Woodman's History of Valley Forge, locates the site of Fort John Moore on the east side of what is now Route 363. "Fort Muhlenberg" was

consistently misidentified as representing "Fort Mordecai Moore," even in recent research, and "Fort Greene" misrepresented as well as "Fort John Moore."

The Duportail map shows one redoubt on the left, and the Pennypacker and Ewald maps show two.

3c. Redoubt on the Right of the Second Line of Defense--No. 3, formerly known as "Fort Washington" (LCS 303)

This fortification is in situ, having been reconstructed in 1915 upon its remnants. Although some remnants of Redoubt No. 3, which had been even then partially restored, existed in 1915, deterioration was extensive by that date. The southeastern corner of the redoubt was entirely washed out. It was rebuilt upon a hypothetical plan supplied by Col. John Biddle, Corps of Engineers, then Superintendent of the United States Military Academy at West Point. It was, and remains, the best preserved fortification at Valley Forge, commanding a large expanse of ground to the south and east.⁹⁵

Von Steuben suggested building a redoubt in this

95. See John W. Jordan to the Commissioners, Valley Forge Park, 6 October 1915; and John W. Jordan to W. H. Sayen, 3 November 1915, and report of the Committee on the Restoration of Forts to the Commissioners, Valley Forge Park, 4 October 1916, VFNHPL. See also plans for reconstructing "Fort Washington," VFNHPL.

locale in his March 5 report:

On the Right Wing, the Intrenchment towards the first Brigade of the second line had been extended, which is very well understood yet there could be added a redoubt or Redan for the defense of the Valley that leads to Valley-Creek. . . .⁹⁶

Need for a redoubt in this sector seems to have been apparent to the officers, but the precise placement of the redoubt became a matter of contention. Duportail inspected the ground at least twice, and opposed those officers who wanted a redoubt on the summit of Mount Joy, a plan which he thought impractical due to the breadth of the summit. He suggested strongly to Washington on April 13 that the construction of entrenchments crowning the declivities of the hillside would be a much better expedient. At some time following this report, the redoubt was built.⁹⁷

3d. Redoubt on the Left of the Second Line of Defense--No. 4, formerly known as "Fort Huntington" (LCS 304)

Like Redoubt No. 3, the redoubt is in situ, having

96. Report of Baron von Steuben, 5 March 1778, ChiHS. A profile plan of the redoubt, as it was examined in 1915 and as it was reconstructed by architects, is in the map cases, VFNHPL. It shows cross sections of the contours of the remaining earthworks, on which are superimposed a conjectural profile of its original appearance with the somewhat less acute profile selected by the architects for their reconstruction.

97. Louis Duportail to George Washington, 13 April 1778, GWP, LC.

been reconstructed in 1915 on its remains. Both this work and Redoubt No. 3 are irregular four sided polygons, with traverses of an unusual design bisecting the interiors. No precedent for this particular design has been located in period handbooks on field fortifications.⁹⁸

As indicated above in the chronology section, this may have been the work which Colonel North referred to as Redoubt No. 4.

3e. Redoubt Covering Sullivan's Bridge--No. 1, known as the Star Redoubt (LCS 305)

This redoubt was reconstructed in 1916 on ground traditionally held to have been its original site,

98. Those that have been consulted include: Louis André comte de Clairac, L'ingénieur de campagne (Paris: Charles-Antoine Jombert, 1757); La Cointe, The Science of Military Posts (London: T. Payne, 1761); Hoyt, E., Practical Instructions for Military Officers (Greenfield, Mass.: John Denio, 1811). This latter reflects Revolutionary period military practice. Another standard work on field fortifications was in Count Gaudi's Instruction adressé aux Officiers d'infanterie pour tracer et construire toutes sortes d'ouvrages de campagne. . . (Leipzig, 1768). Of these, probably the most commonly available was de Clairac's work, which had been translated by Vallancey in 1758, John Muller in 1760, and Lewis Nicola in 1776. The latter edition was brought out in Philadelphia, and contains numerous designs for star redoubts, although none which conform to the four sided redoubts known as Redoubt No. 3 and Redoubt No. 4. General Duportail's aide, Captain George Fleming, owned a copy of Nicola's translation, although it is not certain that he owned it or used it at Valley Forge. JRC.

without recourse to archaeological investigation.⁹⁹ Most of the evidence pertaining to this work is cartographic. It appears on the Duportail plan and its variants, and it also appears on both spy maps, dating its construction to quite early in the encampment period. On the Duportail plan, its location appears to have been altered. If one views the encampment from the west, or rear, boundary as formed by Valley Creek, then the Redoubt No. 1 becomes one of the works von Steuben referred to in his March 5 report:

I have found on the left Wing, two Redoubts, the position of which is Very well understood, But they are not half finished; it would be necessary not only to perfect them, but to add yet a Small Work on the Height more towards Schuylkill.¹⁰⁰

It is clear that von Steuben is not referring to the second, later redoubt constructed on the first line, as the second redoubt in that location was begun much later in the encampment, and as he recommends its construction in the passage quoted above. The precise form of No. 1, the star redoubt is open to question; on the Duportail map

99. See Map Cases, VFNHPL, for reconstruction plans, 1915. In the map cases of the VFNHPL there is a contour map of the hill, on which the Redoubt No. 1 was reconstructed. It demonstrates clearly that there were no discernible above ground evidences of the Redoubt No. 1 at this location at the time of reconstruction.

100. Report of Baron von Steuben, 5 March 1778, Manuscript Collections, ChiHS.

it is shown as a six-pointed star, on the Galloway spy map as a hexagon. No contemporary descriptions of it, other than the cursory one found in the von Steuben report, have been found.¹⁰¹

Examination of the best preserved reconstructed works, Redoubts No.s 3 and 4, reveals them to be of unusual design, diamond-shaped and bisected by diagonal traverses. They were built to serve the dual purpose of infantry redoubts and artillery posts. The Galloway informant wrote that there were seven guns in the Redoubt No. 1. A redoubt shown on the Parker spy map, which could be either the Redoubt No. 1 or Redoubt No. 2 (probably the latter) refers to it as housing two guns and a magazine.¹⁰² Redoubts No.s 3 and 4 were well positioned on commanding eminences with extensive fields of fire, Redoubt No. 5 being particularly difficult to approach.

4. Redans

Two "redans," probably artillery emplacements or rifle-pits, are in evidence within the park, one to the left of Redoubt No. 4 and one above Redoubt No. 3 on

101. Ibid.

102. Parker Spy Map, Clinton Papers, WLC. Copy in VFNHPL.

Mount Joy. No contemporary references have been found to these small works, but one appears before the second line on the Duportail map. More may have been constructed along both lines of defense later in the encampment period.¹⁰³

5. Obstacles

Contemporary documentary evidence conclusively proves the existence of abatis before the second line, probably extending for its entire length. It is possible that at the time the terms "abatis" and "palisades" were used interchangeably, although their strict definitions were different. George Ewing spoke of pickets before the entire second line in April, 1778,¹⁰⁴ and Brigade Orders for Conway's brigade (March 15, 1778) required that offal be taken "a Proper Distance between the Hutts & Abittees & Either Burried or Burn'd."¹⁰⁵

Unorthodox natural obstacles were pressed into service, as is seen in the following General Order of April 2:

103. See Duportail map, Map Collection, HSP.

104. Ewing, Diary of George Ewing, p. 42.

105. Orderly Book of Malcolm's Additional Continental Regiment, Brigade Orders of 15 May 1778, Manuscript Collections, NYHS. See also the Parker spy map.

As the Stumps and brush in front of the New Lines afford an excellent obstacle to the approaches of an Enemy, it is expressly forbid that any part of it should be burnt by the fatigue parties or any others for the distance of extreme Musquet range in the front of the Lines, of which all officers commanding Regiments are to take particular notice. There is a sufficiency of wood within the lines to furnish Stakes for the works.¹⁰⁶

By mid-April, however, a shortage of suitable timbers to be used as palisades threatened, and was solved by Lord Stirling, who raided the remains of the old British encampment on the road to Moore Hall. These palisades were placed before Maxwell's Brigade on the second line.¹⁰⁷

No references have been found as yet which pertain to obstacles placed before the first line, although Duportail's April 7 report implies their existence. The second line, as indicated above, must have fairly bristled with them.

6. General Observations on the Fortifications

The efficacy of the Valley Forge defenses must be measured by their impact on British military thinking, even if they were never tested in battle. On April 14, before some of the redoubts were even begun, Sir William

106. Fitzpatrick, *WGW*, 11:199-200.

107. Lord Stirling to Charles Pettit, 16 April 1778, Dreer Collection: *Generals of the American Revolution*, HSP.

Howe wrote to Lord George Germain that the American patriot positions were too strong to attack with a clear chance of success.¹⁰⁸ Howe was doubtless subject to many and more complex considerations than the strength or weakness of a few earthworks, but the fact that the defenses were there on that commanding but overextended line provided him with the proper excuse to offer to his superiors. If Anburey's description is to be believed and the works were but paper defenses, it should be remembered that General Washington placed great importance on them. The second line, despite the overextension of the first line, comprised a formidable position indeed.

H. Excavated Features

General Washington rode through camp about mid-April and was appalled by the stench that assailed his nostrils. Causes of the unhealthy situation were inadequate privies and unburied offal, the inedible viscera and butchers' refuse littering the camp. It is apparent that butchering was going on within the boundaries of brigade encampments (see above section on slaughter pens). General orders were issued directed toward

108. Sir William Howe to Lord George Germain, 19 April 1778, Germain Papers, WLC.

cleaning up the camp, but the brigades may have been rather lax in attending to them.

1. Offal Pits

On April 14 a General Order was issued illustrating Washington's vexation at the disease-provoking refuse in camp, as he knew what the cost would be in returns of sick and dead. It read:

The General . . . therefore and for the last time (without proceeding to Extremities) requests that all kinds of Dirt and Filth as well as that in Front, Rear and between the Huts as what shall be found on the Parade and before the doors be raked together and burned or buried as the Case may require.¹⁰⁹

It was not until a month later, however, that brigade orders for Conway's late brigade began to press the regimental quartermasters to see to the unpleasant problem. That order gives us our only reference found to date locating offal pits:

The Quarter Masters of the Several Regts of the Brigade are Directed to attend Strictly to the Genl. order of some days past Respecting the Cleanliness of the Camp as they will be answerable for any neglect in that Respect. They are to see that all kinds of Dirt and Filth is taken out of Camp at the proper Distance between the Hutts & Abittees & Either Buried or Burn'd.¹¹⁰

109. Fitzpatrick, WGW, 11:260.

110. Orderly Book of Malcolm's Additional Continental Regiment, Brigade Orders of 15 May 1778, Manuscript Collections, NYHS.

When the Army vacated the encampment and moved into tents in June it left the area in considerable disorder, resulting in a General Order of June 13:

A fatigue party is to be ordered from each brigade for the purpose of cleaning the old Encampment, filling up the Pits and burying all kinds of Garbage and Carrion that remain.¹¹¹

It appears that even the parades were not free from garbage, and offal pits may have been excavated in or around them. (The pits should, if located, prove archaeologically valuable, as presumably they would be deep enough to be out of range of standard metal detectors, and thus may have eluded treasure hunters.)

2. "Necessaries," or Privies

Privies, referred to most frequently in orders as "necessaries," were partially responsible for the unhealthy miasma which hung over the camp in April. General Orders of the 14th observed that "the smell was in some places intollerable, owing to the want of Necessaries or the Neglect of them. . . ."¹¹² In May they were still uncovered and Washington ordered that some sort of structure be erected over and around them.¹¹³ (These features

111. Fitzpatrick, WGW, 12:53.

112. Fitzpatrick, WGW, 11:260.

113. Fitzpatrick, WGW, 11:346.

should also prove archaeologically valuable, as privies are almost invariably rich in artifacts and faunal samples.)

I. Special Use Areas

1. Parades

An expansive tract of clear ground roughly in the center of the encampment is believed to have been the Grand Parade, and it is the only suitable piece of terrain for drilling massed brigades. During April and May, brigades drilled under von Steuben's tutelage, some of the maneuvers requiring a considerable amount of space. The Grand Parade was also the site of the celebration of the alliance with France on May 6, 1778.¹¹⁴

Parade areas also had grimmer associations, as they were the stages upon which corporal punishments ordered by courts martial were carried out. Divisions and brigades were frequently paraded especially to view the execution of sentences, as was the case when General Greene ordered his entire division to parade to see him personally reprimand a soldier convicted of mutiny.¹¹⁵ A paraded

114. Fitzpatrick, WGW, 11:354-356. (General Orders pertaining to the celebration of the Alliance with France.)

115. Valley Forge Orderly Book, p. 215.

division would have required the space of the Grand Parade. Capital punishments likely took place on or in view of the Grand Parade. A central parade was considered a necessary feature of any permanent or lengthy encampment, and when the Army moved in June to a new tenting site before the old encampment, a new "grand parade" was almost immediately designated, being before the new location of Conway's late Brigade.¹¹⁶

Certainly some and probably all brigades had individual parade grounds, as the men were paraded by regiment each morning, and orders were read and fatigue details selected. Officers of Weedon's Brigade appointed for special duties were admonished in February to attend the brigade parade and march with their details from thence.¹¹⁷ Brigades on the second line, as well as Varnum's and McIntosh's, may have used the Grand Parade as their brigade parades. Troops on the first line may have paraded before or behind their works, as space permitted.

2. Continental Horse Yard

Receipts for horses requisitioned by officers were frequently docketed "Continental Horse Yard" during April and May. The location of this area is not precisely

116. Fitzpatrick, WGW, 12:50.

117. Valley Forge Orderly Book, p. 248.

known, although it is thought to have been on the road to Moore Hall or just beyond. The only reference to the horse yard location known to date is in the General Order of January 18, 1778. In organizing horses and wagons for supply, Washington directed that:

all private Waggon's and horses annexed, either to Regts or employ'd by the Brigade Commissarys shall be delivered up on Monday or Tuesday to the Q: M: Gen.l at the field next beyond the Adjut.t Gen.ls Office. . . .¹¹⁸

The Adjutant General's office was at or near the James White House (see below, Section V, A, 12). The horse yard, if this were the field referred to above, was probably between this ediface and Moore Hall.

3. Grave Sites

Traditional grave sites are at the westernmost extremity of the first line, and north of the Pennsylvania Brigades' portion of the line, both of which are currently identified. No contemporaneous documentation concerning these sites has been found, nor have any

118. Ibid., p. 195. An example of the several extant receipts for horses from the Continental Horse Yard, is one signed by Alexander Church for four of the Baron von Steuben's horses taken in at the yard, Box 6, Chaloner & White Papers, HSP. Edward Pinkowski, in his book Washington's Officers Slept Here (Philadelphia: Sunshine Press, 1953), p. 226, speculates that the Yard may have been near Moore Hall, but he does not offer sufficient proof for the precise location he selects.

specific contemporary references to burials within the perimeter of the camp been discovered.

4. Markets

One month into the encampment, it was decided to invite local farmers to vend their produce and food-stuffs to the Army to supplement strained supplies of rations. The brigadiers met at General Sullivan's quarters on January 21 to decide upon proper locations and to establish regulations governing the markets. The officers met again on the 24th, and Washington duly posted the price lists and regulations on January 30. They were published in the Pennsylvania Packet on February 4. The markets were opened on February 8,¹¹⁹ three alternating locations having been selected. The General Orders stated:

Tomorrow being the Day appointed for opening the Market at the Stone Chimney Pickett, the Army is desired to take notice of the same. Markets will be held in the same place every Monday and Thursday on the East side of Schuylkill, Near the North Bridge every Tuesday and Friday near the Adjut. Genls Office Every Wednesday and Saturday.¹²⁰

In mid-March the market on the east side of Schuylkill was moved across the river into camp, perhaps to

119. Valley Forge Orderly Book, p. 200.

120. Ibid., p. 228.

stem the flow of traffic across the bridge.¹²¹

The markets were designed with dual purposes: to supply the troops with fresh food, supplementing the scant rations and preventing the outbreak of scurvy; and to provide local farmers with an alternative to trading with the British. The markets appear to have been successful, as they continued for at least a month.

Locations are not precisely known: one was quite close to Sullivan's Bridge, another on the road to Moore Hall, a third at the Stone Chimney Picket, which appears to have been near the current intersections of Devon Road and Route 202, at New Centerville.¹²²

5. Picket Posts

It is reasonable to assume that General Washington ringed his Army with pickets and guards, but only two precise locations have been found in contemporary manuscripts. Regulations pertaining to pickets and guards were plentiful enough. On December 22 it was

121. Ibid., p. 260.

122. On location of the Stone Chimney Picket see S. Paul Teamer, "Old Stone Chimney Picket Site Vital Outpost for Valley Forge," Picket Post (April, 1946), pp. 34-35.

ordered that men going on picket duty were to take their necessary rations with them, as they would not be permitted to return during the period they were on guard. Sentries were not to remain on duty for more than forty-eight hours, and the penalty for deserting one's post was death by hanging.¹²³

One picket post was at the Stone Chimney, also the site of a market (see above), and another at Mitchell's Mills. Ensign Ewing thought the latter a rather comfortable post, and noted in his diary, "Mounted Guard had the good fortune to get Mitchells Mills Piquet although I was plagued to find my station for want of a guide. . . ." ¹²⁴

A picket is pinpointed by Duportail at a post just to the east of the Varnum Brigade encampment area, north of the road to Jenkins' Mill. The Albert K. Davis map shows two more, one at the far left of the first line of defense and another just east of the access road to Sullivan's Bridge, on the west side of the Schuylkill.

6. The "Bakehouse"

A structure recurringly mentioned in encampment period documents was the "Bakehouse," traditionally

123. Fitzpatrick, *WGW*, 10:190; 11:345, 353.

124. Ewing, Diary, p. 39.

identified as an extant and extensively restored building at the junction of Routes 23 and 252. The Bakehouse functioned as a bread bakery and as a Commissary store, but it was certainly not the only baking location at Valley Forge. Letters of William Bradford, Deputy Commissary General of Musters, provide an account of the production of Addison's Cato by officer corps thespians at the Bakehouse.¹²⁵

The questions enveloping the structure known as the "Bakehouse," also referred to as the William Dewees House, defy all but hypothetical solution. When was it built? What pre-encampment function did it serve? Was it indeed the structure referred to by Bradford and the commissaries as "the Bakehouse?" Architectural historians have dated the structure to c. 1740-1760 (see below, section V B. 2. The Potts Family at Valley Forge), and thus it can be said to have been extant during the encampment. The Duportail map also indicates a structure at roughly the location of the extant building. It was probably associated with what became the Valley Forge tract, when it was separated from the tract containing

125. Ewing, Diary, p. 38. Valley Forge Orderly Book, p. 180. William Bradford to Rachel, 14 May 1778, Wallace Papers, vol. 1 (William Bradford Papers), HSP.

the grist and saw mills in 1768 (again, see below, section V. B. 2). If this supposition is correct, the structure was owned by William Dewees, proprietor of the Valley Forge, in 1777-1778.

