

L VALLEY FORGE HISTORICAL RESEARCH REPORT

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Louis Lebègue Duportail - C. W. Peale c. 1781-82

Courtesy of Independence National Historical Park

THE VALLEY FORGE REPORT

VOLUME III

IN THE TRUE RUSTIC ORDER:

Material Aspects of the Valley Forge Encampment, 1777-1778

Jacqueline Thibaut
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Valley Forge National Historical Park

1979

CONTENTS

CONTENTS	
ACKNOWLEDGEMENTS	i
INTRODUCTION	1
I MAPS	12
II THE TOOLS	20
III MILITARY STRUCTURES AND FEATURES	24
DWELLING HUTS	24
CAMP HOSPITALS	36
STORES AND MAGAZINES	40
PROVOST GUARD AND GUARD HOUSES	42
SUTLERS' BOOTHS	44
ARTIFICERS' HUTS	44
FORTIFICATIONS	45
EXCAVATED FEATURES	60
SPECIAL USE AREAS	62
LOGISTICAL FEATURES	65
IV CIVILIAN STRUCTURES AND FEATURES	74
DWELLINGS AND AGRICULTURAL STRUCTURES	74
INDUSTRIAL STRUCTURES	92
APPENDICES	95
ABBREVIATIONS	103
NOTES	104
INDEX	120
ADDENDUM: A "NEW" MANUSCRIPT MAP OF VALLEY FORGE	132

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Jacqueline Thibaut
Wayne K. Bodle
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INTRODUCTION

One of the great advantages attained by the hastily recruited volunteer 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 forge-masters, chandlers and bakers, farmers, physicians and carpenters, et al. The result was an unprofessional army in sore need of uniform training, but one which nevertheless was capable of an extraordinary economy of function; 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 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, Tanners - Shoemakers and the Lord knows that. 1

He was exaggerating only slightly. Colonel 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

The British Army, to be sure, had sappers, miners, farriers, pioneers, surgeons, and bakers, but these were adjunctive to the fighting force, and were extra baggage in the manpower pool. The British fighting man, officer and enlisted man alike had one principal task; to perform in battle. 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 General John Sullivan, responsible for constructing a bridge across the Schuylkill and beset with innumerable difficulties, finally 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.

The superior 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 Army's 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 of 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 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, 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 the bulk 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 in order to fit the mythical scenario, the army upon its arrival at Valley Forge had to be characterized as on the brink of complete 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. Washington, casting his eye into the future and viewing from the heights the precarious administrative structure of his Quarter Master'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, barely veiled 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 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 whole 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, 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. Steuben drills his men against the background of a few huts scattered amid plentiful trees, in a nearly deserted landscape. Soldiers huddle about isolated campfires, or a lone picket slumps in the snow

beneath 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. Once the camp was established, continual activity was the rule, and it was only lulled in the severest weather. Over the ridge of the 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. 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 as 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 nascent 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 Head Quarters 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 Head Quarters 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 outer line, spread inwards toward the center of the camp, with their officers' huts and hospitals, sutlers, Quarter Masters' stores, brigade parades, vaults, 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 and shouts of the drill masters, and the clatter of shovels and picks from those at work on the fortifications intermingled from dawn to sundown.

I THE MAPS

The maps of Valley Forge have not to date received critical analysis as a group, although they are problematic keys to certain aspects of the physical history of the encampment. They fall into three categories:

1. maps contemporaneous to the encampment (including the Duportail master plan and its variants, and the Duponceau sketch);
2. the two known British "spy" maps; and
3. those done in afteryears and those undated.

There are difficulties with all of the maps. They range from the merely troublesome to the downright enigmatic, but it is possible to use them to ascertain the sequence of camp development and the locations of brigades and headquarters.

Duportail Master Plan.

("Brouillion et Plan du Camp de Vallee Forge", Draft and Plan of the Camp at Valley Forge).¹

The precise date when Brigadier General Louis Lebègue Duportail, Washington's chief engineer, began his plan has not been firmly established, but can be approximated through inference.

Presuming that a matter plan on paper was necessary to the laying out of the encampment, it had to have been well underway before the orders went out to hut the troops under the supervision of the Engineer on December 20. Yet it is unlikely that such a plan was done any earlier than December 15, as on that date Washington's aide John Laurens stated that the precise location of the winter encampment had not as yet been determined. It is likely, presuming that the draft copy in the Historical Society of Pennsylvania was the true master, that it was begun between December 14 and 20, with subsequent additions. It could, however, have been done as late as the beginning of January. In a report dated April 7, Duportail speaks of an early plan he had devised for fortifying the encampment, and it is reasonable to assume such a plan was committed to paper, probably at the very onset.²

The Duportail map provides us with the following invaluable details:

- location of four redoubts;
- inner and outer line entrenchments, obstacles, and redans;
- location of hut sites;
- detailed rendering of forge and mills;
- location of the Provost Guard;
- possible location of a market;
- location of Sullivan's Bridge; and
- roads with the encampment.