The "Bakehouse" appellation for this structure dates from at least 1850, when it was mentioned by Henry Woodman.¹²⁶

J. Schuylkill River Approaches and Roads

1. Sullivan's Bridge

The location and structural details of Sullivan's Bridge were subjects of intense inquiry during the tenure of the Valley Forge State Park Commission. Although the general site of the bridge is known, the precise points at which it connected the east and west banks of the Schuylkill have not been absolutely determined. Construction of a bridge over the Schuylkill was one of Washington's earliest and most pressing concerns. A bridge was essential both to provide for an easy escape to the east side of the river in the event of an overwhelming British attack, and to allow parties and militia to operate east and north of the river. Fatland Ford, the traditional crossing place downstream from the

126. Woodman, History of Valley Forge, p. 86.

confluence of Valley Creek and the Schuylkill and upstream from the eventual bridge site, could not be relied upon in time of high water. The new bridge would be close enough to the ford to allow use of the access roads to the ford on both sides of the river. General Sullivan was assigned the task of building it and was given priority access to axmen, tools, and timber.¹²⁷

1a. Location

The bridge's proximity to Fatland Ford is well established. Duportail's plan places it downstream from an unnamed but still identifiable island in the Schuylkill below the entrance to Valley Creek. The back channel of the island is silted in, but the mouth of the back channel is still discernible on the east side. Above the mouth is a shallow, wide portion of the river corresponding roughly to the traces of the Baptist Road which appear south of the Reading Railroad right-of-way. The river bottom in this section is hard, gravelly, and devoid of boulders and large stones, and is still fordable in mid-summer. This is Fatland Ford, and downstream from it, near the back channel outlet, is a stony-bottomed section

127. Valley Forge Orderly Book, p. 164. Sullivan had been assigned to direct the building of the bridge by 22 December 1777.

which is the approximate site of the rock-filled piers of the bridge.¹²⁸

Three and perhaps four markers were placed at the approximate location of the bridge site, all of which seem to have been erected long after the destruction of the bridge in the winter of 1778-1779. The earliest of the known markers was a red sandstone monument, in place and deteriorating when river boatmen took up a collection to erect a new, white marble marker in 1840. At this time it was asserted that heaps of stone could still be discerned spanning the river at regular intervals where the bridge pilings had been. Spring flooding in 1850 broke off the new monument. In 1909 the Montgomery County Historical Society raised a new and undeniably permanent granite marker on the east bank of the river, apparently near the location of the earlier red sandstone marker, and this may be seen just below the back channel outlet, in deep undergrowth. The boatmen's broken marker has disappeared, but photographs taken of the site about 1900 show what may be the remnants of this marker, bearing

¹²⁸. Personal observations of the author, July, 1978.

a partially destroyed inscription:¹²⁹

PENCER

_RIDGE

177_

Somehow the structure came to be called "Spencer's Bridge," probably after the temporary commander of Conway's late Brigade, Colonel Oliver Spencer.

1b. Chronology

Bridge construction was getting under way by December 26, 1777, when a box of tools "Containing the following Articles for building a Bridge"¹³⁰ was received by an aide to General Sullivan at Fatland Ford. All of the following items, with the exception of the listed

129. Photograph by I. A. Sampson, Berwyn, Pa., c. 1900. N. A., "The Sullivan's Bridge Monuments," Historical Sketches: A Collection of Papers Prepared for the Historical Society of Montgomery County Pennsylvania (Norristown, PA: 1910), 4:31-32. Benjamin Bertolet, "The Boatmen's Marker at Sullivan's Bridge, Valley Forge, and Early Navigation of the Schuylkill," Historical Sketches: A Collection of Papers Prepared for the Historical Society of Montgomery County Pennsylvania (Norristown, PA: 1910), 4:41044.

130. Receipt for tools, 26 December 1777, Roll 122, M859, RG 93, NA.

cooper's tools, were in the box:¹³¹

	Inch
7 Augurs	1 3/4
4 ditto	1 1/2
4 ditto	1 1/4
5 ditto	1
4 ditto	3/4
4 Cross cut Saws	
11 Saw Files	
13 Chissels	
19 Coopers Axes--to serve instead of froes for the present	
5 Axes	
3 Hand Saws	
8 Adzes	
8 Coopers d°	
1000 spikes	
4 x Cut Saw files	
6 Coopers d°	
24 Gimblets	

The variety of tools designated for construction of the bridge in contrast with the dearth of implements relegated to hut building confirms the point that it was of particular importance to Washington. Yet an acute lack of froes and axes plagued the project. Washington was also worried that local sawmills were not producing planks as rapidly as they might, and that the construction of the new bridge would be further impeded. Sometime early in February, Sullivan reported to Washington that but three days' work remained to be done on the bridge, and requested a furlough, which was refused. The bridge

131. Ibid.

was finished and operative by the end of March, when an aide to General Duportail, Captain George Fleming, noted that it was completed. Delays had resulted from a shortage of axmen and those normal construction difficulties which proceeded from building a bridge in the dead of winter.¹³²

Sullivan's bridge lasted through the summer of 1778, but by November of that year the pilings were beginning to disintegrate from the weight of the rocks within, and ice took out a portion of the span. John Bull reported to the Supreme Executive Council of Pennsylvania late in February, 1779 that the bridge had begun to break up, and suggested salvaging planks and timbers for use elsewhere. The enterprising Bull then managed to dismember the bridge and float the timbers down the Schuylkill to the Middle Ferry at Philadelphia "for the Works down the river."¹³³ These were very likely the chevaux de frises for the new defenses of Philadelphia

132. John Laurens to Henry Lutterloh, 28 December 1777, Oldridge Collection, LC. Hammond, Papers of John Sullivan, 2:17. Captain George Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.

133. John Bull to the Supreme Executive Council of Pennsylvania, 23 February 1779, Reel 14, RG 27, PHMC. John Bull to the Supreme Executive Council of Pennsylvania, 6 April 1779, Frame 1140, Reel 14, RG 27, PHMC.

undertaken by the Council.¹³⁴

To speed construction of the bridge, a special set of huts were built on the site to house the axmen and carpenters who would otherwise have had to proceed each morning from their brigade encampments. The construction of the bridge apparently required specialized talents, for a letter of February 13, 1778, indicates that a group of seamen, perhaps ships' carpenters or oarsmen, were at work on the bridge, and one of these men had just deserted.¹³⁵

Von Steuben found fault with the positioning of the bridge in his critique of the fortifications issued March 5, complaining that "an height which is on t'other Side, commands so much the Bank of that River, that it is impossible to make a Bridge's Head (tete de pont) in order to cover the Crossing of it."¹³⁶ Von Steuben went on to suggest that another bridge might be in order, and favored a location closer to the outlet of Valley Creek.

Two documents written toward the end of 1778 provide

134. Ibid.

135. Captain George Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.

136. Report of von Steuben, 5 March 1778, Manuscript Collections, ChiHS (French edition: Manuscript Collections, AAS).

us with the best view of how the bridge was constructed. The Pennsylvania Assembly apparently wanted to preserve the bridge after the army's departure, and had it examined in August of 1778 by John Bull. Bull responded with a lengthy proposal for protecting the bridge against the oncoming winter, and he appended to his letter the only sketch of the bridge found to date. His sketch shows only the piers, which were constructed of triangular timber cribbings pointing upstream and were filled with stones which rested on sills near the river bottom. By August the sills were giving way from the weight of the stones, and they were spilling out over the river bed. The bridge surface itself extended downstream from the piers, with intermediate spanning timbers and planking forming the tread surface. No indication of the design of the superstructure was given.¹³⁷ In November, General Sullivan was queried by the Pennsylvania Assembly as to how to shore up the bridge. He responded:

I take the Liberty of Recommending the Filling up the Piers or Boxes with Stones; also, a number of Stones to be Thrown Round the Boxes to prevent the Sand washing away Round the sides. These precautions being taken, I flatter myself the Bridge will stand till the lumber decays.¹³⁸

137. John Bull to the Supreme Executive Council of Pennsylvania, 31 August 1778, Reel 14, RG 27, PHMC.

138. Hammond, Papers of John Sullivan, 2:441.

This was a sanguine estimate, because the sills within the piers had already given way by August, and the bridge required massive repair, which the Supreme Executive Council apparently did not provide for. In February, 1779, John Bull began to dismantle it and later floated the timbers down to Philadelphia.¹³⁹

1c. Historical Significance

The need for a bridge to be employed as an escape route and to allow operations to continue east of the Schuylkill during the winter months dictated the importance the bridge assumed in Washington's planning. The weakness of the Army lent the first of these reasons increasing urgency as the winter deepened. The curious construction of the bridge is obviously tied directly to the limited technological capacities of its builders. For instance, pilings were not sunk into the river bottom but rested instead on sills on the river bed. The length of time expended in building the bridge, at least two months, attests to the difficulties encountered. Its short existence does not detract from the fundamental impressiveness of the achievement of building a bridge

139. John Bull to the Supreme Executive Council of Pennsylvania, 6 April 1778, Frame 1140, Reel 14, RG 27, PHMC.

in mid-winter with only a few carpenters' tools. The bridge is one of the few structures retaining its period cognomen, as Captain Fleming pronounced on March 26, 1778, that "Sullivan's Bridge is finished."¹⁴⁰

2. Schuylkill Docking Areas

From April into June, 1778, Colonel James Abeel forwarded military stores from his post in Reading to the Quartermaster's stores at Valley Forge, employing flat-bottomed boats on the Schuylkill.¹⁴¹ From his frequent references to this mode of transportation, one can infer that there were one or more docking areas on the west side of the river at camp, although none appears on period maps. There would certainly have been one to serve the Quartermaster's stores at Moore Hall, but its location is unknown.

3. Camp Roads

Sources on roads within and approaching the encampment consist of period maps (chiefly the Duportail plan, its variants, and the Pennypacker map), and records of the Courts of Quarter Sessions for Philadelphia and Chester counties. The latter included petitions and

140. Captain Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.

141. James Abeel to John Mitchell, 10 June 1778, JAL, LC. See also this report, p. 191.

approvals granted for laying out roads, as required under the Penn Proprietorship for any roads built other than those mud tracks related to farm use. The period maps provide further information on military and farm traces in use within the encampment area.

In terms of proper scale and alignments the Duportail map is far superior to the Pennypacker map, which skews the outer line of entrenchments and hut sites to an axis running nearly north-south, and is thereby substantially misleading. The roads on the former map, however, conform roughly to those on the Pennypacker map, which offers what appears to be a fairly accurate view of roads south and east of camp. Comparing this map with the records of the Courts of Quarter Sessions of Philadelphia County,¹⁴² it appears that three roads were applied for and built through the future encampment area between 1725 and 1761.¹⁴³ The main axes were the so-called "Baptist Road," connecting the Great Valley Church to the Fatland Ford--Valley Forge area (1736); Nutt's Road, linking Moore Hall with Valley Forge (1725); the Gulph Road (1725-26) connecting Valley Forge with arteries

142. Index to Roads and Bridges and Court Dockets. City Archives, City Hall Annex, Philadelphia, PA.

143. Ibid.

leading to Philadelphia, and the Road of Jenkins' Mill (1761) connecting Valley Forge to Jenkins' Mill just east of the encampment area and the Swedesford Road. (See the accompanying map, "Valley Forge--Major Arteries and Landmarks 1778.")¹⁴⁴ All other roads within the area of the camp now incorporated within the National Park were apparently farm and military traces opened without recourse to the courts.

The Duportail and Pennypacker maps, despite the serious skewing of the latter, can be made to conform roughly to each other. Several rough tracks crossed the terrain, including those built for approaches to Sullivan's Bridge and a trace to the general vicinity of the first line, as indicated on the Duportail map. Von Steuben's March 5, 1778, report implies that the latter was barely passable and hardly useful for military purposes.¹⁴⁵

4. Fords

The petition to construct a road crossing the Schuylkill in 1736 at a place then termed the "flat land" requested that the road be so constructed as to "enter into the said Schuylkill at the upper end of the flat land

144. Ibid.

145. Report of von Steuben, 5 March 1778, Manuscript Collections, ChiHS.

and pass thro' and said river at the usual ford made use of,"¹⁴⁶ thus indicating that the ford, known later as Fatland Ford, was a traditional crossing place at least as early as 1736. The other ford directly involved with the encampment crossed Valley Creek at Valley Forge, and was in use as early as 1725, when the Philadelphia Court of Quarter Sessions was petitioned to extend a road applied for in Chester County across the creek at that point and established a passage from the Valley Creek to the Philadelphia Road.¹⁴⁷

The next adjacent fords across the Schuylkill were Pawling's Ford, west of camp, and at Swedesford (Norristown).

146. Index to Roads. . . , op. cit.

147. Ibid.

V. CIVILIAN STRUCTURES AND FEATURES

The land occupied by the encampment of the Continental Army was found on the northeastern border of what had been known since the founding of the province of Pennsylvania as the "Welsh Tract." In soliciting purchasers for his colony, William Penn had actively recruited among the Quaker sect in Wales, promising them their own tract, or "barony," as it was termed. In January of 1684, Penn ordered his surveyor-general, Thomas Holme, to survey a large tract for the Welsh Quakers, many of whom had already arrived in the colony. The boundaries of individual properties, and the dimensions of the tract, were already in dispute. As eventually surveyed, the Welsh Tract encompassed sixty-two and one-half square miles, or about 40,000 acres.¹

1. See Charles H. Browning, Welsh Settlement of Pennsylvania [sic] (Philadelphia: William J. Campbell, 1912), and Henry Bartholomew Cox, "The Domestic Architecture of the Welsh Tract of Pennsylvania, 1681-1806" (Senior Independent Essay, Princeton University, 1959), pp. 15-17. See also Walter Klinefelter, "Surveyor General Thomas Holme's 'Map of the Improved Part of the Province of Pennsylvania,' Winterthur Portfolio (1970) 6: 52-53. This article contains photographs and details of Holme's engraved maps, showing both the Welsh Tract and the Mount Joy Manor.

On the northeast boundary of the Welsh Tract was a "manor," or sizable plantation, in a loop of the Schuylkill River, surveyed in 1687 and formally granted by William Penn to his daughter Letitia in 1701. It comprised about 7,800 acres, and was named the Mount Joy Manor for a large hill so designated which lay within its boundaries.²

Among the first purchasers of farms in the Welsh Tract, which was subdivided into the Townships of Haverford, Radnor and Merion, was one "Mordicia," or Mordecai Moore, whose descendents John and Mordecai would acquire farms later encamped upon by the Continental Army in 1777-78. Other purchasers included several of the Evans family, a branch of which came to be called Stephens, due to the Welsh custom of using given names for surnames in succeeding generations. One John Havid, or Havard, was also established in Merion Township by 1712-13. The farming descendents of these Welsh Quaker families attended meeting at Radnor or Tredyffrin, eventually spilling over from the old Welsh Tract into Letitia Penn's manor, which was gradually subdivided and sold off between

2. Klinefelter, "Surveyor General Thomas Holme's 'Map,'" 56. Howard M. Jenkins, "The Old Iron Forge--Valley Forge," Pennsylvania Magazine of History and Biography (1893) 16: 432-33.

1701 and 1730.³

The ethnic character of the Chester and Philadelphia county small holdings south and east of Valley Forge was predominantly Welsh Quaker. The architectural style of their two room, hall-parlor plan farmhouses was derived principally from native Welsh examples.⁴ Eventually other families, such as the enterprising Potts clan of iron manufacturers, had begun to arrive in the community by the mid-eighteenth century. The Welsh-Quaker strain continued to predominate.

A. Dwellings Employed as Officers' Quarters

Discussion of the attribution of certain civilian structures as officers' quarters is complex, and involves first establishing whether the said general was indeed housed in the location to which his name has been attached by tradition, and then ascertaining if an extant structure on the site was the building in which he made his quarters. Conclusive evidence for officers' quarters is for the most part scarce, with the

3. Browning, Welsh Settlement, pp. 122, 249. See also, on the history of Merion Township, Thomas Allen Glenn, Merion in the Welsh Tract (Norristown, Pa.: privately printed, 1896).

4. See Cox, "Architecture of the Welsh Tract," for illustrations of floor plans.

preponderance of the evidence being traditional.

All of the quarters structures within the park, as well as those which remain without, have been extensively remodeled. This was often accomplished at considerable cost, with the purpose of turning a modest farm dwelling into a country estate, in effect obliterating, or completely enveloping, the encampment period structure. Nineteenth century photographs of the dwellings indicate the drastic extent of alterations perpetrated on nearly all of the officers' quarters within the present park boundaries.

It was customary, indeed expected, that general officers in the field would be quartered as comfortably as resources permitted. When Jared Sparks questioned John Armstrong, Jr., in 1833, on the subject of officers' quarters at Valley Forge as depicted on the Davis-Armstrong-Sparks map, Armstrong expanded on this subject:

In regular encampments, whether the army be in huts or tents--Regimental officers encamp with the troops.--Gen. Officers have more liberty in locating themselves; and in general, choose those houses in the neighborhood in which they can find the best accommodations. This indulgence is however more tolerated in winter, than in summer--the cold weather generally lessening (as it essentially does) the probability of attacks from the enemy, in addition to this security they multiply their guards & are only careful to be at the heads of their commands when the case becomes serious, and of this they are generally apprised by the

firing of the outlying picketts & horse patrols. Some of the latter, were no doubt advanced ten or more miles towards Phila.^a and made to occupy every road of approach to the Camp. On the whole, I see no objection to Mr. Davis's sketch, from the locations he⁵ has given to the Quarters without the lines.

Armstrong's knowledge of the Valley Forge encampment seems to have been either limited or blurred by time, but this general comment explains why all of the general officers were quartered on the west side of the river, and why one should give some credence to traditions which place officers in quarters close to their commands.

1. The Isaac Potts House (Washington's Headquarters)

Headquarters for the Valley Forge encampment is labeled "quartiers generales" on the Duportail map, and appears in the same location just east of the confluence of Valley Creek and the Schuylkill on the Davis-Armstrong-Sparks map and the map labeled "Albert K. Davis." The house used by General Washington was the residence attached to the grist and saw mill complex, which also appear on the Duportail map. (See below, section on "Industrial Structures" for a discussion of use and

5. John Armstrong, Jr., to Jared Sparks, 15 October 1833, Jared Sparks Collection, Houghton Library, HU.

ownership.)

The most revealing period description of headquarters is offered by Martha Washington in a letter to Mercy Warren, wherein she mentions that the quarters were quite cramped and that the general was compelled to have a log structure built for a dining area. Writing to Mercy Warren on March 7, 1778, Martha Washington related that she had been in camp since about February 1. Commenting generally on the scene, she gave the following description:

The General is incamped in what is called the great valley on the Banks of the Schuylkill. Officers and men are chiefly in Hutts, which they say in tolerable comfortable: the army are healthy as can well be expected in general. The General's apartment is very small he has had a log cabin built to dine in which has made our quarters much more tolerable than they were at first.⁶

References to headquarters abound in contemporary documents, but few give any precise information as to location and specific arrangements. Elias Boudinot, in his venomous post-war commentary on the philandering of Major General Charles Lee while in camp, gives us an oft-quoted description of the guest accommodations:

He [General Lee] passed thro' the lines of Officers & the Army, who all paid him the highest military Honors to Head Quarters,

6. Martha Washington to Mercy Warren, 7 March 1778, Adams-Warren Papers, MHS.

where Mrs Washington was. and there he was entertained with an Elegant Dinner, and the Music Playing the whole time--A Room was assigned him. Back of Mrs Washington's Sitting Room. and all his Baggage was stowed in it.⁷

Boudinot goes on to say that Lee repaid Washington's courtesy by that night sneaking "a miserable dirty hussy"⁸ into his room by means of a back door. Boudinot wrote his journal at some time following the war, when Lee's reputation had sunk to its lowest ebb, and the incident quoted above is hardly an impartial narrative, and is based upon a memory at least seven years old. It is not, in sum, the most reliable source for architectural detail. Taken literally, however, one can glean from it that Martha Washington used a room as a sitting room and that the house had a front and rear entrance, the latter certainly being in accordance with the design of the Potts House.

Headquarters functioned as a command post for Washington's aides and secretaries, particularly the ubiquitous Tench Tilghman and John Laurens, who penned their innumerable orders and command missives from "Head Quarters, Valley Forge." Visiting congressional

7. Elias Boudinot, Journal of Historical Recollections of American Events During the Revolutionary War (Philadelphia: Frederick Bourquin, 1894), p. 78.