The map, although roughly done, contains suggestions of contours and generally is accurate in scale. It is without doubt

the most detailed and assiduously drawn contemporary rendering of the encampment found to date. Unfortunately, Duportail never bothered to fill in the troop locations for the second, or inner line and we must rely upon other maps for the locations of Huntington's, Conway's, Maxwell's, McIntosh's, and Varnum's Brigades. Missing also is the second redoubt on the far left of the Outer Line, probably begun very late in the encampment period.³ (See section of Chapter IV on Fortifications.)

Variants on the Duportail Master Plan.

There exist several maps that are directly or loosely derived from the Duportail Plan, presumably made fairly early in the encampment for the use of other engineers and general officers. There is also one which is probably as much later copy of the original Durportail map.

Variant 1. The map which most rigorously copies Duportail probably does not date from the encampment period, but was drawn up for the use of Washington's biographer, Jared Sparks, at an uncertain date. (This is one of two plans of Valley Forge associated with Jared Sparks, and should not be confused with the Davis-Armstrong-Sparks map, to be discussed below.) Cornell University acquired Sparks' manuscripts 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 The map is a slavish copy of the Duportail Plan, and the copyist

obviously had recourse to it or to another copy now lost. This copy follows the Duportail Plan exactly, to the repositioning of the star redoubt as indicated on Duportail's Plan. The copy is entitled "Encampment at Valley Forge 1778," in Jared Sparks' handwriting.

Variant 2. Variant 2 is a map labeled "Encampment at Valley Forge in 1778" in a cartouche in the upper right corner.⁶ The map is much cruder than the Duportail plan, yet adds several important details including the location of Artificers' huts (across Valley Creek), the placement of brigades on the inner line, and the location of Maxwell's troops. The roads indicated correspond closely but not exactly to those on the Duportail Plan.

Variant 3. Variant 3 is a still cruder copy of Variant 2, apparently made by the method of pricking with a pin through the map to be copied onto a second sheet and then connecting the prick marks with pen and ink to make an exact copy. It is unknown how many copies may have been made in this laborious manner. Variant 3 differs but slightly from Variant 2, in these respects: the roads leading to Sullivan's Bridge have been altered slightly, showing their original configuration which corresponds exactly to Variant 2; the addition of an island just west of Sullivan's Bridge; the erasure of Maxwell's Brigade; and the location of the cartouche in the lower right corner.⁷

The Joseph Galloway Spy Map.

Somehow in March of 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, 1778.⁸ Although undeniably crude, the map nevertheless shows the camp at an early stage in its evolution, corresponding excellently with the 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 Steuben was speaking of the Star Redoubt and a redoubt on the far left of the outer line, the only redoubts appearing on the Galloway Spy Map. (See Chapter IV section of Fortifications for a further discussion.) The Star Redoubt is represented as a hexagon, and outer - and inner-line huttings are roughly dotted in. No inner-line works appear, in accordance with Steuben's March 5 report. A notation on the map states that the redoubt on far left of the outer 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 staked out on the ground, as was customary practice.

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."⁹ Presumably it was executed before the British evacuation of Philadelphia, but after the Galloway Spy

Map, as the later state of the defenses indicate. The poor perception of the relationship between Sullivan's Bridge, the roads leading to it, the star redoubt, and David Stephens' house suggest that the spy had limited or no acquaintance with that portion of camp, but simply rode through the center. The redoubt known as Fort Washington and the inner-line defenses are in place, thus definitively post-dating it to the Galloway map. The only Brigade located is the Carolina (McIntosh's) Brigade, and Parker describes the abatis before the inner line as "deep brush 20 yards in front" (presumably of the huts).¹⁰

Davis-Armstrong-Sparks Map.

In 1833 Jared Sparks apparently requested John Armstrong, Jr. to help him ascertain the layout of the encampment, and Armstrong responded by procuring for him a map drawn up by William Davis, said to have lived in the encampment during the Army's tenure there, as attested by Mr. Wayne, son of the General.¹¹ The map locates a number of the officers' quarters on the southern periphery of the encampment, including Knox's, Stirling's, Lafayette's, Duportail's, Wayne's, DeKalb's, and Muhlenberg's, and places the troops in accordance with the Duportail plan and its variants. Poor's Brigade on the outer line, is, however, omitted. This map is the only known rendering done within living memory of the encampment to specify the locations of many of the general officers' quarters south and east of camp.

Pennypacker Map.

The remaining map is an enigma which for lack of a better appellation is called the Pennypacker Map.¹² It was apparently found and purchased by Governor Pennypacker of Pennsylvania on a trip to the Netherlands, and he designated it a French Engineer's map, for reasons unknown save that he may have simply assumed the attribution due to its European provenience. The map is curious in that of all the Valley Forge maps the surrounding roads are the most carefully and professionally delineated, with milage marked between crossroads. Yet the placement of the brigades (substantially incorrect according to other sources), seems to have been an afterthought, and some are marked over roadways already inked in. The accuracy of the road network together with the high level of draughtsmanship exhibited in the map are at odds with the misplacement of the brigades, and defy explanation as yet.

The map is a conundrum, yet one highly speculative hypothesis suggests itself. In February of 1778, Washington charged surveyors Lt. Benjamin Lodge (12th Pa. Regiment) to survey the camp, and they swore this joint oath of allegiance:

We the Subscribers assisting in making out a good general Draught of the Country in the neighborhood of Camp for his Excellency General Washington: do swear on the Holy Evangelist of Almighty God that we will not keep back any Minits or Field notes relative to this business, but faithfully deliver them up as correct as possible to the person appointed by his Excellency to receive them, & that we will endeavor to the utmost of our Power to conceal our Works from the knowledge of the Enemy, or any persons whatsoever who are not authorized by the Commander in Chief for the purpose of arranging them.¹³

This map has never been located, and there is a remote possibility that it, or a copy of it, with inaccurate troop locations found its way to the Netherlands. It is the only known map of the period and of this scale showing the network of roads south and east of camp.

Some of the specific problems emerging from these cartographic efforts will be discussed under the headings of the components of the encampment.

II THE TOOLS

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 of 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 as if 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 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 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 the most rudimentary tools.

By mid-April there were still insufficient axes in Camp, as General Greene, by then Quarter Master 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 producing results. There exist two lengthy invoices for tools delivered to the Quarter Master's Stores in Camp (see Appendices A and B). The first delivery, dated May 10, includes only eleven axes and fifteen broad axes, 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 broad axes, illustrating a dramatic improvement over the previous December.⁸

Other tools which would have been necessary to 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, Quarter Master at Reading.¹⁰

The general effect of the inadequate quantities of tools available at camp when the preponderance of 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 and because of difficulty in forcing the troops and field officers to work on them.

III MILITARY STRUCTURES AND FEATURES

DWELLING HUTS

Materials and Techniques.

The regional disparity of soldiers in the Continental Army dictates a variety of building techniques being brought to bear on hut building, even through the mandate for regularity stated in the 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.¹

Washington offered \$100 for a serviceable roof-building scheme not requiring shingles, in an open invitation to experimentation. It is clear from contemporary accounts that 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

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...}

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 an typical officer's 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 very few literate enlisted men whose letters from Valley Forge have survived, was also from Connecticut. He wrote to his parents on January 2 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 wind-swept 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 that:

...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 18th 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 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 8 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 rate throughout the spring. The entire army vacated the fetid environs on June 10 to encamp in tents near the old log encampment because of this unwholesomeness.¹³ The huts, however, were probably at first rather snug, when the weather wasn't 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 offered by Deputy Quarter Master 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 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 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 French general in his magnificent hut.¹⁵

It is clear from evidence obtainable from manuscripts that uniformity in hut building was not rigidly enforced, either in size or 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 that troops should reserve from their firewood timbers of 16 and 18 feet to use in the huts. Much has 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. Washington complained on January 6 that many huts were still roofed with tent canvas, thus threatening 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 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 outer line, with chimneys on the ends, sides, and corners of huts, which would in turn dictate a variety of interior arrangements.¹⁸ Doors in 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.

Number of Dwelling Huts.

Deputy Quarter Master Lutterloh's memorandum mentioned above gives us the best indication of how many officers' huts were contemplated. On December 27 in General Orders, it was stated that each brigade Quarter Master was to submit a return that afternoon stating the number of officers' huts which would be required for each brigade. These returns, now unfortunately lost, were forwarded to Lutterloh along with a request from Washington's secretary John Laurens that he investigate the possibility that

the neighborhood sawmills were not working up to capacity. Washington was pressing for enough boards to build a bridge across the Schuylkill near camp. In his reply Lutterloh calculated that:

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 from 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 from 800 to 900 huts for the entire encampment seems something of an underestimate. There is, however, no guarantee that all of the estimated number of officers' huts were built, particularly as so many officers applied successfully for furloughs.

Hut-Building Chronology.

It is commonly stated in popular histories of Valley Forge that the troops were in huts within a week following their arrival on December 19th, but numerous sources show 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 troops until June.