8. Ibid.

delegates and military personages were feted there, presumably in the log dining pavilion, and such petitioners as the wives of the Philadelphia Quakers exiled to Virginia in 1777 were received and heard.⁹ The location of headquarters was certainly no secret to the British, whose spies managed to ride with relative ease through camp.¹⁰

Philadelphia County deeds show the owner of the house at the time of the encampment to have been Isaac Potts, who apparently rented to Deborah Hewes, recipient of Washington's \$100 rental fee paid in June for the use of the house and furnishings.¹¹ As no other dwelling structure is shown in the tax lists to have existed on this tract at the time of the encampment, it is a reasonable assumption that the traditional assignation

9. For typescripts of most of the extent letters penned by Washington's aides during the war, including those at Valley Forge, see the Oldridge Collection, LC Manuscript Division, Washington, D.C. For the visit of Elizabeth Drinker to camp in order to petition on the behalf of her husband and other Quaker exiles in Virginia, see Historical Society of Montgomery County Pennsylvania, Historical Sketches, vol. IV (Norristown, PA.: Herald Printing & Binding Rooms, 1905), p. 245-46.

10. This is inference based on perusal of the two known spy maps.

11. Receipt of Deborah Hewes, HSP.

of the Potts House as Washington's Headquarters is correct, and that the structure owned by Potts is the same structure subjected to substantial restoration, and so designated today.¹² The two-story main block has been restored repeatedly, and the kitchen wing is almost entirely reconstructed.

2. The David Stephens House (traditional site of Varnum's Quarters)

David Stephens owned property of about 300 acres adjoining the Isaac Potts tract on the east, which the former farmed before and following the Valley Forge encampment. Varnum's, Huntington's, and Conway's brigades were quartered on the Stephens farm. This dwelling has long been associated by tradition with Brig. Gen. James Mitchell Varnum, whose troops were hutted on either side of the Road to Jenkins' Mill, a little to the east of the house. A structure in this location is labeled "Gen. Varnum's Quarters" on the Davis-Armstrong-Sparks map. Henry Woodman, writing in about 1850, repeated the tradition.¹³ Evidence thus

12. Tax assessments on Isaac Potts, 1774-1793, Upper Merion Township Tax lists, Montgomery County Historical Society, Norristown, PA.

13. Woodman, *History of Valley Forge*, p. 57. On Stephens's acreage, see Pennsylvania Archives, 3rd Series, Vol. 14, p. 455.

far, however, remains traditional and inferential.

The location close to his brigade would have been a logical one for Varnum, but it would also have been convenient for Huntington. Varnum letters for this period are scarce, and none located thus far makes specific reference to his quartering arrangements. It was common for groups of officers to meet at Varnum's quarters, wherever they may have been, to discuss such things as the proper exchange of rawhide for shoes.¹⁴ The David Stephens house remained in the Stephens family until the absorption of the property by Valley Forge State Park.¹⁵

The house has been extensively restored, and may contain some fabric dating to the Revolutionary period.¹⁶

3. The Maurice Stephens House (traditional site of Huntington's Quarters)

Zachariah Davis was a tenant on the Maurice Stephens property, which joined the David Stephens farm on the

14. Fitzpatrick, WGW, 10:311.

15. See deeds, VFNHP Library.

16. Photograph of Varnum's Quarters, L.H. Sampson, c. 1900, VFNHPL. For details on the restorations see Valley Forge Park Commission, Report of the Valley Forge Park Commission, Commonwealth of Pennsylvania, 1931-1935 (Valley Forge, PA.: no publisher, 1935), pp. 5-6.

east, during the encampment period. The Davis-Armstrong-Sparks map places Brig. Gen. Jedediah Huntington's Quarters roughly in the location of a current structure which dates from 1816. (There is a dated stone slab in the east gable end, and a corresponding increase in tax assessment for that year.)¹⁷

Duportail indicates a structure at this location, but he does not label it. Huntington's copious correspondence does not describe his Valley Forge accommodations.

In 1798, the Direct Tax List for Upper Merion Township shows the farm to include a log dwelling and stone milk house. The log house was 16 by 25 feet in dimension and the stone milk house 15 by 20 feet, the latter of which corresponds roughly to the extant spring house on the property.¹⁸ It is likely that Huntington inhabited the log house, as a milk house because of the necessity for coolness is untenable.

17. Tax assessments on Maurice Stephens, Upper Merion Township Tax Lists, Montgomery County Historical Society, Norristown, PA. See also will of Elinor Evans, Philadelphia County Will M:149, Philadelphia County Records, City Hall Annex, Philadelphia, PA, willing the property to Maurice Stephens, 23 January 1758.

18. Direct Tax of 1798, Montgomery County Historical Society.

No contemporary evidence relating the Maurice Stephens House to General Huntington has yet been found, although there is a substantial traditional association related in Woodman's history of Valley Forge.

4. The William Currie House (Probable site of Lord Stirling's Quarters)

The Parker spy map designates a structure as "Curries," and the Pennypacker and Davis-Armstrong-Sparks maps place a structure in the same vicinity referring to it as "Lord Stirlings" and "Lord Stirlings Qrs" respectively.

According to Chester County deed books, the Reverend William Currie owned a house and property southwest of the encampment site in Tredyffrin Township from 1767 to 1791, referred to then as the "North Farm" to distinguish it from another property which he bought in 1751.¹⁹ Lord Stirling (Maj. Gen. William Alexander) does not refer to his quarters in any but the most cursory sense in any correspondence located to date.

Attribution of the William Currie house as Stirling's quarters depends exclusively upon cartographic evidence and tradition. Stirling's Quarters were adaptively restored and added to in 1927 by the most recent owners,

19. Deed Book P, Vol. 15, pp. 129, 132, Tredyffrin Township, Chester County, PA, Chester County Court House, West Chester, PA.

Robert C. and Frances H. Liggett.

5. The John Brown House (traditional site of Maxwell's Quarters)

Traditionally the John Brown, Jr. dwelling was referred to as the quarters of Brig. Gen. William Maxwell, although no information contemporaneous with the encampment confirming this attribution has been located. A stone house did exist on the property during the Revolution, but the extant structure can in no sense be interpreted as resembling a stone farmhouse of the Revolutionary period.²⁰

There is no eighteenth or early nineteenth century cartographic evidence supporting this association.

6. The Samuel Brown House (traditional site of Knox's Quarters)

The Davis-Armstrong-Sparks map designates a structure on the property owned during the Revolution by Samuel Brown, as Brig. Gen. Henry Knox's Quarters. Brown owned the tract in this vicinity from 1774 until his death in 1775.²¹ Knox, however, is known to have spent at least

20. For ownership of the dwelling by John Brown, Jr., during the Revolution see Chester County Deed Book Z:176, Chester County Court House, West Chester, PA.

21. See Chester County Deed Book Z, pp. 176-177. John Brown acquired the property by Sheriff's sale on March 4, 1775.

part of the encampment period in a hut in the Artillery Park, where Mrs. Knox, who arrived late in the encampment period, resided as well.²²

7. The Samuel Havard House (traditional site of Lafayette's Quarters)

Lafayette's quarters are shown on the Davis-Armstrong-Sparks map near Valley Creek and are traditionally thought to have been the Samuel Havard House. There is no earlier cartographic evidence.

A statement by the Brig. Gen., the Marquis de Lafayette has often been taken to be a scathing comment on his own living quarters, but in fact it is a general comment on the situation of the Army. He has been quoted as describing his quarters, as "scarcely more cheerful than dungeons. . . ,"²³ when in fact his statement, penned to his wife in the midst of the winter, described

22. Henry Knox to William Knox, 27 May 1778, Henry Knox Papers, MHS.

23. As quoted in Pinkowski, Washington's Officers Slept Here, p. 108. The phrase used by Lafayette was as follows: ". . . c'est la que l'armée americaine passera l'hiver sous de petites barraques qui ne sont gueres plus gaies qu'un cachot." Translated properly this reads: ". . . it is there that the American Army will pass the winter in little huts no more pleasant than a dungeon." For the text see Stanley J. Idserda, ed., Lafayette in the Age of the American Revolution, Selected Letters and Papers, 1776-1790, vol. 1, December 7, 1776--March 30, 1778 (Ithaca: Cornell University Press, 1977), pp. 223, 459.

the barracks of the soldiers. Lafayette left no description, discovered to date, of his own quarters.

8. The John Moore House (traditional site of Muhlenberg's Quarters)

The Davis-Armstrong-Sparks map locates Brig. Gen. Peter Muhlenberg's Quarters just east of camp, and Henry Woodman asserts that Muhlenberg was in the house belonging to John Moore, on whose farm his troops were huttet.²⁴ There is no further cartographic or encampment period evidence.

9. The Mordecai Moore House (traditional site of Morgan's Quarters and the Commissary)

The Duportail map places a structure labeled "maison" on the extreme left of the first line of defense, and it may have represented Mordecai Moore's farmhouse. The association of Mordecai Moore's residence with Col. Daniel Morgan and with the commissary officers is supplied by Henry Woodman.²⁵ There is no evidence contemporary with the encampment period to support this assertion, nor is there any contemporary cartographic evidence located to date.

24. Woodman, History of Valley Forge, p. 124.

25. Ibid., p. 123.

10. The Abijah Stephens House (site of Weedon's and de Kalb's Quarters)

This is one of the few officer quarters whose attribution can be made with some certainty. Abijah Stephens was Henry Woodman's grandfather, and there was a strong family tradition, supported by a host of anecdotes, that the family was host first to Brig. Gen. George Weedon, who was not liked, and to then to Maj. Gen. Baron Johan de Kalb, who was.²⁶ Woodman asserted that the family maintained a correspondence with de Kalb until his death.²⁷ The veracity of these claims is supported by the following letter, dated April 12, 1780, and addressed "To Mr. Stephens Near Valley Forge":

Philadelphia april 12th 1780

Sir,

Captain DuPonceau a particular friend of mine going to Valley forge for change of air and the recovery of his Health and being unacquainted with the Country. I shall take it as a very peculiar favour, if you can and will do him service, and introduce him into some neighboring houses. I shall be glad to hear from you and your family. I hope they are all well, though I was very poorly yet when I left you in June 1778. I recovered so well during that Campaign that I have been hearty ever since. Col Dubuisson whom I left in camp at Morristown is well, Major Rogers hath left the army in Oct^r 1778 and is since at home in Baltimore

I am to Set out for S. Carolina in a short time, could have wished to call on you

26. Ibid., pp. 66-67.

27. Ibid., p. 67.

before but do not think to have it in my power.

I wish you all happiness health and prosperity, and am, Sir, your very humble servant

The Baron de Kalb
M Gl.28

The Abijah Stephens house, much altered and added to, stands near the southern boundary but not within Valley Forge NHP.

11. The John Havard House (traditional site of Duportail's Quarters)

The Davis-Armstrong-Sparks map shows Brig. Gen. Louis Duportail's Quarters in the general vicinity of the John Havard house, a little north of the structure's former location. (The house was demolished during the construction of the Pennsylvania Turnpike.) The house was the residence of William Davis, author of the Davis-Armstrong-Sparks map. The fact that the Duportail map itself was found in the house about 1900 (see above chapter on maps) suggests that it may indeed have been Duportail's lodging. No evidence contemporary with the encampment period linking Duportail with the John Havard house has been located.

28. Baron de Kalb to Mr. Stephens, 12 April 1780, Bucks County Historical Society.

12. The James White House (probable site of the Adjutant General, Alexander Scammell's, Quarters, possible site of Friedrich von Steuben's Quarters)

The problem of the attribution of von Steuben's Quarters is emblematic of the sort of difficulties which to a greater or lesser extent inhibit efforts to document solidly the precise encampment functions of many of the then extant structures. In the mid-1960s a controversy developed concerning the attribution of von Steuben's Quarters to a building known early in this century as the "Mansion House," a much-altered eighteenth century structure serving as an inn in the community of Valley Forge. The structure had been partially razed and was being restored by the Valley Forge Park Commission as the "Camp Hospital," when Edward Pinkowski, author of Washington's Officers Slept Here, and other interested parties, supported an initiative to have the structure designated as Steuben's Quarters. The Steuben association was based upon the diary of von Steuben's aide, Pierre Duponceau, in which appears the entry, "Le Lundi 20 Changé Logement près caux de l'Adjutant Genl. chez un nommé Jimmy White."²⁹ From this Pinkowski deduced that

29. Diary of Pierre Duponceau, Delaware Historical Society. The Valley Forge Historical Research Project was not permitted to photocopy the pertinent pages of the diary, but obtained a translation with copies of sketches from the Papers of the Valley Forge Park Commission, Pennsylvania State Archives, Harrisburg, Pa. The original French appears in a manuscript by John Reed, John Reed Collection, VFNHP Library.

Steuben had quartered with the Adjutant General, who, tradition has it, was lodged at the location later known as the "Mansion House." The diary actually says, "Monday the 20th changed quarters near those of the Adjutant General at the house of a man named Jimmy White," which is an ambiguous statement at best. It is unclear if Steuben or the Adjutant General used White's house, but this reader favors the latter. It seems clear, at least, that the phrase "near those" eliminates the possibility that Steuben and the Adjutant General were quartered together. In addition, although it is likely that von Steuben would want his aide nearby, there is no definite indication that Duponceau was referring to Steuben's location as well as his own.

The White house is shown on one period sketch, the Parker spy map, a very crude draught which appears to place the structure closer to the Schuylkill. This introduces the possibility that there may have been two structures on the James White property, and historian John Reed has advanced the hypothesis that the James White house was destroyed by the construction of the Reading Railroad in 1840.³⁰ It is Reed's opinion that

30. See John Reed Mss. above, prepared for the Picket Post, VFNHP Library.

the Mansion House structure was the one used by the Adjutant General and referred to in the Duponceau diary as such.

In 1965, adherents to the plan to designate the Mansion House structure as von Steuben's Quarters managed to have a resolution to that effect introduced in the Pennsylvania State House of Representatives. In the course of extensive debate, Representative Brugger of Montgomery County argued persuasively that it was incorrect to attempt to legislate history on the basis of inconclusive documentary evidence, and succeeded in having the resolution tabled. Until additional documentary or cartographic evidence can be located, no positive and incontestible statement can be made on the matter of where von Steuben was quartered. Henry Woodman recollected that von Steuben was quartered for at least part of his tenure at Valley Forge in a log structure located on the Maurice Stephens farm.³¹

31. Pennsylvania General Assembly, History of House Bills and Resolutions (1965), p. 251. See also Pennsylvania Legislative Journal (Harrisburg, Pa., 1965), pp. 855-857. See also Woodman, History of Valley Forge, p. 71.

13. James Vaux and "Vaux Hill,"--now known as "Fatlands"

When Quaker James Vaux purchased a tract of about 300 acres north of Fatland Ford in 1772,³² he acquired one of the richest agricultural properties in the region. Vaux was an Englishman who quickly established himself as a man of substance in the vicinity. The land he acquired was advertised by its previous owner, James Morgan, in a 1771 notice in the Pennsylvania Gazette:

300 acres, bordering near a mile in length on the Schuylkill river, whereas a good shad fishery; it also bounds the lands of Henry Pawling, esq., and extends along the same to Perkiomen creek; there are about 150 acres cleared; . . . there is a good stone dwelling house, brew house, with a large frame barn, three good bearing apple orchards, with a large peach orchard bearing plentifully.³³

Vaux enlarged his house about 1774, and apparently lived quietly until the arrival of war on his threshold in the latter part of 1777. The British Army, following a raid on the American stores at Valley Forge on September 18, crossed the Schuylkill at Fatland Ford on September 22. Washington watched their movements

32. Karen E. Lee, "A History of Fatland and Mill Grove," Bulletin of the Historical Society of Montgomery County, Pennsylvania (Spring 1974): 129.

33. W. H. Reed, "Audubon and Its History, Tradition and Reminiscences," Historical Sketches, A Collection of Papers Prepared for the Historical Society of Montgomery County Pennsylvania, vol. 4 (1910): 200.

closely, and a letter from his aide, Tench Tilghman, dated "Headquarters near Fatland Ford on the Schuylkill 21 Sept. 1777,"³⁴ suggests that the former was lodged at or near the Vaux house at this time. George Vaux, grandson of James, claimed that Washington stayed at Vaux's house and left only twelve hours before Sir William Howe arrived to avail himself of the same accommodations.³⁵

When the American Patriot Army arrived at Valley Forge in December, Vaux found the encampment, with its egress via Fatland Ford, on his doorstep. It can be supposed that, with commissary stores flowing into the magazine of his neighbor Henry Pawling,³⁶ and a market established in January near the bridge, Vaux's property received considerable wear and tear.

Vaux remained on site through much, if not all, of the encampment period. When Elizabeth Drinker and three Quaker companions visited Washington on April 6, 1778, to plead the case of their husbands, exiled to Virginia by the state of Pennsylvania as a result of their Quaker neutrality, they followed their visit with

34. Reed, "Audubon," 201.

35. Ibid., 202.

36. See below, section on "Henry Pawling's Farm."

a three-day stay at Vaux's establishment, as Drinker records in her diary.³⁷

Apparently no officers were quartered at the Vaux residence, which may have resulted partly from the circumstance that access to the east side of the river was unreliable until completion of Sullivan's Bridge, and from the fact that Vaux was a Quaker and thus politically suspect. (Vaux was listed on the militia roles for Providence Township, but did not attend musters.)³⁸ There is a tradition that American soldiers who died during the winter were buried in the cemetery on the Vaux property.³⁹

When Washington moved the Army from winter quarters into tents on June 10, 1778, at least part of his forces crossed the river into Providence Township.⁴⁰ Traditional sources have it that some of the troops camped on

37. Reed, "Audubon," 203.

38. Ibid., 202.

39. Lee, "Fatland," 134.

40. This was the case, at least, of Jeremiah Greenman. See Robert C. Bray and Paul E. Bushnell, eds., Diary of a Common Soldier in the Revolution, 1775-1783: An Annotated Edition of the Military Journal of Jeremiah Greenman (DeKalb, Ill.: Northern Illinois University Press, 1978), p. 120.

Vaux's land.⁴¹ Certainly, Vaux put in a claim for damages to the state of Pennsylvania following the war, and received ninety-six pounds and thirteen shillings.⁴²

James Vaux's English sister-in-law, Ann Warder, visited him at his estate in September, 1786, nine years after the war had come to Valley Forge, and left this description of a ramble along the Schuylkill in her diary for September 10, 1786:

When we reached the side of the water our way was more rugged, with more bushes, which we were obliged to step high to avoid. Saw some remains of a bridge built over the river in the war, which was vainly thought could stand any blast. However, one severe frost carried it quite away. What a dismal situation, sister and brother must have been in at that time, an army encamped on the plantation, pulling down every fence, and pulling up every tree, etc.⁴³

Vaux sold his plantation to John Euchlan Allen on September 10, 1794.⁴⁴ The house was substantially altered

41. Henry S. Dotterer, The Perkiomen Region, Past and Present (Philadelphia: The Perkiomen Publishing Company, 1901), p. 74.

42. Assessment of Damages done by the British Troops During the Occupation of Philadelphia 1777-1778," PMHB 25 (1901): 554.

43. Lee, "Fatland," 133.

44. Reed, "Audubon," 205.

and rebuilt by architect John Haviland in 1843-1844, for Dr. William Wetherill.

14. Henry Pawling's Farm

Henry Pawling, Esq., "of the Schuylkill" was a member of a large family who had inhabited the Perkiomen region since emigrating from New York in the early eighteenth century. He is sometimes distinguished from other contemporary Henrys by being identified with the Schuylkill. Pawling owned a farm which occupied the entirety of the oxbow on the east side of the Schuylkill between the mouth of Perkiomen Creek and the land owned during the Revolution by James Vaux of "Vaux Hill" or "Fatland." Pawling's farm measured at this time about 290 acres. He was assessed for this acreage in 1776, in addition to two blacks, four horses, and eleven cows.⁴⁵

The Commissary Department of the American Army found the Pawling farm a convenient location to collect cattle and barreled provisions arriving at camp from New Jersey, New York, and New England. Until the completion of Sullivan's Bridge in the early spring of 1778, the river was but occasionally fordable, and passage of

45. Montgomery County Deed Book 7, Part II, p. 899, Montgomery County Historical Society.

supplies was sometimes delayed by ice and high water. Provisions were stored at Pawling's until it was possible to cross to camp, or until they were required by the Brigade Commissaries. Thomas Jones, Assistant Commissary of Issues with the Army, collected cattle, flour, rice, hogs, and probably other provisions at this location.⁴⁶

Jones, with a ravenous army at his heels during the February, 1778, food shortages, prudently transferred his quartets across the river to Pawling's, quite pointedly to avoid injury. He was joined there by Assistant Commissary of Purchases John Chaloner and by Ephraim Blaine, Deputy Commissary of Purchases for the Eastern Department. Department correspondence during February is dated "Pawling's" or "Pawling's Ford." Jones explained to his superior, Charles Stewart, Commissary General of Issues, on February 15 that one of the causes for the rupture of supply was that "the flour this side of the river was all gone [and] we had 242 Barrels over at Pawlings But there was no getting it accross [because] their Waggon's could not cross."⁴⁷

By February 18 Jones had fled to Pawling's, whence

46. Thomas Jones returns, February 1778, Roll 99, PCC, NA. See also Valley Forge Historical Research Report, Vol. 2, Chapter V.

47. Thomas Jones to Charles Stewart, 15 February 1778, Charles Stewart Papers, NYSHA.

he dated his letters, and complained, "the generality of the officers & starved soldiery first Exclaims against me, we have been for those four days Past afraid that any officers or soldiers would come in when we were at Dinner. . . ." ⁴⁸ By the 21st the crisis had begun to recede. Jones, still at Pawling's, had received 170 head of cattle and 540 hogs. ⁴⁹

Pawling must have sustained some damage to his property, but he is not recorded as having sought recompense from the state of Pennsylvania following the war. In 1786, he was assessed for 213 acres and a dwelling, in addition to two horses, five cows, and two blacks. ⁵⁰ His will was executed November 18, 1791. ⁵¹

Henry Pawling had a son Henry, probably the individual who advertized a portion of the property for sale in the Norristown Gazette, December 27, 1799:

48. Thomas Jones to Charles Stewart, 18 February 1778, Charles Stewart Papers, NYSHA.

49. Thomas Jones to Charles Stewart, 21 February 1778, Charles Stewart Papers, NYSHA.

50. Montgomery County Tax Assessments, Providence Twp., 1786, Montgomery County Historical Society.

51. Dotterer, Perkiomen, p. 74.

To Be Sold--

A valuable plantation situated on the river Schuylkill, adjoining Fatland-ford in Providence township, Montgomery County; 22 miles from Phila., and 6 from Norristown, containing 154 acres, 60-70 good wood land, 20 of watered and bottom meadow, the rest into fields . . . a stone dwelling house with two rooms on a floor, a commodious kitchen, a stone spring house over a good spring of water, and a log barn.

Henry Pawling

It is possible that Henry Pawling's Revolutionary period dwelling is incorporated in the ruined structure currently situated on the property.

15. William Moore's Farm, "Moore Hall"

William Moore owned the most extensive estate west of the Schuylkill and within a convenient distance from the rear of the Valley Forge encampment. Moore's commodious dwelling was appropriated for a variety of uses during the period. The Committee of Conference from Congress sat at Moore Hall during late January, February, and March. General Nathanael Greene moved his quarters there upon his active involvement in the Quartermaster's Department. When he assumed the office of Quartermaster General, Greene's two assistants John Cox and Charles Pettit, made their office at Moore Hall, along with Forage Master General Clement Biddle. Department correspondence was addressed to and from Moore Hall

for the remainder of the encampment.⁵²

In addition, Moore Hall was also the location of the Quartermaster's stores, as suggested by the correspondence of Deputy Quartermaster James Abeel. Items likely to have been pooled at this location included wagons and harness, and accoutrements such as canteens, knapsacks, valises, carrying straps, tents, and tent equipage. (See Valley Forge Historical Research Report, II, Part III, Chapter V.)

William Moore, as might be expected, suffered considerable damage to his property and inconvenience, as he made plain in his claim for restitution set before Congress in 1779:

To the Hon^{ble} the Congress of the United States
of North America.

The Memorial of William Moore of Moore hall
Esq.

Humbly Sheweth

That the said William Moore hath now arrived to a very advanced Age, and hath been long disabled by the Gout and other Infermities, from stirring from his Chamber without Help; and that his valuable plantation and Mills near the Valley Forge, from which himself and his Wife, in their declining years, derived a comfortable Support, have been injured and destroyed by the Continental Army during their Encampment in that Neighborhood, by carrying off the Fences for Firewood from the Plantation and cutting down the Timber for the other necessary purposes of the Army, that the whole was left as a Waste (the Dwelling house

52. See Showman, Greene Papers, pp. 282, 382.

and Garden excepted) by which he hath been obliged ever since, to purchase every Necessary for his Family use, and is thereby disabled from making the needful Repairs, either of the Plantation or the Mills, which were occupied by the Forage Master, and left by him in a ruinous Condition.--

That besides these Damages, five fine young Horses, his Waggon and Gears, were taken by Gen^l Green's Division in Sept 1777, and his whole stock of Sheep by another part of the Army soon afterwards.--

That during the time the Army lay in that Neighborhood, viz, the whole Winter 1777, and Spring 1778, he was allow'd but two Rooms in his own house; the rest being occupied, first by Col. Biddle, and then by Gen^l Green, together with a Committee of the Hon^{ble} Congress, who had the use and Wear of all the Bedding, Linnen and other furniture he could spare, together with his Barn, Stables, Firewood, and whatever other Articles were on the Plantation.--

That for these lost Articles he never required any Compensation, altho he has understood that some others in like cases have had an Allowance freely made them, where General Officers, or Members of Congress have been accomodated at any considerable Expense, or Damage to private Families; but, leaving this to the good will and Justice of the Hon^{ble} Congress themselves, What he more particularly begs leave to represent is as follows--viz--

That although, upon a Valuation made at a very low rate, by the same men who were appointed to value the Damages, done to the other Plantations near the Valley forge, he had a certificate for Two thousand, three hundred, and Ninety Dollars, for forty Acres of Woodland, and for Rails, &c.--and many Neighbors received immediate Pay, whereby they were enable to repair some part of their Losses; yet he, the said William Moore, hath been put off by Col. Sheriff and others, while the Money was falling in its Nominal Value, in such a Manner that the whole sum (if now paid) would not recompence him for a sixth part of his Damages, But what requires the mor^e special Notice and interposition of the Hon^{ble} Congress is--that altho' the Sum formerly allow'd, cannot now be

deemed an adequate Compensation, yet neither the present, nor late Quarter Master General, however readily they express their Sense of the said William Moore's Losses, will pay any part of them, giving the Reason that it must be first ascertained what part of the Woods, Fences &c were destroy'd in General Mifflin's time, and what part in the time of Gen^l Green, that each of them may pay accordingly--Now as it is impossible for any Farmer to make a Distinction of this kind, and much less for one, who is a Cripple confin'd to his house, the requiring an impossible Condition of payment, appears the same to him as a Denial, and therefore he humbly hopes, for the sake of that Justice which Congress is undoubtedly desirous of rendering to real Sufferers, they will give such orders as they in their Wisdom may judge necessary in his case (which is probably not singular) for authorizing the late or present Quartermaster General to settle and pay the whole Damages, as the Individual will thereby obtain Redress, and the Expense by the same to the public.--

He further prays that Orders may be given for the payment of his five horses, their Gears &c--for which he has the Receipts of the Persons who took them with a proof of their never having been returned and a Valuation of them, under the Hands of the Waggon Master who drove them and knew their Value.--This payment has been objected to under a plea that some of the Horses were Valued higher than was usual without considering that they were young horses and of the best kind; and that the sum allowed for the whole five horses would not now purchase Two, of equal Size and Goodness.--All which is submitted, with due respect in behalf of distressed and suffering Family, who pray, that the same may be taken into speedy Consideration.--

William Smith

In Behalf and by Order of William Moore
Philadelphia July 28th

1779

[RG 93, M247, Roll 102: 443, NA]

It is not known if Moore received the compensation he petitioned Congress for. The mills he mentions as having been used by Forage Master General Clement Biddle do not appear on period maps, but doubtless were situated on Pickering Creek. Col. Cornelius Sheriff was Deputy Quartermaster with the Army at Valley Forge.

It is probable that the extant structure now known as Moore Hall incorporates the Revolutionary period dwelling of William Moore.

16. Other Traditional Associations

There is no cartographic evidence providing locations for the quarters assigned to Generals Woodford, Scott, McIntosh, Poor, Learned, Glover, Paterson, or Sullivan. General Wayne's is placed on the Davis-Armstrong-Sparks map on the southern extremity of the encampment, and Woodman has him at the house of Joseph Walker, whose residence is on the Pennypacker map and on the Clinton maps of southeastern Pennsylvania.⁵³ Wayne dated most of his correspondence from "Mount Joy," but it is difficult to discern whether he was being geographically exact or if he was indulging his mordant wit.⁵⁴

53. Woodman, History of Valley Forge, p. 116. The Clinton Maps, showing major arteries and some landmarks, are in the William L. Clements Library, Ann Arbor, Mich. There are copies in the VFNHP Library.

54. Virtually all of Wayne's correspondence from Valley Forge is so dated.

Woodman is at pains to place some of the generals mentioned above. General Learned was absent for the encampment and resigned from the Army in March, thus it is unlikely that he was assigned quarters. Woodford is located by Woodman at the farm of Samuel Richards, and Scott at that of Samuel Jones,⁵⁵ about three miles southwest of Valley Forge. It is unlikely, however, that general officers would have been permitted quarters so remote from the encampment, and exposed to British raids. McIntosh, who was also absent for a substantial period, is located by Woodman at the house of a black, Joseph Mann, on the west side of Valley Creek.⁵⁶ (There is a marker west of Valley Creek and south of Nutt's Road on the supposed site of McIntosh's quarters.) Woodman places General Poor at the house of Benjamin Jones, south of camp,⁵⁷ and General Sullivan at Thomas Walker's, also south of camp.⁵⁸ He does not locate Generals Paterson, Glover, or Learned.

It should be noted at this juncture that Woodman is zealous in establishing generals in the houses of his

55. Woodman, History of Valley Forge, p. 82.

56. Ibid., p. 58.

57. Ibid., p. 119.

58. Ibid., p. 120.

family and neighbors, but some of these officers spent very little time in camp, and may have been housed in temporary structures. For instance, Woodman places Maj. Gen. Thomas Mifflin in the house of William Godfrey, but the only time Mifflin is known to have visited Valley Forge was on the occasion of Washington's May 8, 1778 council of war.⁵⁹

B. Industrial Structures--The Valley Forge and Mill Complex

1. Establishment of the Valley, or Mount Joy, Forge

During the third quarter of the eighteenth century, Pennsylvania became the preeminent iron manufacturing colony in British North America. The close relationship between the burgeoning agrarian economy in southeastern Pennsylvania and the rapid development of the iron industry has been noted, and may be observed in microcosm in the daily transactions of the small iron communities, or "plantations," which dotted the Pennsylvania river valleys.⁶⁰

59. Ibid., p. 119.

60. Arthur Cecil Bining, Pennsylvania Iron Manufacture in the Eighteenth Century (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1973), p. iii.

Iron forges were typically self-contained plantations which included extensive acreages of timber land, tracts under cultivation, a "mansion" for the ironmaster and family, cottages for workers, the forge and ancillary structures, grist and sawmills, and a company store.⁶¹ The pig iron produced had no dearth of potential markets. Some was consumed locally by blacksmiths serving the adjacent farming communities; some found its way to major manufacturing centers like Philadelphia where it would be consumed by blacksmiths, wheelwrights, tinsmiths, gunsmiths, shipbuilders, nailmakers, etc.; and some was exported to Great Britain, the West Indies, and to other colonies.⁶²

The Mount Joy Forge, later to be known more commonly as the Valley Forge, was at first a relatively modest enterprise, established rather late in the iron-making history of the Schuylkill Valley. Whereas a typical forge tract might contain well over a thousand acres, often as many as 3,000 or 5,000, the Valley Forge commenced operations in 1742 with 376 acres in three tracts, most of which was in timber.⁶³ The forge, which appears

61. Ibid., pp. 19-24.

62. Ibid., pp. 162-65.

63. Ibid., pp. 20-21. Garry Wheeler Stone, "The Mountjoy Forge on Valley Creek: A Report to the Valley Forge State Park Commission," 1967, Valley Forge National Historical Park Library, p. 4.

to have been established upon slender financial underpinnings, failed to prosper significantly during the first fourteen years of its existence.

On February 3, 1742, Stephen Evans and Daniel Walker, both yeomen of Tredyffrin Township, Chester County, purchased 175 acres at the confluence of Valley Creek and the Schuylkill River from the attorneys of William Penn, son of the founder of the colony. Both men, Quakers of Welsh descent, had prospered in farming in the Great Valley, and evidently were seeking a lucrative means to employ spare capital. The tract they purchased, largely unsuitable for agricultural purposes, was essentially the same tract which would be passed along for the remainder of the century to successive proprietors of the forge. In their deed it was recorded:

A certain piece of Land (part of the said Great Tract of Land called the Manor of Mountjoy) Beginning at a small barn by Ye Valley Creek Thence North eighty four Degrees East by part of Ye same Land Seventy two Perches to a Spanish Oak Thence North sixteen degrees East by Ye Widow Edwards' Land two hundred and twenty two perches to a Spanish Oak by the River Schuylkill Thence up the several courses of the same River two hundred and twenty eight perches to Ye Mouth of Ye Valley Creek Thence up the Several courses of the same Creek Two hundred and fourteen perches to Ye place of Beginning containing One Hundred and seventy five Acres.⁶⁴

64. "Deed, William Penn by his Attorneys James Logan & Wm. Logan to Stephen Evans & Dan Walker," 3 February 1742, Philadelphia County Deed Book G3, pp. 97-101. See also Stone, *op. cit.*, p. 3.

With the addition of a third partner, Joseph Williams, late in 1742, Evans and Walker accrued further capital to purchase an additional 201 acres in two tracts in Charlestown (Chester County), probably to increase their acreage in timberland.⁶⁵ It is not certain when the first forge on the site was completed; however, construction probably began rather early. (Garry Stone notes that the tax assessment on the Valley Creek tract leaped from £48 in February to £130 by December of 1742, which may be indicative of construction.)⁶⁶

The Evans, Walker, and Williams partnership, however, was not a thriving enterprise, and by April of 1751, Daniel Walker wanted out. His advertisement in the Pennsylvania Gazette is the earliest known description of the works:

To be SOLD, The third part of Mountjoy forge, situate in Upper Merion, on the river Schuylkill, by the great road, leading from Philadelphia, and not so far distant from 3 furnaces; the said works are in good repair, with one third of the utensils to be sold; also one hundred and twenty acres of land, belonging there unto. For title and terms, enquire of Daniel Walker, living rear the said premises.⁶⁷

65. See Stone, "The Mountjoy Forge," for sketch maps locating these purchases, which were west of the creek. Stone, p. 4.

66. Ibid., p. 5.

67. Pennsylvania Gazette, 4 April 1751.

The notice produced no satisfactory result, and by September, 1751, the other two partners, by now tiring of the venture, or under financial pressure, tried their hands at self-extrication:

On the fifteenth day of Eight Month, commonly called October, will be sold by auction, or publick vendue, by the subscribers two thirds of about 375 acres of land, joining and near the mouth of the Valley Creek and Schuylkill, most of it unclear'd; with two thirds of a forge or iron-works with the said land; also two thirds of a saw-mill on the said premises. The said forge and saw-mill stand in a very convenient place for custom and timber; and both stand close by a publick road leading to Philadelphia. Any person or persons inclining to purchase the above premises, by applying to the subscribers, may know the terms of sale before, or at the day of sale. The title is indisputable. STEPHEN EVANS, JOSEPH WILLIAMS.⁶⁸

From the two notices it can be discerned that the physical appurtenances at the forge site were quite modest. There was certainly a forge, with an uncertain number of hearths and fires, probably frame or log out-buildings, some housing for workers, and an ironmaster's residence. There was, by September, a sawmill, a common feature of forge complexes, serving the necessity for building a fair number of outbuildings. There was probably a coal house of some sort, but one is not mentioned. Where these early structures were is at best

68. Pennsylvania Gazette, 26 September 1751.

a matter of conjecture. All we know of the forge and sawmill is that they were both "close by a publick road leading to Philadelphia."⁶⁹ This was certainly the Gulph Road, which was applied for before the Court of Quarter Sessions and laid out in 1725-26. The road proceeded from a point on Valley Creek to Swedesford Road, and comprised the principal artery from the area toward Philadelphia. It joined with another Chester County road on the west wide on the creek which led to Moore Hall and beyond.⁷⁰

It is likely, although by no means definite, that this early forge was the same one, or part of the same one, which survived until September of 1777, in which case it was south of the "Great Road" (at the Gulph Road was often styled), and on the east, or Philadelphia County, side of the creek. The sawmill, again, if it were the same one as was operative until 1777, would have been between the road and the Schuylkill, on the east side of the creek. Related structures were probably of log, perhaps of stone.

69. Ibid.

70. Valley Creek to Philadelphia Road (December Sessions, 1725), Index to Roads and Bridges and Court Dockets, Philadelphia County, Upper Merion & Lower Providence Townships, Philadelphia City Archive, City Hall Annex.

For whatever reason, prospective purchasers were not interested sufficiently to buy the diminutive works on Valley Creek. The location, in terms of timber and river transportation, was select. It failed to thrive apparently because of an insufficient infusion of capital, or lacklustre management. Certainly, from 1754, the situations of the various partners were inauspicious. Stephen Evans died in 1754, and Daniel Walker sold his third of the property to Abraham Williams, Joseph Williams' son. By the autumn, however, Joseph Williams was dead, leaving a heavily indebted estate, and over the next two years, almost all of his extensive real estate holdings were liquidated at sheriff's sales.⁷¹

Thus it was that Joseph Williams' third of the forge property was offered on the block on February 15, 1757, by Sheriff James Coultas. Called the Valley Creek Forge, it was described as including a sawmill, improvements, buildings, and 175 acres. Offered at the same time was one-third ownership of the two 100-acre tracts in Chester County.⁷²

With Evans dead (having left his third share of the works to his executors) and the Williams family in

71. Stone, "The Mountjoy Forge," p. 7.

72. Pennsylvania Gazette, 3 February 1757.

financial retreat, it can be reasonably assumed that, lacking driving management, the forge made little progress between 1754 and 1757. A small property, both in terms of acreage and appurtenances, it awaited the guiding hand of one of southeastern Pennsylvania's preeminent iron magnates before it would become a profitable undertaking.

2. The Potts Family at Valley Forge

John Potts, son of Thomas Potts, was an aggressive entrepreneur, who already in 1757 owned extensive iron-manufacturing enterprises. He had founded the Pottsgrove forge in Berks County in 1752, and it was already a thriving concern. He gained through marriage connections a share in Warwick furnace, and a third of the Pine Forge, as well as other real estate. When he died in 1768, his extensive estate was valued at £7,586/14/4, confirming that he was a man of substance.⁷³ His family business connections tied him to virtually every other substantial iron family in the colony. Coming into the Valley Forge when he was forty-seven years of age, Potts was prepared to expend considerable sums on expanding the forge operations, which he proceeded almost immediately to do.

73. Stone, op. cit., p. 10, Bining, Pennsylvania Iron, p. 130.

Purchasing one-third of the forge and the two timber tracts on February 15, 1757, Potts gained controlling interest when he successfully negotiated for Stephen Evans' share with his executors on March 12 of the same year.⁷⁴

The daybooks and ledgers of the Mount Joy forge under John Potts' management commence as of March 15, 1757, indicating that he lost no time whatever in taking over the operation of his new acquisition. The labor force he inherited and brought to the scene from Pottsgrove was at first quite small, and would remain relatively modest through most of the year. Production was thereby limited, and probably similar to that achieved under the Williams family management. As it was, Abraham Williams managed the forge for a period of six months, until Potts brought in James Hockley as his manager the following September.⁷⁵

The Valley Forge was a refinery forge, which processed and purified raw pig iron, which could be then

74. Sheriff: Deeds, Philadelphia County, Book A-1, p. 205. Chester County Deed Book K, pp. 367-369. Philadelphia County Deed Book I6, pp. 197-201.

75. See Mountjoy Ledger beginning 15 March 1757, HSP. On 2 September 1757 Abraham Williams was credited £25 for managing the Valley Forge for six months.

sold to blacksmiths and other skilled craftsmen for the ~~manufacture of standard~~ implements, tools of all sorts, wagon wheel rims, plowshares, barrel hoops, etc. At the time Potts took command, the operation employed only three "finers," men who fashioned the raw iron into anconies, and then into bar iron for sale. Finers Henry Doil and John Larkin went to work almost immediately, presumably employing what pig iron was already on the scene. Between April 6 and May 11, they produced 7 tons, 20 hundredweight, 3 quarters, and 19 pounds in anconies. Their only assistant, apparently, was a servant or slave named Andrew. Employing these anconies and others, Samuel Barefoot fashioned by May 27, 12 tons, 17 hundredweight, 5 quarters, and 30 pounds of bar iron, first with the assistance of Williams's indentured servant named Henry Saleigman, and then with Henry Doil. This modest output seems to be all that was produced during the spring and summer. With small forges yielding typically two tons per week, and large ones upward of 300 tons per year of bar iron, the Valley Forge was

clearly at this juncture a marginal enterprise.⁷⁶

Larkin and Doil fueled the forge fires with charcoal supplied by collier Frederick Funk, who supplied wagon-loads of coal for 11 shillings, 5 pence apiece. John Fisher worked with Funk and cut wood, as did numerous other laborers and local farmers who established credit with their cords of logs for charcoal making. Funk also made coal baskets for use at the forge. The remaining stalwart of the first Potts year at the forge was blacksmith Daniel Wadkin or Watkin, who repaired and manufactured the small implements needed, steeled plows for local farmers, shod horses, and generally supplied the wants of the community.⁷⁷

Abraham Williams, Doil, Barefoot, Larkin, Funk, Fisher, and Wadkin, with other laborers and local farmers, depended for staples on the company store, which was

76. Anconies were barbell shaped bars refined beneath the massive forge hammer, which would then be drawn into iron bars several feet in length and about two inches square. These bars would then be cut down to easily transportable lengths for sale. See Bining, Pennsylvania Iron, pp. 73-74. On the activities of Doil, Larkin, and Barefoot, see the Mountjoy Forge ledger from 15 March 1757, HSP. On typical production see Bining, Pennsylvania Iron, p. 74. For the identity of Henry Saleigman, see the Forge Ledger from 15 March 1757, p. 84. On 17 July 1759 Williams sold Saleigman and another servant, Thomas Connor, to John Potts for £30.

77. Mountjoy Forge Ledger Book from 15 March 1757, HSP.

probably in active operation before Potts' arrival. Three days after Potts had taken control, on March 18, the store received an infusion of dry goods and other items from Yorke & Potts in Philadelphia, the mercantile firm in which John's son, Thomas, was a partner. Shipments between March 18 and May 27 brought out a hogshead containing 101 gallons of rum, cotton check cloth, Irish linen, a hogshead of molasses, worsted caps, gartering, worsted stockings, pistol-capped knives, scales and measures for the store, a grindstone, "ozenbridge" (osnaburg, or cheap, coarse linen), barreled mackerel, nails, whale oil, salt, sugar, sawmill files, gimlets, whetstones, two pewter basins, and pitch. The laborers at the forge and sawmill and local residents could buy these as well as produce and other staples. Typical purchases over the first few months of operation ran to rum, blubber (whale oil), corn meal, linen for shirts, shoes, garters, paper, gammon (ham), skeins of thread, butter, rye, dried apples, eggs, veal, molasses, bacon, knives, beans, fish, stockings, flour, beef, candles, and blacksmith work.⁷⁸

Considerable building and repair marked the first two years of the Potts regime at the forge. Beginning

78. Ibid.

in mid-April, Potts employed his own team and that of Jacob Vanderslice in hauling logs for seven days and stone for thirteen and a half days. He purchased 419 bushels of lime from Thomas John and Joseph Mitchell, and was clearly embarking on a major expansion program. A dam, either for the forge or sawmill, was repaired in July and August. Samuel Lewis, mason, was paid £9/10 for building a house during this year, and seven shillings sixpence for building an oven.⁷⁹ It is rather difficult to speculate on what this house was. It could have been either the structure now known as Washington's Headquarters, or the original section of the "Bakehouse," or another stone structure no longer extant. Of the first two, the second possibility is more likely on the basis of purely architectural evidence. The core of the "Bakehouse" structure is apparently a hall-parlor plan house dating to c. 1740-1760.⁸⁰ There may also have been a dwelling structure south of the Great or Gulph Road and on the bluff east of Valley Forge.

In 1759 Potts built a gristmill, north of the Great

79. Ibid.

80. See the Historic Structure Report (draft) on the "Deweese House," John Bruce Dodd and Cherry Dodd, Valley Forge National Historical Park Library. The "Headquarters" building is most often assigned a later date.

Road and on the east side of Valley Creek, and a house for the miller, brought in to operate the enterprise. At the same time a dam was either repaired or built, and a springhouse and barn were completed. In December 1759, Thomas Connor worked plastering the mill and on the masonry, and John Lloyd took six days to build the miller's chimney and thirteen days to plaster the house. During the summer of 1760, dry and wet walls were built on the premises, a log house with fireplace constructed, and an older dwelling pulled down. In subsequent years covered by the daybooks (to 1765), construction slackened, but did not entirely cease. In 1761, John Potts was debited £100 for building a house and a (new) smith shop.⁸¹

Concurrently with his building activities, Potts was also bent on increasing the production of anconies and bar iron at the forge. By 1760 he had achieved noticeable results. In so doing, many of the people who had presided over the forge under Abraham Williams disappeared from the rolls of the company store. Williams, Harry Doil, Samuel Barefoot, and Larkin all moved on, probably with the advent of James Hockley as

81. Mountjoy Forge Day Book 1757-1761 and 1759-1763, and Ledger 1757-1759.

forge manager in September of 1757. New talent was brought in, some of it from Pottsgrove, and by 1760 a much livelier pace had been achieved. There was also an increase in indentured servants and slaves used as hands.⁸²

The winter and spring of 1759-1760 were busy ones for finers Jacob Bear and Richard White. By April of 1760 White, with the assistance of Henry and Bear, had produced 190 tons, 16 hundredweight, 2 quarters, and 21 pounds of bar iron.

Bear, employing Joh and Prince for assistants, had laid in 66 tons and 5 hundredweight of anconies. By contrast, most of the spring, summer, and autumn of 1761 were taken up with making anconies. Bear, White, and Peter Sailor produced 93 tons, 6 hundredweight, 4 quarters, and 24 pounds by February of 1762. By now, the Valley Forge was manufacturing enough to be termed a respectable small forge.⁸³ Yorke & Potts were marketing much of the bar iron in Philadelphia, although there were other local purchasers. Production was rendered less expensive by the use of servants and slaves such

82. Gary Stone examines in detail the social aspects of life at the forge during this period in his report, "The Mountjoy Forge," pp. 15-22.

83. Valley Forge Waste Books, 1759-1763, HSP, pp. 116, 227, 235, 331.

as Ish, Prince, Pompey, Stephen, Hector, and Peter.

The forge consumed vast quantities of wood, cut by colliers, woodcutters, and local farmers, and usually hauled by them or in company wagons. Most men who worked at the forge, even such skilled workers as Jacob Bear, filled their odd hours and days when not employed at their craft with odd jobs and piecework. Bear was credited in April of 1760 not only for producing anconies, but also for melting a hammer and anvil, working four days on the dam, and for two shirts his wife had made. Frederick Funk, collier, also made twenty-six coal baskets in 1760-61. Tailor Aaron Aplor's wife earned him and his family a goodly wage of £20/12/11 for the sixteen months ending in August of 1761 by washing the clothes of nine men (presumably the single laborers at the forge), mending and sewing garments, and for reaping.⁸⁴

With this increased activity and the expansion of the forge community, the company store sported a wider range of goods, and even some modest luxuries. By 1760 those who could afford them could buy white linen, fustian, razors, shoe buckles, tobacco, scissors, coat and sleeve buttons, women's stockings, hats, gown patterns,

84. Valley Forge Waste Books, 1759-1763, HSP, pp. 116, 200, 278.

coffee, blankets, snuff boxes, cotton and silk handkerchiefs, and calico. The company provided clothes for its slaves and servants, and Aaron Aplor earned a wage of £45 per year to make shirts, breeches, and jackets for Henry, John High, Guina, Cudge, Strephen, Prince, Pomp, Hector, and Charles.⁸⁵

A new amenity, coming into use by March of 1761, was a Potts-owned shallow draft boat which plied the Schuylkill between Reading, Pottsgrove, Valley Forge, and Philadelphia. The river was surveyed, perhaps with the object of removing obstructions, to Reading in early 1761, and from then on service was fairly regular, water levels permitting. Pig iron could be transported with relative ease between Pottsgrove and Valley Forge, and finished bar iron could be sent on easily to Philadelphia, avoiding the rigors of overland travel. Forge employees and locals frequently earned extra money by going with the boat as hands.

By now the grist and sawmills were in full operations, served by a secondary dam just south of the Great Road. The raceway ran along the east side of Valley Creek, across the road, and into the mills. The miller, Stephen Dewees, for whom the miller house at an unspecified

85. Ibid., for 1760. See also p. 355 for Aplor.

location had been built, was also paid for supplying casks to store flour and grain.⁸⁶ The sawmill was often attended by neighboring farmer David Stephens.⁸⁷

The management of the forge during the early 1760s went through numerous vicissitudes. Management passed from John Potts, Sr., to Thomas Potts and Company, through Samuel and John Potts, Jr., and subsequently in their turn to Potts, Hockley & Potts, Joseph Potts, then David Potts and William Dewees.⁸⁸ The last year of extant records for the forge, however, is 1764, so the decade of management before the Revolution is more difficult to chronicle. An inventory taken on the premises by Potts, Hockley & Potts, June 12, 1767, suggests that by that time the establishment had not expanded much beyond the improvements instituted by John Potts, Sr. The inventory included:⁸⁹

	£	s	d
Three teams wagons and c.	175	0	0
Grain in the ground	20	0	0
Four cows and hogs	17	10	0
Six sheep	2	5	0
Smith shop tools	15	0	0
A boat	24	0	0
Sundry house furniture	45	0	0

86. Ibid., p. 221.

87. Ibid., p. 346.

88. Ibid., p. 355.

89. Garry Wheeler Stone, "The Mountjoy Forge," p. 22.

	L	S	d
Goods in the store	34	8	1
Plow and harrow and grindstone	3	0	0
Sundries in the cellar beef and bacon	39	0	6
5 old hammers and 3 anvils	7	0	0
4 dozen coal baskets 2 husks	6	10	0
Old plates and old iron in the smith shop	11	0	0
Wheat in the mill	<u>29</u>	<u>19</u>	<u>10</u>
	429	13	5
Balances due in the books and notes in hand	272	12	10
Amounts of cordwood	121	4	6
Lightfoot and Mitchell's Ball[ance]	32	0	0
Wm Pearson's balance	216	15	9
Wm Pearson 25 cts. Iron to be yet sent	102	0	0
	<u>30</u>	<u>0</u>	<u>0</u>
	1204	6	6

The inventory suggests rather strongly that, despite the dynamism of the Potts family management, the property had not become a lucrative holding on the scale of their other enterprises. It was probably conceived of by the family as a small but convenient element of their iron empire; an easily accessible location where pig iron from Warwick furnace and elsewhere could be converted into bar iron, rather than as a discreet, self-sustaining enterprise.

By 1767 John Potts, Sr., still technically the owner of the forge and mill complex on Valley Creek, was feeling sufficiently infirm to make out his will.

By this time he was thinking of his Valley Forge property in terms of being two separate tracts, one containing the forge and one encompassing both of the mills. He described the mill tract thus:

Whereas I stand seized of a certain Grist Mill in the County of Philadelphia known by the name of the Valley Mill & of a small piece of ground thereunto belonging bounding & described as follows, Viz. beginning at the Valley Creek where the Great road crosses it, Thence along the same road towards Philadelphia by the Gardens to the fence of the field on the North side of the said road fence along the said fence to the barn-yard, thence along the fence between the garden & said barn-yard to the road leading to Schuylkill thence along the same road to the other side of the barn-yard next Schuylkill & thence up the barn-yard fence through the field to the middle of the old orchard in the Hollow, thence by a straight line to Schuylkill thence up Schuylkill to the mouth of Valley Creek to the place of beginning.⁹⁰

Attached to this tract was a forty-acre hour-glass shaped piece of pasture or farmland bordering the Great or Gulph Road and the western boundary of David Stephens' farm. This tract also came with rights to access and repair of the mill dam, on the forge tract south of the Great Road.⁹¹ A more accurate delineation of this tract appears one year later in an indenture whereby John Potts, Sr., and John, Jr., exchanged the

90. Mrs. Thomas Potts James, Memorial of Thomas Potts, Junior (Cambridge, Mass.: printed privately, 1874), pp. 216-17.

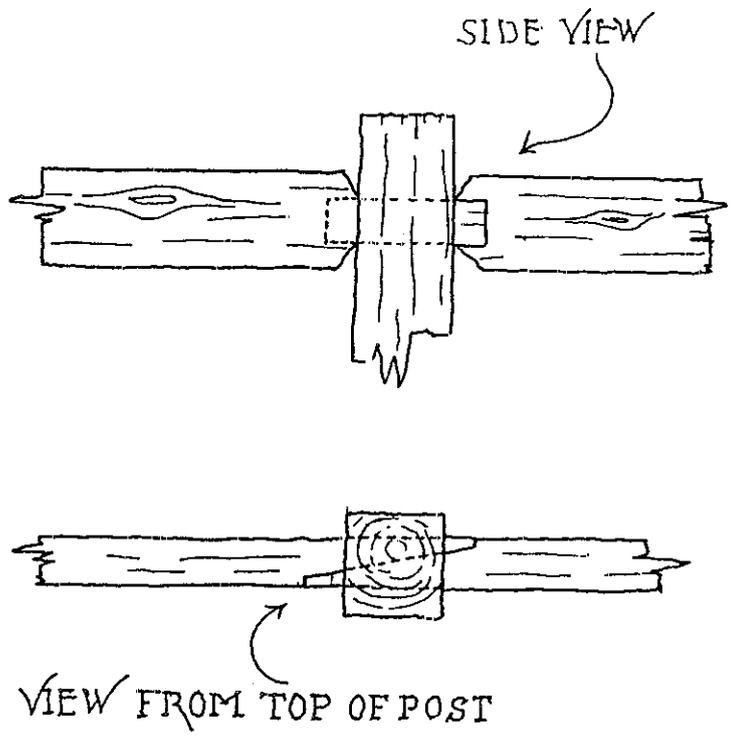
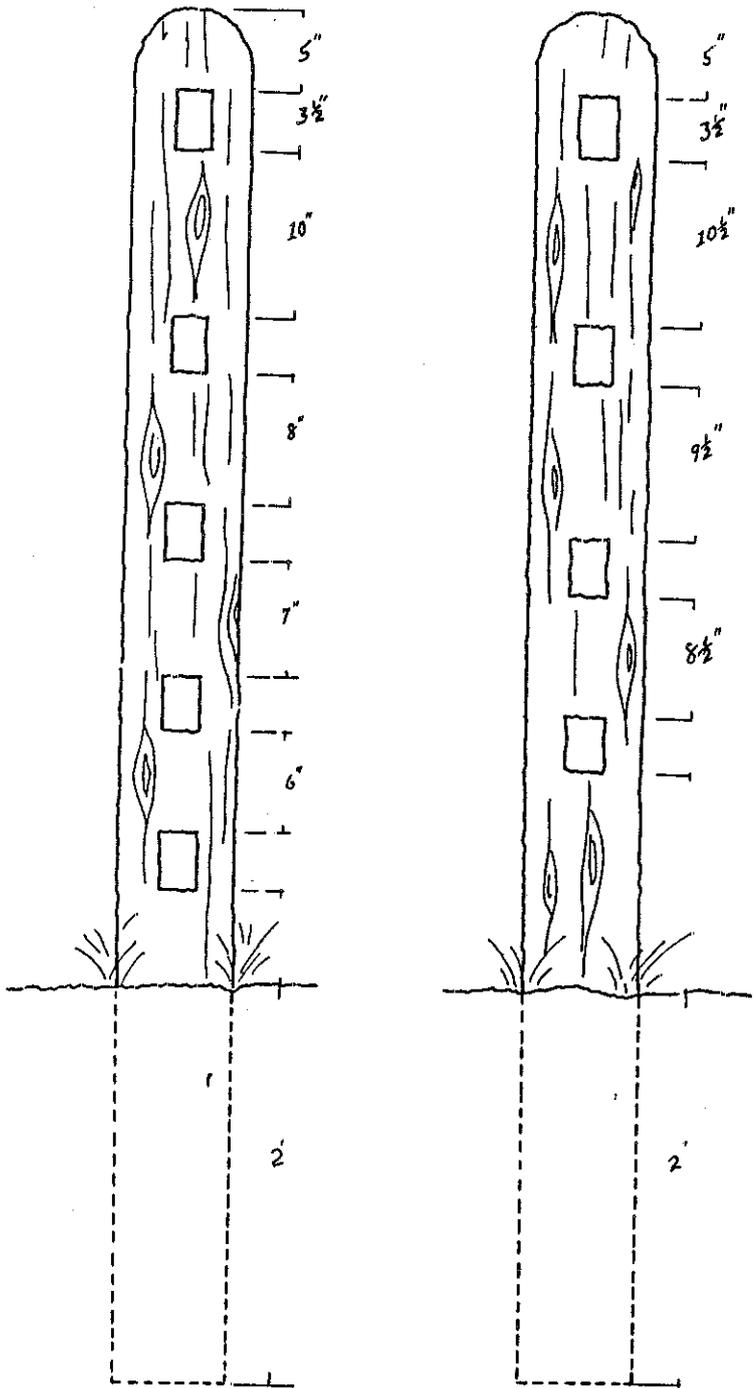
91. James, Memorial of Thomas Potts, p. 220.

land and actually partitioned it. The property was described as "A Certain Messuage or Tenement Grist Mill Sawmill and a small piece of Land thereto belonging. . . ."92

Between the John Potts, Sr., will and the deed quoted above, a hypothetical rendering of the mill tract, as it existed in 1768, can be postulated (see map). Some important unanswerable questions emerge, however. The first boundary, of about 300 feet (18 perches), followed the Great Road passing the "gardens" and the trace running to the Schuylkill, where there was a landing serving the entire mill and forge complex. The documents do not state on which side of the trace the gardens were located. They were, presumably, vegetable gardens rather than ornamental ones. (On September 22, 1757, Robert Elliot was credited one shilling and six-pence for "plowing the garden.")93 The boundary of the tract then took a turn northward for eight perches along a fence. Presuming Valley Creek and the trace to the Schuylkill are in approximately the same locations now

92. Ibid.

93. Philadelphia County Deed Book I6, p. 230. Deed John Potts, Jr., & Ux. to John Potts, Esq. Philadelphia City Hall Annex. A complex series of indentures partitioned the land, which John Potts, Sr., held legal title to at the time of his death in 1768.



CONJECTURAL VIEWS - FOUR AND FIVE RAIL FENCES
FROM THE NOTES OF CHARLES READ OF N.J.

SCALE: 1" = 1'	APPROVED BY:	DRAWN BY
DATE:		REVISED
		DRAWING NUMBER

as they were in 1768, the structure now known as the Dewees House or Bakehouse lay outside the boundary of the mill tract. The fence was likely either a barrier of solid vertical boards, or a post and rail fence as illustrated in Figure 1. The boundary then returned westward for five perches (82.5 feet) to the trace road, then north along the road by the barnyard for 10 perches (165 feet). The barnyard, as hypothetically indicated on the map, probably was surrounded by a solid or four rail fence, the latter being often used in similar situations. With its close arrangement of boards toward the bottom, it was designed to keep barnyard animals, such as pigs, from rooting in neighboring gardens. Fences in the Philadelphia area were most frequently made of cedar, where available, or white oak and chestnut.⁹⁴ It is logical to assume that there was a barn in the barnyard, or adjacent to it. Perhaps it is one of the buildings marked on the Duportail map

94. Valley Forge Day Books, 1757-- , HSP. On fences see Peter Kalm, Travels in North America, tr. by John Reinhold Foster (Barre, Mass.: The Imprint Society, 1972), pp. 53-54, 80, 228. Kalm, who travelled extensively in the Philadelphia area in 1748, left highly detailed observations on local agricultural practices, including fence building. The measurements in Figure 1 are those prescribed by Charles Read of New Jersey, c. 1750. See Carl R. Woodward, Ploughs and Politics (New Brunswick, N.J.: Rutgers University Press, 1941), p. 376.

of 1777-1778.

The rest of the boundary may have been marked by a snake fence. It took a turn northward again to the Schuylkill from a tree in the "old orchard in the hollow" (located in and around the current parking lot for Washington's Headquarters). The mills were downstream in the location suggested on the Duportail map. Which structure was which mill is difficult to say. The other matter open to debate is the question of whether or not the building now known as Headquarters existed at this time. Was this structure part of John Potts, Sr.'s, building program of 1757? Or was it built as late as 1773, as has been suggested by John Milner Associates? Certainly there was a "messuage," or dwelling with outbuildings, on the tract as early as 1767, when John Potts, Sr., composed his will. As indicated above, this probably was not the "Bakehouse" structure. Either the messuage mentioned by Potts was the Headquarters structure, or it was another dwelling subsequently razed.

In the spring of 1768 Joseph Potts, son of John, Sr., and a partner of Potts, Hockley & Potts, acquired title to the Valley Forge. He would remain sole owner of both the mill and forge tracts until 1773, when he sold the mill tract to his youngest brother, Isaac.

The partition line was similar, but not identical to that surveyed by John Potts, Jr., in 1768.

The tract included a message and the two mills. Garry W. Stone is of the opinion that the "Bakehouse" structure was part of this tract, but this author leans toward the conclusion that it was always associated with the forge tract, and was not included with the mills. The key determinant of this question is whether or not Valley Creek and the trace to the Schuylkill are in their 1768 locations. If they are, and a glance at the Duportail sketch map would so suggest, the "Bakehouse" was associated with the forge, rather than the mill tract.⁹⁵

Isaac Potts's property carried with it rights to the dam south of the Great Road which supplied water to the raceway for his mill. He could have unlimited access to both sides of the dam and keep it at sufficient height to match a triangular shaped mark "on a rock by the side of the Dam nearly opposite the Mansion House."⁹⁶ From this Garry W. Stone infers that the Mansion House,

95. Philadelphia County Deed Book L6, p. 233. Philadelphia City Hall Annex. John Potts, Jr., to Joseph Potts, 10 May 1768.

96. Montgomery County Deed Book 3, pp. 416-17. Montgomery County Historical Society.

or ironmaster's house, was just south of the Great Road, in a position nearly opposite the dam.⁹⁷ As late as 1893, when the Commonwealth of Pennsylvania surveyed the then extant buildings along lower Valley Creek, there was a "stone house" south of the road (see "Sketch Map of Valley Forge, 1893, from Survey of Haupt & Franklin, Civil Engineers").⁹⁸ Although it would have been atypical for an ironmaster's house to be in such proximity to the forge, it is possible that this house, still extant in 1893, or an earlier one at the same location, was the "Mansion House" in question.

Isaac Potts was the sole owner of the mill tract through the Revolution until 1793. In 1773 Joseph Potts also disposed of the forge tract and its associated properties to William Dewees and David Potts, both of whom owned equal shares.⁹⁹ Dewees apparently functioned as ironmaster, and Potts marketed the produce of the forge in Philadelphia. The prosperous period which preceded the Revolution saw considerable expansion of the forge properties to include substantial new acreage.

97. Stone, "The Mountjoy Forge," p. 27.

98. Valley Forge National Historical Park Library, blueprint.

99. Montgomery County Deed Book 65, pp. 58-88 (1844 encapsulations of previous deeds for the forge tract), Montgomery County Historical Society.

By 1774 Potts and Dewees owned between them, individually, and in partnership 1,008 acres.¹⁰⁰ Dewees added to the property a new sawmill, possibly upstream from the forge and on the west bank of the creek. Little is known of his specific activities at the forge between 1773 and 1775, but he presumably expanded production of bar and plate iron. Dewees and Potts, however, had chosen an unpropitious time and place to pursue their entrepreneurial hopes.

From 1774, the economy of southeastern Pennsylvania, by now based substantially on agricultural exports, suffered increasing dislocation on account of deteriorating relations with Great Britain. When war erupted, Dewees had to forfeit his labor force periodically to militia service. His troubles began in earnest, however, in September of 1777, when the preponderance of his establishment was destroyed.

3. Valley Forge and the Revolution

In March of 1777, the establishment of Valley Forge drew the eye of Quartermaster General Thomas Mifflin, who was searching for safe, but not too remote, locations to deposit Continental stores. Dewees's iron forge

100. Stone, "The Mountjoy Forge," p. 29.

attracted his attention, as William Dewees was later to assert, because of its ample collection of out-buildings. Mifflin must also have noticed that it was sufficiently close to the Schuylkill to provide convenient transportation from Philadelphia and into the interior. Mifflin approached Dewees on the matter, who requested a few days to consider the proposal, but apparently it was not subject to debate.¹⁰¹

Despite his apprehension that substantial stores at his forge would attract British troops, Mifflin overruled Dewees after breezily assuring him that the site was defensible and the stores, in any case, would be removed promptly if a British incursion threatened. The day after Mifflin informed Dewees of his intentions, fourteen wagonloads of material arrived by order of Carpenter Wharton. Dewees had no alternative but to receive the stores and then hasten into Philadelphia to protest. Wharton, however, produced an order from an incontrovertible source, from General Washington himself, which specified that stores were to be moved about twenty miles out of the capital. Dewees reluctantly received the Quartermasters and Commissary stores at his establishment.¹⁰²

101. See Dewees damage claim, quoted below in full.

102. Ibid.

Valley Forge was certainly not the only Continental magazine during this period, but it appears to have been one of considerable size. Dewees reported to the Continental Board of War in August of 1777 that flour stored at the forge was spoiling, and the Board recommended that six bakers from the state militia be detailed to bake it into hard bread.¹⁰³ The quantities of Quartermasters and Commissary stores on hand as late as September, on the eve of the British arrival at the site, demonstrate that Dewees's storage facilities were ample. His hasty inventory included:

Qu: M: Gen: Stores at Forge

3,000 bushels wheat past ground
 20,000 tomahawks or rather more
 5,000 sets horse shoes
 3: or 400 axes helved and ground
 A great quantity of spades
 shovels and pick axes
 4 or 3 tons bar iron
 20. or. 30 cask nails
 6 or 700 camp kettles
 A number of other articles of less value not
 included in the above.

Commissary Stores

2,000 barrels flour
 1,000 w bread which with some flour is to go
 off to the army at the Yellow Springs in
 morning with five wagons--boats are ordered
 and wagons to haul them to the landing as
 early as probable and col. Biddle has directed
 them to the east side of Schuylkill.

Wm Dewees, Jr. 104

103. Richard Peters to President Wharton of Pennsylvania, 30 August 1777, frame 916, Reel 12, PA, PHMC.

104. Enclosed in Clement Biddle to George Washington, 16 September 1777, GWP, LC.

All of these articles required dry storage indoors, which means that the forge and its outbuildings, and a new sawmill built recently by Dewees were probably filled to overflowing. Barrels of flour and wheat typically held about 200 pounds and were of large size, and tomahawks and other metal items were commonly stored in casks or barrels. Floorspace required was considerable. The flour alone would have required as much as 6,250 square feet of floorspace, presuming the barrels, about $2\frac{1}{2}$ feet in diameter, were stacked on end, two tiers deep. There is no indication that any stores were housed at the grist and sawmill owned by Isaac Potts, although items may well have been sheltered there.

According to his own admission, Dewees had grown increasingly apprehensive following the British landing at Head of Elk during their circuitous march northward into Pennsylvania. He became more certain that his establishment would become a target and that he would be unable to remove not only the stores but his own belongings and movable equipment in sufficient time. Teams called out and pressed were employed along with his own teams to begin to move the stores as the British army advanced, but progress was so slow that it became clear to Dewees that he stood helpless in the path of

destruction.¹⁰⁵

September 16 found the Americans at Yellow Springs after the abortive "Battle of the Clouds" and the British threatening the stores of the fertile Great Valley. Clement Biddle, Forage Master General, had been charged with seeing to the safety of the American baggage and transfer of stores to places of safety. Biddle rode through Valley Forge the evening of the 16th and found a scene of frantic activity. He was shepherding baggage wagons westward, and would rendezvous with them later that evening at the Bull Tavern, just west of the Forge.

Biddle dashed off a letter to General Washington, enclosing the Dewees return quoted above, which had been drawn up at a quarter past eight. Wagons and laborers toiled by lantern light to haul the stores to the landing on the Schuylkill, probably at the foot of the road leading past Isaac Potts' mills, and as Biddle wrote, "not 400 yards from the stores. . . ."¹⁰⁶ Biddle sent the flour overland by wagon to Yellow Springs in the

105. See Dewees claim quoted in full below.

106. Clement Biddle to George Washington, 16 September 1777, GWP, LC. See also John Reed, Campaign to Valley Forge (N.P.: Pioneer Press, 1980), pp. 153-162.

morning and shipped the rest up the Schuylkill by boat, to be debarked on the eastern shore.

Dewees, according to Biddle, was distressed that his hands had been siphoned off for militia duty and other purposes, and that he would not be able to remove the stores in good time. Biddle, while allaying his fears as best he could by assuring him that his men would not be called out on militia service, nevertheless had insurmountables with which to contend--roads choked with baggage and supplies hindered his efforts.

Washington meanwhile was compelled to fall back on Warwick and Reading Furnaces, and the stores accordingly would have to be transferred further inland. General William Maxwell and his Jersey Brigade screened the stores remaining in and around the area. Maxwell, however, was impeded in his mission by insufficient troops. On the morning of September 18, General von Knyphausen pushed up the Swedesford road toward the Valley Forge. Maxwell could not conceal the activity at Valley Forge from his antagonist. On the evening of the 18th, three companies of von Knyphausen's light infantry were dispatched to seize the stores.¹⁰⁷

From the claim entered by Dewees in 1786 for damages

107. Ibid.

sustained in the British raid and for depredations committed during the American encampment, it would appear that the British did an efficient job:

CLAIM OF WILLIAM DEWEES

To the Honorable Congress of the United States of America--

The petition of William Dewees of the Township of Tredyffren in the County of Chester and State of Pennsylvania,

Humbly sheweth--

That your Petitioner in the year 1777 was possessed of considerable Real and Personal Estate at Valley Forge in s.^d County about 20 Miles from the City of Philadelphia, That about the beginning of March of said Year, Thomas Mifflin Esq^r then Q.M.G. called upon your Petitioner informing him that he was establishing a Magazine of Continent.¹ Stores and looked upon that Place as most suitable for that purpose from the situation and Number of Buildings.

That your Petitioner requested a few Days to consider, whether it might not be a means of drawing the British Army that Way, and endanger his Property. Upon which Gn.¹ Mifflin informed your Petitioner he esteemed the distance too great for the enemy to leave their Shipping; but if they should, the situation of the place would admit of a strong Defence, or otherwise the Stores should be timely removed; The next Day fourteen Teams loaded with Com.^y Stores, arrived by Order of Carpenter Wharton, Esq^r Com.^y Gn.¹, with Orders to be unloaded & stored there. After Hesitation for the reasons above mentioned, your Petitioner received the Stores and immediately proceeded to Philadelphia,--waited upon M^r Wharton acquainted him with the danger which he was (as above) apprehensive, M^r. Wharton replied He had a letter in his Pocket from his Excellency Ordering the Stores to be moved about that Distance from Philadelphia and that he understood Gn.¹ Mifflin was about sending the Q.M. Stores &

by the Information he had received of the situation of the place y^e Comm^y Stores must be sent there also. Whereupon all the Qm. & Comm.^y Stores which were sent, were accordingly received and Stored--

That on the Landing of the British Army at the Head of Elk your Petitioner begun to be more apprehensive of the danger aforementioned, and the movements of the British Army almost convincing your Petitioner of their intended Rout; grew very uneasy seeing the Public Stores were deposited in a great Part of his most Valuable Buildings, and that the greatest part of his Estate, was Stock, Buildings, &c. such as could not be removed more especially at the Enemy's near Approach, all the Teams which could be procured (with my own) were assiduously employed to Remove the Stores to other Places thought more secure & to Camp agreeable to Orders. Which Removal of the Stores was continued till the Enemy appeared when with the greatest difficulty your Petitioner made his escape leaving the Whole of his Property to the Merciless Enemy. All which was either destroyed, carried off, or Burned.

Your Petitioner begs leave further to Represent, that December following, His Excellency General Washington placed his Camp greatly upon your Petitioner's Land: Whereupon the greatest part of his standing Timber, & all his Fences, was & were destroy'd, which deprived your Petitioner of Power to erect New Buildings, and rendered the Premises of less Vallue than they formerly were.

Your Petitioner was therefore obliged to sell the said Premises much under their Value, by which he is much reduced in Order to Discharge his Just Debts; and begs leave further to observe, that had not the Public Stores been deposited there, he apprehends his Losses would not have been so great, and that your Honours will not consider his Case equal only to the common Fate of Warr, when every Thing, whether valuable to them or not, which was upon the Premisses, was either Burned Carried off or destroyed, as, in the Annex'd Account, to your Honours will Appear.

Your Petitioner therefore humbly prays your Honors will consider his case, and grant him some Relief, by a small grant of Land, or otherwise as you in your Wisdom may think meet.

And your Petitioner as in duty Bound will every pray &c.

An Account of Sundries burnt and destroyed by the British Army, the Property of your Petitioner at Valley Forge
Viz.

Two large Stone Dwelling Houses		£600.0.0
Household Furniture, plate, Apparel, &c		300.0.0
One large Forge with Four Fires in good repair		560.0.0
One New Saw Mill		60.0.0
Two large Frame Store Houses & Smoke House		200.0.0
One large Stone Coal House		150.0.0
400 Loads of Coal		600.0.0
One Stone Iron Store		50.0.0
1600 Bushels of Wheat @7/6 pr Bl.		600.0.0
600 Bushels of Rye @5/		150.0.0
200 Bushels of Oats @2/		20.0.0
30 Tuns good Hay @60/		90.0.0
4 Cows		20.0.0
44 Sheep @10/		22.0.0
1 Mare 4 Years old		20.0.0
8 Hogs		20.0.0
6 Barrel Salt Shad		18.0.0
400 Weight Smok'd Bacon @6 ^d		10.0.0
200 Weight Dry Beef @5 ^d		4.3.4
2 Tons Barr Iron @£30		60.0.0
1 Hogshead of Rum		25.0.0
1 Waggon		15.0.0
Sundry Smith Tools		10.0.0

Wm Dewees

[RG 93, M247, Roll 53, Vol II, 320, National Archives]

It also appears that the American authorities were sufficiently off guard to permit some of their stores to fall into British hands. Johann Ewald, a captain in von Knyphausen's Feld-jäger Corps, reported that the British Light Infantry had made off with 4,000 barrels of flour from Valley Forge on September 18.¹⁰⁸

Dewees was on his way to financial ruin. Following his sale of the Valley Forge his descent into oblivion was so rapid and complete that now there exist disparate accounts of where, and under what circumstances, he died.

C. Topographical Features

1. Foliation

It can be assumed that at the beginning of the Valley Forge encampment the farms in the encampment proper and in the neighborhood were graced with woodlots adequate to the needs of the inhabitants. The forge, in operation from 1742, would have used considerable timber for coal in the Valley Creek area, but it was doubtless not stripped but selectively timbered. One reason for dating the Duportail map to the earlier part of the encampment is that it still shows a good deal of

108. Ewald, Diary, p. 88.

timber in the encampment area, whereas it is known by such claims as those of William Moore, quoted above, that the soldiers were searching as much as three miles away for timber and wood after the encampment was established. The Duportail map, then, is the best known guide to woodlots and timbered areas, most of which border Valley Creek and the Schuylkill River.

2. Springs

Duportail locates three springs on his map, two north of the Road to Jenkins' Mill, flowing into the Schuylkill, near the left of the first line of defense. This indicates that troops in this location had the most convenient access to good water. Another spring, or source is west of Valley Creek and flowing into it south of the forge.

3. Meadows

Duportail labels three prés or meadows on his map, two along Valley Creek near the point where the road to Yellow Springs crosses, and another on the Schuylkill north of the Provost Guard.

ABBREVIATIONS OF ARCHIVES AND COLLECTIONS

AAS	American Antiquarian Society, Boston, MA.
APS	American Philosophical Society, Philadelphia, PA.
ChiHS	Chicago Historical Society, Chicago, IL.
CHS	Connecticut Historical Society, Hartford, CT.
CUL	Cornell University Libraries, Ithaca, NY.
GHS	Georgia Historical Society, Savannah, GA.
GWP	George Washington Papers, LC, Washington, DC.
HL	Huntington Library, San Marino, CA.
HSP	Historical Society of Pennsylvania, Philadelphia, PA.
HU	Harvard University, Cambridge, MA.
JRC	John Reed Collection
LC	Library of Congress, Washington, D. C.
MHS	Massachusetts Historical Society, Boston, MA.
MNHPL	Morristown National Historical Park Library, Morristown, NJ.
MMC	Miscellaneous Manuscripts Collection
NA	National Archives, Washington, DC.
NJHS	New Jersey Historical Society, Newark, NJ.
NYHS	New York Historical Society, New York, NY.
PA	Pennsylvania Archives, Harrisburg, PA.
PHMC	Pennsylvania Historical and Museum Commission, Harrisburg, PA.
PMHB	<u>Pennsylvania Magazine of History and Biography</u>
RIHS	Rhode Island Historical Society, Providence, RI.

- RUL Rutgers University Library, New Brunswick, NJ.
- VFHS Valley Forge Historical Society, Valley Forge, PA.
- VFNHPL Valley Forge National Historical Park Library, Valley Forge, PA.
- WGW John C. Fitzpatrick, The Writings of George Washington
- WLC William L. Clements Library, Ann Arbor, MI.
- YU Yale University, New Haven, CT.

APPENDIX A

SHIPMENT OF CAMP EQUIPAGE FROM MR. ANTHONY BUTLER
LATE AGENT FOR CAMP EQUIPAGE, 10 MAY 1778

APPENDIX A

Shipment of camp equipage from Mr. Anthony Butler late Agent for Camp Equipage, 10 May 1778.

12 boxes froes (715 total)
47 boxes containing 3,362 sets of horse shoes
47 iron plate Hansaws (handsaws?)
23 Steel plate Hansaws
17 doz. double worn Gimblets
31 iron Plate handsaws
10 doz/ double worm'd Gimblets
15 Shingling Hatchets
8 Carpenters Adzes
8 Carpenters Axes
5 Polished Steel Saw Setts
25 doz and 5 whipsaw Files
1 doz. eitht Inch Files
3 doz handsaw Files
18 drawing knives
1 doz Mill Saw files
46 one Inch Augres
4 one 1/4 Inch D°
51 one & 12 Inch D°
1 3/4 Inch D°
5 Seven Eights of Inch d°
7 three Eights of Inch d°
15 five eights of Inch d°
173 small Gouges
35 large D°
15 large Chizles
8 small D°
46 Socket Gouges
14 Adzes
3 Axes
14 drawing knives
3 Axes
14 drawing knives
1 doz handsaw Files

10 Pad Locks
 30 Compasses
 10 two foot Rules
 3 Iron Squares
 2 doz 12 Inch Files
 2 doz 11 Inch D°
 10 Cross Cut Saws
 5 Cross cut Saws eight
 17 whip Saws
 10 Steel plate Cross cut Saws
 1 Iron Plate cross cut Saw
 15 fore Planes
 1 Sack Plane
 4 smoothing D°
 2 Seven eight Inch Augres
 15 One & 12 Inch d°
 1 One & 5/8 Inch D°
 4 One & 3/4 Inch D°
 1 File
 2 fourteen Inch millsaw Files
 3 one 7/8 Inch Augres
 24 Steel Plate cross cut Saws
 34 best dutch cuting knives
 17 Common cuting knives
 51 Cuting Knife Handles
 35 doz & 8 Roap Halters
 3 Hammers
 4 Rowlers
 16 Creasing Irons
 5 set Awl Blades
 7 (?) Pincers
 45 Awl Handles

537 Knap Sacks
 532 Knap Sacks

73 Waggon Boxes
 134 Waggon Boxes
 12 Collars
 41 Roap Halters
 5 pr Rope each 17 yds
 3 pr do each 22 yds
 25 pr do each 14 yds
 12 blind Bridles
 6 Bresh Bands
 1 Back Band
 2 Belly Bands
 11 pr Hames
 1 Iron Back Bands

12000 Scythes Sneads & cd
 12 Whet Stones
 1 Anvil
 1 Hammer

18 9 3/4 yds Tow Cloath

46 1/4 a) Thread

4 sets waggon Harness viz each Set Contg
 4 Blind Bridles
 4 Collars
 4 pr Hames
 4 Bach Bands
 4 Belly Bands
 2 Brach Bands

(28 more sets as above for a total of 12 complete sets)

33 Boxes horse shoes

No	47.....75
	48.....80
	50.....80
	51.....80
	52.....80
	53.....70
	54.....80
	55.....86
	<hr/>
	707

No	56.....80
	57.....84
	58.....75
	59.....75
	60.....80
	61.....80
	62.....70
	63.....80
	<hr/>
	624

No	64.....75
	65.....85
	66.....103
	67.....67
	68.....67
	69.....66
	70.....90
	71.....90
	<hr/>
	643

No	72....100
	73.....90
	74.....90
	75.....90
	76.....80
	77.....90
	78.....86
	79.....65
	<hr/>
	691

707
 624
 643

2665 Sets

May 16th Invoice

2800 Set Tent Poles
12 Sails Containing 930 yds
2482 Knapsacks finished
386 Knapsacks wanting Point Buttons & Snaps
2..2.0^u Weight Nails Rods
624 a Twine
3 Marking Irons
70 Cuting Boxes
10 Cuting knives
51 Cuting knife Handles
1 Whet stone
1 pr Scales
6 Felling Axes
4 Horsmans Tents
3 pr. Russia Duck
77 pr. French Canvas
11 Remnants ditto
3 pr Ozen brigs
15 lb thread
104 Camp kettles
48 blind Bridles
48 Back Bands
24 Belly Bands
24 Ouoylers
24 Cruppers

Weiss Manuscripts
HSP

APPENDIX B

LIST OF QUARtermasters' STORES RECEIVED OF THOMAS CRAIG,
ASSISTANT DEPUTY QUARtermaster, AT VALLEY FORGE IN MAY,

1778

APPENDIX B

List of Quartermasters' stores received of Thomas Craig,
Assistant Deputy Quartermaster, at Valley Forge in May,
1778.

1876 Shovels with handles
1588 ditto with ditto
478 Spades without ditto
243 ditto with ditto
121 Pick axes
1835 Tomahawks
229 Hatchetts
5 Boxes Cont.g 40 Axes Ea is 200
400 Axes without handles
200 old Axes wanting repair
328 Axes with handles
64 Broad Axes
1 Cask No 4 Cont. 2
403 Frows
50
44 Mawl rings
250 Iron wedges
15 Barrs Iron
18 Pieces of Steel
612 Waggon Clouts
51 Bundles Nail rods
3207 pr Horse Shoes
27 pr Choin Traces
293 Camp kettles
52 Water Buckets
44 Iron Potts & Steel Panns
437 Canteens
60 Claw Hammers
23 Hasps
50 Staples
75 Door Locks

25 pr Compasses
 10 Iron Squares
 2 Rules
 2 Wood Squares
 3 guages
 28 Chizels
 1 Guage
 44 Planes
 3 Carpenters Adzes
 2 Coopers ditto
 23 Augars
 62 Spike Gimblets
 120 small ditto
 25 Small Bolts
 12 Crosscut Saws
 13 Pitt Saws
 10 Tennon Saws
 32 Grove & 10 doz. wood Screws
 1 small iron box
 2 Smith Buttresses
 1 Sledge
 3 Scythes
 1 Cutting knife
 19 doz. crosscut Saw files
 6 doz & 20 Pitt Saw ditto
 21 doz & 5 Handsaw ditto
 11 doz 26 Tenon saw ditto
 1 half round
 2 Branding Irons
 2 Mess Bowls
 435 Common Tents
 14 pieces d°
 4 Horse Mans Tents
 1 ditto wanting repair
 1 Shell of a Marquee
 68 reams writing paper
 37 Military Books
 2 Orderly Books
 127 Sticks Sealing wax
 14 Papers Ink powder
 1 Coil Rope 44 fothom
 1 ditto 26 d°
 1 ditto 59 d°
 1 ditto 1 1/2 d°
 34 Skeines Twine
 144 Collars
 205 pr new Hames
 52 Breech Bands
 42 Belly Bands

12 Cart Saddles
 1 old Saddle
 390 Knapsacks
 370 Clout Nails
 89 Sides of Soal Leather
 3 Calf Skins
 2 Setts Geers
 233 w of nails in a Cask
 2 Iron Stands
 5 new regimental Coats
 24 new & old Country made Coats
 15 ditto waist Coats
 3 Petti coats
 2 pr worted Breeches
 28 pr Leather Breeches new & old
 55 pr mens worted Hose (new)
 84 pr old.....ditto
 4 shirts
 2 pr Trowsers
 2 pr Shoes
 13 yds homemade Cloth
 288 Yds Tow & hemp Linnen

 4 pr Iron Traces
 44 Breech Bands
 4 Blind Bridles
 2 Cart Saddles
 7 Single Trees
 12 Double Trees
 100 Water Buckets
 3 Shingling hatchetts

Weiss Manuscripts
 HSP

APPENDIX C

GLOSSARY OF MILITARY TERMS

The brief definitions supplied in this section require some pictorial amplification. Several standard reference works are admirably suited to this purpose. Generally, Harold L. Peterson's The Book of the Continental Soldier (Harrisburg, Pa.: The Stackpole Company, 1968) illustrates excellently the standard equipage and arms of the Continental soldier. Weapons and accoutrements are illustrated exhaustively in George C. Neumann, The History of Weapons in the American Revolution (New York: Bonanza Books, 1767), and George C. Neumann and Frank J. Kravic, Collector's Illustrated Encyclopedia of the American Revolution (Secaucus, N.J.: Castle Books, 1975). Neumann's Collector's Encyclopedia covers polearms, and a chapter in Rodney Hilton Brown's American Polearms 1626-1865 (New Milford, Conn.: N. Flaydermann & Co., Inc., 1967), is also devoted to the subject. A standard work covering the manufacture and service of artillery of the period is B. P. Hughes, British Smooth-Bore Artillery: The Muzzle Loading Artillery of the 18th and 19th Centuries (Harrisburg, Pa.: The Stackpole Company, 1969). The Museum Restoration Service at Ottawa, Canada, has reprinted a superb selection of standard eighteenth-century military manuals and dictionaries, among which the following are particularly useful: George Smith, An Universal Military Dictionary,

London, 1779 (MRS 1969), William Rudyard, A Course of Artillery, Mss 1793 (MRS 1970), and Guillaume LeBlond, A Treatise of Artillery, London, 1746 (MRS 1970), and John Muller, A Treatise of Artillery, London, 1780, (MRS 1965).

Appendix CGlossary of Military Terms

ANTIMONY	A metaloid (Sb), used in the manufacture of dry portfire.
BATTALION	During the early years of the Revolution, including the Valley Forge period, the word "battalion" was used in the stead of, or interchangeably, with "regiment" (which see).
BLUNDER BUSS	A short shoulder arm with a bell-shaped muzzle, designed to be loaded with musket or pistol balls which scattered with a shotgun effect when fired. Its principal military use was in the clearing of a narrow space, such as a stairway or doorway. It was also used as a naval boarding weapon.
BRIDLE, BLIND	A bridle equipped with blinders to restrict the vision of horses. Used with teams to prevent skittishness.
BRIGADE	During the Valley Forge period, a Brigade of the Continental Army might include between three and ten regiments. Although brigades varied significantly in size during this period, they averaged about 800 men present and for duty. Brigades were commanded by Brigadier Generals, and in their absence, by the designated Colonel of one of the regiments.
BRUSH & PICKER	See WIRE & BRUSH
BUDGE BARREL	A barrel holding forty to sixty pounds of cannon powder, used on the firing line for the service of artillery. At the open end there was a leather closure or flap, which was affixed to the barrel with brass nails. (Brass nails were used instead of iron to prevent accidental discharge of the powder from spark ignition.)

- BULLET MOLD (or MOULD, 18th c.) Molds made from iron, brass even occasionally stone, to cast lead musket and pistol balls. "Gang" molds had multiple cavities for rapid production.
- CARBINE (or CARABINE, 18th c.) A short, smooth-bore shoulder arm, usually having a barrel of about three feet in length, used by mounted troops.
- CARBINE SWIVEL Precise definition uncertain. These may have been the swiveled hooks, or snap-locks, used to attach the carbine to the cross-belt used by horsemen. The cross-belts would normally have a swivel attachment so that the carbine sling, or belt would not become twisted in service.
- CARTRIDGE BOX Generally a hard leather pouch attached to a cross-belt or waistbelt, which held the soldier's musket ammunition. The boxes, which were of varied design, held from eighteen to thirty-six rounds of ammunition, usually in the form of paper cartridges.
- CARTRIDGE BOX, TIN (or iron) (also CANISTER) A canister made of tin plate or rolled iron and used as a cartridge box. These were employed as substitutes for leather cartridge boxes, particularly when leather was in short supply.
- CARTRIDGE BOX BELT (or STRAP) Thin leather shoulder straps designed for carrying cartridge canisters.
- CARTRIDGE PAPER, MUSKET Scrap or other cheap paper used in making musket cartridges.
- CARTRIDGE PAPER, CANNON During the autumn and winter of 1777-1778, paper used in making cannon cartridges, or individual, pre-measured powder loads for artillery. Flannel was the favored material for this purpose, but apparently shortage of materials dictated that the Continental artillery used paper during 1777-1778.

CASE SHOT An artillery load consisting of a tinned can filled with musket balls and used for short-range fire into massed infantry. Case shot was used in both field guns and howitzers. Occasionally called "canister."

DIVISION Divisions in the Continental Army during the Valley Forge period consisted of two Brigades, and were commanded by Major Generals. (N.B.: John B. B. Trussell's statement, p. 30 of Birthplace of an Army, to the effect that there was no divisional structure at Valley Forge, is incorrect. Manuscript Commissary Department returns, May and June 1778, NYSHA, Charles Stewart Collection, indicated the following divisions:)

Maj.-Gen. Nathanael Greene	Weedon's Brigade Muhlenberg's Brigade
----------------------------	--

Maj.-Gen. Lord Stirling	Conway's Brigade Woodford's Brigade
-------------------------	--

Maj.-Gen. Marquis de Lafayette	Woodford's Brigade Scott's Brigade
--------------------------------	---------------------------------------

Brig.-Gen. Anthony Wayne (in absence of Maj.-Gen. Arthur St. Clair)	1st Pennsylvania Brigade
	2nd Pennsylvania Brigade

Maj.-Gen. Johan de Kalb	Learned's Brigade Paterson's Brigade
-------------------------	---

Maj.-Gen. Alexander McDougall (absent)	Varnum's Brigade Huntington's Brigade
--	--

The nominal commander of McIntosh's and Maxwell's brigades may have been John Sullivan. The Divisional commander of Poor's and Glover's brigades is not known.

- DRAG ROPES In the service of artillery, pairs of ropes used by artillerymen to maneuver field pieces in the line of battle. The ropes were attached to rings on the cheeks of the artillery carriages.
- DRUDGING BOX A tin cannister with a perforated lid, used to shake meal-powder over the fuses of mortar shells, once loaded. The purpose was to insure that the fuze took fire once the piece was fired.
- DUCK A material similar to light canvas, used in making tents, knapsacks, and for a variety of other purposes.
- FLINT Knapped pieces of flint used in the ignition system of flintlock firearms. Most flints used by the American troops were imported from France, and were honey-colored. The flints employed in the British army were more often grey in color.
- FUSE (also FUZE, 18th c.) Most often a conical wooden tube filled with powder and tapped into the aperture in artillery shells, usually done just before loading. The gunner could cut the fuse to a desired length, thus exerting rather imprecise control on the interval between the firing of the piece and the explosion of the shells.
- GIMLET (or GIMBLET, 18th c.) A small hand tool used to start or make holes in wood or leather
- GIN A tripod-like device used to mount and remove artillery pieces from carriages. Heavy ropes and blocks suspended the piece from the apex of the tripod, and the raising and lowering of the gun was operated from a capstan, usually attached to the gin.
- GIN BLOCK Heavy block, to be used as a "block and tackle," with the GIN.

- GRAPE SHOT In artillery, small iron shot enclosed in a canvas bag, roped on the outside and used in field pieces against short range targets.
- HALBERD An axe-like polearm, which had generally fallen from favor in the British service at the time of the Revolution. The Americans apparently captured several from the Hessian troops at Trenton. Used by officers and NCOs as a symbol of rank.
- HESSIAN CAP A tall grenadier's cap, frontally ornamented with a conical brass plate, used by Hessian and other German troops.
- HORN Powder receptacle made of a hollowed out steer horn, and used by militia, gunners, and occasionally regular infantry in the American service.
- HOWITZER Short artillery pieces, generally used in firing shells along a more arching trajectory than that characterizing guns. The trajectory was intermediate between that of the gun and that of the mortar. Used in bombarding, and at short ranged with the CASE and GRAPE SHOT. Five and one-half and eight-inch howitzers were most common in the American service in 1777-1778.
- KNAPSACK A square sack made of canvas or duck and sometimes painted for waterproofing, worn on the back to carry personal effects and articles of clothing.
- LANYARD Heavy, strong cord
- LIGHT HORSE CAP A molded, hard leather cap of varying design used as protective headgear by mounted troops.

- LINSTOCK (or LINT STOCK, 18th c.) In artillery, a staff to carry slow match during an action. The slow-burning cord was twisted about the ornate iron head of the staff, and it was stuck in the ground near the artillery pieces which it served. From this smoldering cord quickmatch, or portfire was lit, and was in turn used to touch off the artillery pieces. Slow match was designed to burn at a rate of roughly one yard every eight to nine hours, and was thereby a reliable source of ignition throughout an engagement.
- MARLIN Untwisted hemp, used in artillery as a wrapping for twisted rope in order to prevent it from binding in blocks and pulleys.
- MARQUEE A large tent, usually oval in shape, used by high ranking officers in the field.
- MORTAR In artillery, a short piece designed to fire shells at a very high angle of trajectory and used principally to lob shells into works and towns.
- MUSKET A full-stocked, smooth bore shoulder-arm, used with bayonet, as a standard infantry weapon.
- PALM A protective leather device worn on the hand by sailmakers and tentmakers and used in driving a needle through heavy fabric.
- PILION A saddle attachment used by dragoons. Generally, a small pad attached behind the saddle, on which another person might ride or upon which a portmanteau might rest.
- PINCHER In artillery, pincers used to extinguish portfire.

PORTFIRE	A quick-burning chemical substance used to touch off artillery pieces at the vent. It was molded into stick form and placed in a wooden PORTFIRE STOCK. It was ignited at the LINSTOCK and then applied to the vent of the piece. The portfire was then extinguished by clipping off the burning end until needed again. Muller gives the composition of both wet and dry portfire, both of which were packed into paper sticks for use. Wet portfire included saltpeter, sulfur, mealed powder, and linseed oil. Dry portfire was composed of saltpeter, sulfur, mealed powder, and antimony.
PORTFIRE STOCK	A short wooden staff used to hold sticks of PORTFIRE.
PORTMANTEAU	In dragoon equipage, a small leather box or bag for personal effects and clothing. Some were designed to be carried to the rear of saddles.
POUCH	A soft leather receptacle for cartridges, loose ball, and buckshot.
REGIMENT	The size of a regiment during the Valley Forge period might vary markedly. In December of 1777, the North Carolina regiments might have 150 men on their rolls, while some of the Virginia regiments numbered well over 400. Regiments were divided into companies, again of varying number. Regiments were always commanded by colonels, and in their absence by a lieutenant-colonel, major, or captain commanding a company.
RIFLE	A shoulder arm with a rifled, or grooved barrel, which greatly enhanced accuracy but slowed loading, used without bayonet.
ROUND SHOT	A round, solid projectile used in field guns, principally for battering.
SAIL NEEDLE	Heavy needles used in sail and tent manufacture.

SALTPETER	Potassium Nitrate (KNO_3) used in making gunpowder
SCREW DRIVER	In eighteenth-century military equipage, a small wrought-iron screw driver which was a necessary item in the soldier's kit, used to open and tighten the jaws for holding flint in the musket lock.
SCREW & WIPER	Used principally with rifles, a combination tool which screwed on the rammer and which was used in cleaning the rifle and extracting unfired loads.
SHEEPSKIN	In artillery, tacked on the SPUNGE AND RAMMER shaft and used wet to sponge out cannon between shots.
SHIP SWORD	A short, curve-bladed naval cutlass used as a boarding weapon and to repel boarding attempts.
SLOW MATCH	Hemp or marlin, chemically treated to burn slowly, and attached to a LINSTOCK. Sometimes used directly to ignite cannon, in the absence of PORTFIRE.
SPANISH BROWN	Brown paint used extensively by the Continental artificers.
SPEAR, BREAST- WORK	Similar to a rifleman's spear and used to repel attackers from fortified places.
SPEAR, RIFLEMAN'S	Pikes (not to be confused with spontoons or halberds), issued to riflemen and infantrymen. They were 12 or 13 feet long, terminating in a simple iron spear point, and used in defending positions and earthworks. They were issued to riflemen in 1775 and 1776 to redress their lack of bayonets.
SPONTOON	A pole arm usually equipped with a wide blade and some sparse ornamental iron work, being about six feet long and used as a badge of rank by officers and NCOs.

SPUNGE & RAMMER	In artillery, a wooden shaft equipped with a sheepskin sponge at one end and a broad wooden rammer at the other, used to ram loads home and to clean and flush the tube between rounds.
SPONGE TACK	Brass tacks used to attach sheepskin sponges to the SPUNGE & RAMMER staff.
STANDARD POLE	A wooden staff for military standards and flags.
SULPHUR	A nonmetallic element (s) used in the manufacture of gunpowder.
SWEET OIL	An edible oil, such as vegetable or nut oil, used as a lubricant and preservative.
HOUZZA SWORD	A term found on some Continental equipage returns, and probably a corruption of "hussar sword," or European dragoon sword. Probably refers to blades captured from Hessian troops at Trenton.
SWORD, LIGHT HORSE	A curved heavy blade, or saber, used by horsemen.
SWORD BELT, HORSEMAN'S	Most often refers to a cross-belt used to suspend the sword worn by a horseman.
TENT, COMMON	Tents designed to house five or six soldiers, and generally six and one-half feet square and five feet high.
TENT, HORSEMAN'S	Large tents, roughly seven feet by nine feet, used to house five horsemen and their accoutrements. Sometimes used by officers in the field.
TOMAHAWK	An Indian-style trade hatchet worn at the belt and favored in the American service by riflemen.
TOMPIONS	(or TOMPKINS, 18th c.) Wooden plugs used in the muzzles of artillery pieces and designed to keep weather and debris out of the barrels.

- TRACE (IRON) One of two chain devices used to attach a horse in harness to a vehicle to be drawn.
- TUMBRIL A two-wheeled cart, often used to carry artificers' equipage.
- WADHOOK & LADLE In artillery, a staff with a ladle at one end for loading loose powder into a piece, and a worm device at the other for withdrawing loose and burning wadding and paper after firing.
- WHITING Ground calcium carbonate used as a pigment.
- WIRE & BRUSH (or BRUSH & PICKER, ETC.) Part of the essential equipage of an infantryman, consisting of a brass wire designed to clear the touch-hole of a musket, and a brush for cleaning out the pan of the lock. Attached together by a chain and usually worn at the chest attached to a cross-belt.
- WORM A screw-like device, which when attached to a ramrod was used to clear debris and powder residue from a fouled musket barrel. Also used to draw out the charge without firing the musket.

BIBLIOGRAPHY

BIBLIOGRAPHY OF PRINTED SOURCES

- Alden, John Richard. The American Revolution 1775-1783. New York: Harper & Row, 1962.
- Anbury, Thomas. Travels Through the Interior Part of North America. Boston: Houghton-Mifflin, 1923.
- Bining, Arthur Cecil. Pennsylvania Iron Manufacture in the Eighteenth Century. Harrisburg, Pa.: Pennsylvania Historical and Museum Commission, 1973.
- Boudinot, Elias. Journal of Historical Recollections of American Events During the Revolutionary War. Philadelphia: Frederick Bourquin, 1894.
- Bray, Robert C., and Paul E. Bushnell, eds. Diary of a Common Soldier in the Revolution, 1775-1783. An Annotated Edition of the Military Journal of Jeremiah Greenman. DeKalb, Ill.: Northern Illinois University Press, 1978.
- Bucks County Historical Society. Ancient Carpenters' Tools. Doylestown, Pa.: Bucks County Historical Society, 1951.
- Dotterer, Henry S. The Perkiomen Region, Past and Present. Philadelphia: Perkiomen Publishing Company, 1901.
- Ewald, Johann. Diary of the American War, A Hessian Journal. Joseph P. Tustin, trans. and ed. New Haven: Yale University Press.
- Ewing, Thomas, ed. Military Journal of George Ewing (1754-1824) A Soldier at Valley Forge. Yonkers, N.Y.: privately printed, 1928.

- Fitzpatrick, John C., ed. The Writings of George Washington from the Original Manuscript Sources 1744-1799. 39 vols. Washington: Government Printing Office, 1933.
- Goodman, W.L. The History of Woodworking Tools. London: G. Bell & Sons, 1964.
- Gramly, Richard Michael. Fort Laurens 1778-9: The Archaeological Record. Richmond, Va.: The William Byrd Press, Inc., 1978.
- Hammond, Otis G., ed. Letters and Papers of Major-General John Sullivan, Continental Army. 2 vols. Concord, N.H.: New Hampshire Historical Society, 1930.
- Heawood, Edward. Watermarks, Mainly of the 17th and 18th Centuries. The Paper Publications Society, Monumentum Chartae Papyraceae Historiam Illustrantia, vol. I Hilvesum, Holland, 1950.
- Heitman, F.B. Historical Register of Officers of the Continental Army. . . . Washington: privately printed, 1893.
- Idserda, Stanley J., ed. Lafayette in the Age of the American Revolution, Selected Letters and Papers 1776-1790, vol. 1. December 7, 1776-March 30, 1778. Ithaca, N.Y.: Cornell University Press, 1977.
- James, Mrs. Thomas Potts. Memorial of Thomas Potts, Junior. Cambridge, Ma.: privately printed, 1874.
- Kalm, Peter. Travels in North America. John Reinhold Foster, trans. Barre, Ma.: The Imprint Society, 1972.
- Kauffman, Henry J. American Axes: A Survey of Their Development and Their Makers. Brattleboro, Vt.: The Stephen Greene Press, 1972.
- Kite, Elizabeth S. "General Duportail at Valley Forge." PMHB 56 (1932): 341-354.
- Kniffen, Fred, and Henry Glassie. "Building in Wood in the Eastern United States." The Geographical Review 56 (1966): 28-65.

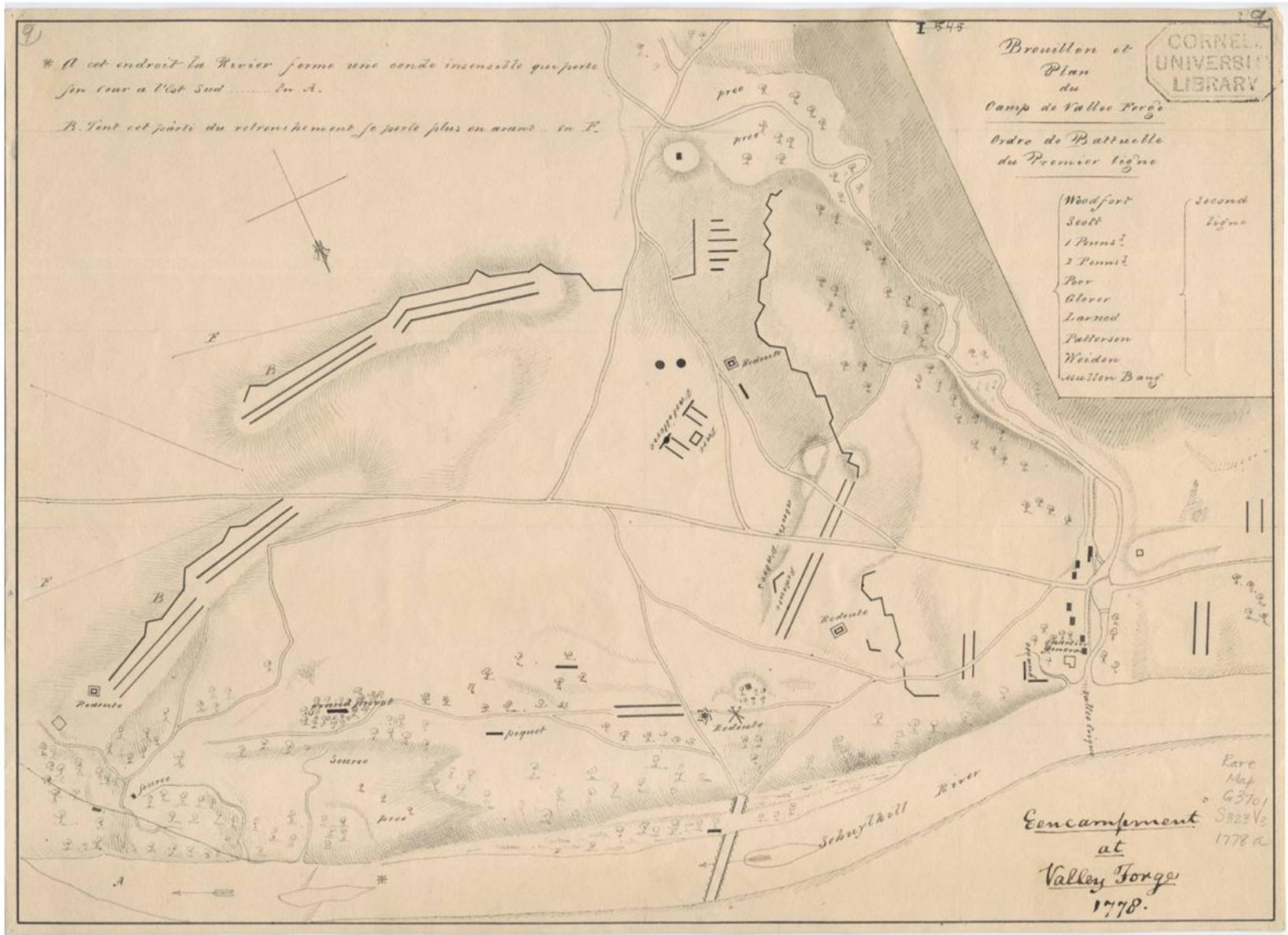
- Lee, Karen E. "A History of Fatland and Mill Grove." Bulletin of the Historical Society of Montgomery County 19 (Spring 1974): 127-154.
- Lesser, Charles H., ed. The Sinews of Independence: Monthly Strength Reports of the Continental Army. Chicago: The University of Chicago Press, 1976.
- Lossing, Benson J. Pictorial Field Book of the Revolution. 2 vols. New York: Harper Brothers, 1855.
- Mercer, Henry Chapman. The Tools of the Nation Maker. Bucks County Historical Society Collections, vol. 3. Doylestown, Pa.: Bucks County Historical Society, 1909.
- No author. "The Sullivan's Bridge Monuments." Historical Sketches: A Collection of Papers Prepared for the Historical Society of Montgomery County, Pennsylvania. vol. 4. Norristown, Pa.: Historical Society of Montgomery County, 1910.
- Peterson, Harold L. The Book of the Continental Soldier. Harrisburg, Pa.: The Stackpole Company, 1968.
- Pinkowski, Edward. Washington's Officers Slept Here. Philadelphia: Sunshine Press, 1953.
- Ping Hsu, Dick. Casemates and Cannonballs: Archaeological Investigations at Fort Stanwix, Rome, New York. Washington: United States Department of the Interior, 1975.
- Reed, John. Campaign to Valley Forge. N.P.: Pioneer Press, 1980.
- Reed, W.H. "Audubon and Its History, Tradition and Reminiscences." Historical Sketches: A Collection of Papers Prepared for the Historical Society of Montgomery County, Pennsylvania. vol. 5. Norristown, Pa.: Montgomery County Historical Society, 1910.
- Reeves, Enos. "Extracts from the Letter-Books of Lieutenant Enos Reeves, of the Pennsylvania Line." PMHB 21 (1897): 72-85, 235-256, 376-391, 466-476.

- Showman, Richard K., ed. The Papers of General Nathanael Greene. vol. 2. 1 January 1777--16 January 1778. Chapel Hill, N.C.: The University of North Carolina Press, 1980.
- Shurtleff, Harold R. The Log Cabin Myth. Cambridge, Ma.: Harvard University Press, 1939.
- Smith, George. An Universal Military Dictionary . . . (1779), reprint ed. Ottawa, Canada: Museum Restoration Service, 1969.
- Stevens, Benjamin F. Facsimilies of Manuscripts in European Archives Relating to America. London: 1889-1895.
- Teamer, S. Paul. "Old Stone Chimney Picket Site Vital Outpost for Valley Forge." Picket Post (April 1946): 34-35.
- Valley Forge Orderly Book of General George Weedon of the Continental Army Under the Command of General George Washington (New York: Dodd, Mead and Company, 1902).
- Valley Forge Park Commission. Report, January 1947 to January 1951. Valley Forge: n.p., 1951.
- _____. Report, 1921-1927. Valley Forge: n.p., 1927.
- Watson, Aldren A. Country Furniture. New York: Thomas Y. Crowell, 1974.
- Woodman, Henry. The History of Valley Forge. Oaks, Pa.: John U. Francis, Sr., 1922.
- Woodward, Carl R. Ploughs and Politics. New Brunswick, N.J.: Rutgers University Press, 1941.



Map A: Duportail Map

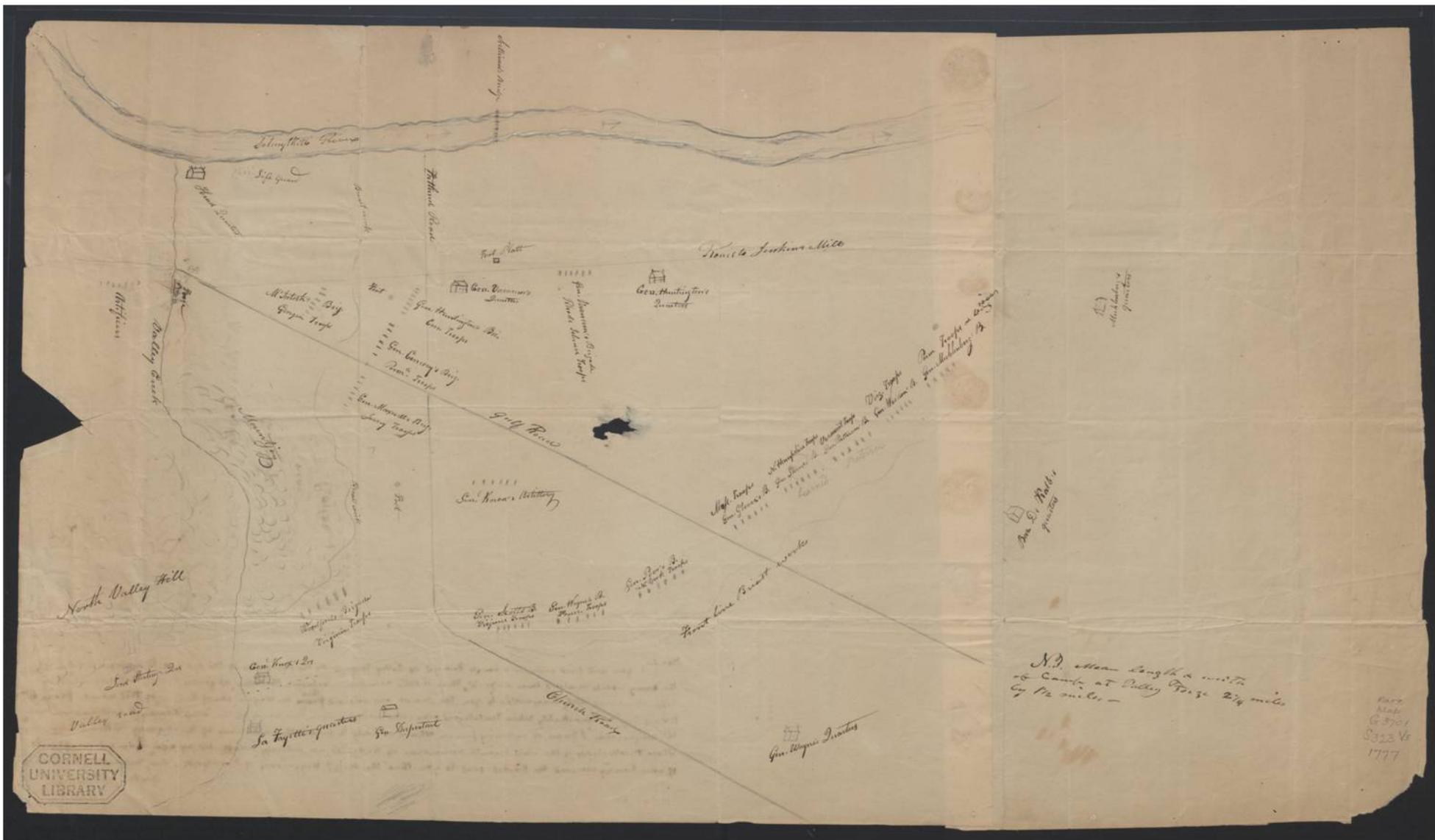
Courtesy of the Historical Society of Pennsylvania



Map B: Jared Sparks Map

Rare Map G3701 S323 V3 1778a

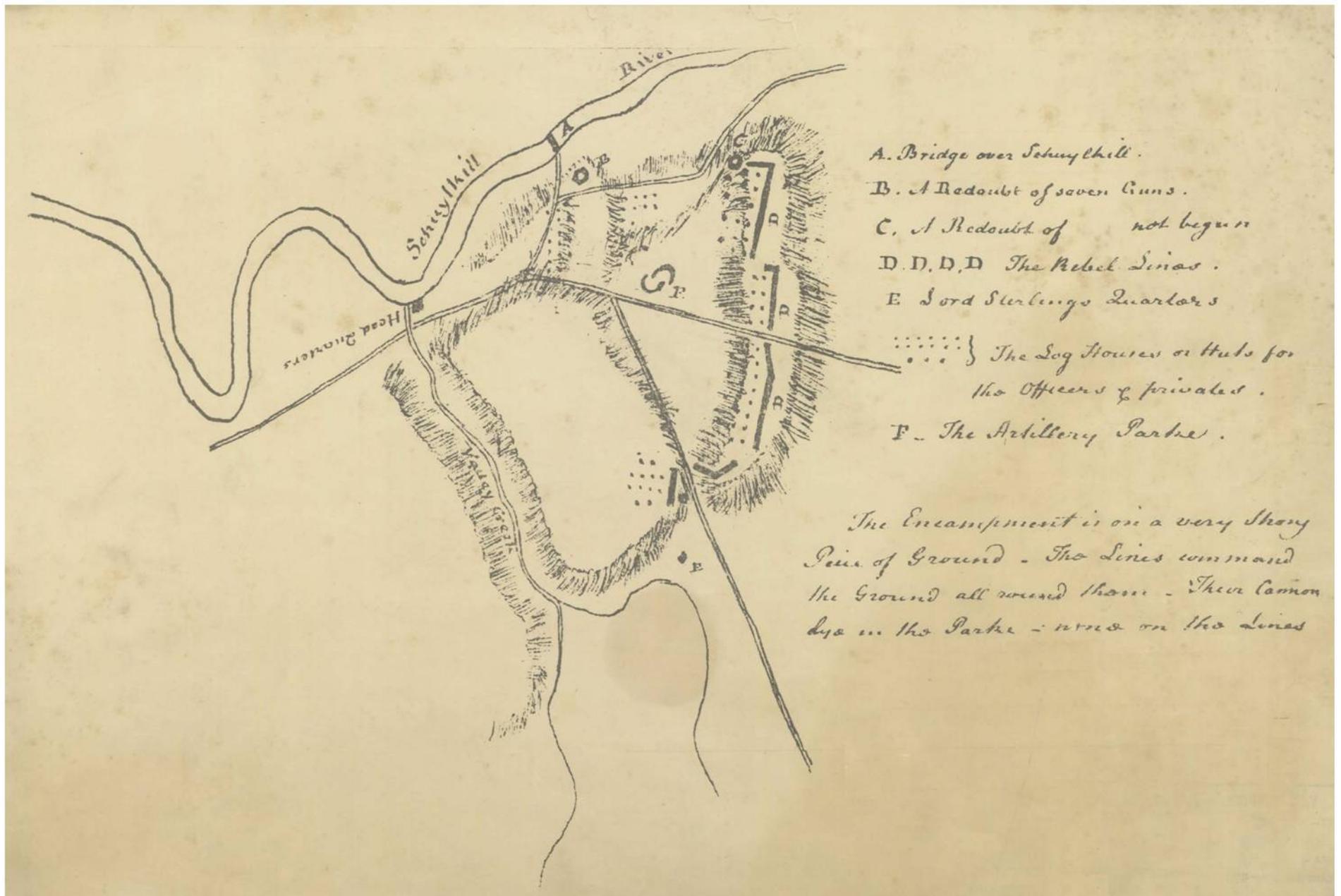
Courtesy of the Division of Rare and Manuscript Collections
Cornell University Library



Map D: Davis-Armstrong-Sparks Map

Rare Map 3701 S323 V3 1777

Courtesy of the Division of Rare and Manuscript Collections
Cornell University Library



Map G: Galloway Spy Map

Courtesy of Steven's Facsimiles



Map H: Parker Spy Map

Courtesy of the William L. Clements Library
 University of Michigan