Pursuant to General Orders of December 18, 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 ground until the 20th. The first real 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 foremost therefore
Desire that no Time be lost in beginning Our Works 20

Surgeon Jonathan Todd of Huntington's Brigade had not yet begun his hut by December 25.²¹ Lord Stirling's troops were ordered to camp on the 28th so that they might begin their huts,

on which day enlisted man John Buss, probably also of Huntington's Brigade, moved into his turf-roofed dwelling.²² As late as 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...",²³ 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,²⁴ and two days later Washington, upon inspecting the encampment, was distressed to observe that numerous huts were still roofed with tent canvas.²⁵ Ensign George Ewing of the 3rd New Jersey Regiment, (Maxwell's Brigade) did not get into his hut until January 10,²⁶ whereas William Gifford, of the same Regiment claimed later that he was not under cover until the 20th.²⁷ By January 18, however, Tench Tilghman was reporting that the troops were in huts, as did Gifford on January 24.²⁸ Proof of sporadic construction in May comes from General Muhlenberg, who on May 8 requested wagons from Nathanael Greene to use for the building of "...more huts for the new recruits,"²⁹ 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 altogether and moved into tents.³⁰

After the removal of the Army from the area in its pursuit of Howe 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 needed timber and to return portions of the land to cultivation.³¹ The Barrack Master General, Isaac Melcher, inspected the encampment site in November 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 - 32

There is no indication that Congress ever acted upon Melcher's memorandum. Enos Reeves, Adjutant of the 11th PA Regiment returned to the site in September of 1781, noting 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....³³

The encampment was permitted to moulder away, some of the structures apparently finding use as auxiliary farm buildings or even dwellings. By 1840, when 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 tenacious earthworks clung still to the unarable slopes of Mount Joy.³⁴

Spacial Allotment and Settlement Pattern.

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 outer line and before the inner line entrenchments, which one cannot help but think would pose something of a difficulty 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.³⁵

The only description of hut arrangement comes from Maxwell's Brigade, which appears to have produced model huts as well as 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 of loggs 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...³⁶

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. A more complete description of the settlement pattern for the entire camp follows the ensuing elaboration on all its known components.

Historical Significance.

The hut was the overwhelmingly 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 site. 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."³⁷ 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 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 issues 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.

CAMP HOSPITALS

There were three distinct types of military hospitals in use during the winter of 1777-1778. These were first 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 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. The hospitals at camp, with which we are here chiefly concerned, were built to house the less seriously ill and those recuperating from the massive small pox inoculation program launched by the Hospital Department in the late winter. Inoculants were expected to develop a mild, sometimes 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 use the term "brigade hospital," whereas many of the physicians refer to themselves as being attached to the "Flying Hospital." This term most probably 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.³⁸

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. Halls Compy, Died in his Tent....³⁹

It was not until January 9 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. 40

The overall dimensions were worked out by January 13th 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. 41

Poor's Brigade started specifying 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. 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.⁴²

General Orders of January 15th directed the Quarter Master General to supply straw for the sick, "...when they are removed to hutts assign'd for hospitals...."⁴³ Presumably the huts received heavy use during February and March, for by March 22 between 3,000 and 4,000 troops had received inoculants for smallpox by the hospital surgeons. Most of the inoculations seem to have been from New England, presumably placing the hospitals of Poor's, Huntington's, Varnum's, Learned's, Patterson's, and Glover's brigades in constant use.⁴⁴ 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 1778.⁴⁵ Colonel van Cortlandt, commanding the 2nd New York Regiment, was ordered to stay behind "...to superintend the sick on the Ground when the Army moves..."⁴⁶

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.

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.

The Clothier's Stores.

In the vicinity of camp there was a structure or complex of structures referred to towards the beginning of the encampment as the Clothier's Store, where at least 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. 47

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. A Brigade Order for Weedon's troops specified that shoes for the Virginia troops were to be found at "black Bull."⁴⁸

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 delivered to an unspecified location.⁴⁹ The

General Orders required that all tin cannisters (these were designed as substitutes for cartridge boxes) be returned to the Commissary of Military Stores.⁵⁰ No location is specified. Commissary's Stalls, Stores and Slaughter Pens.

The Commissary of Issues was responsible for distributing rations to the troops. At an unspecified location in camp they built "Commissaries Stalls," which may have housed livestock prior to 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."⁵¹ 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."⁵² This points toward the 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 at camp for the storage of grains and other food that was not on the hoof. Shortly after the Army arrived an order went out from Charles Stewart, Commissary General of Issues, to Captain Greenleaf of Patterson'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 Jones' Magazine at Camp,..."⁵³ where the first of the winter's critical food shortages was apparently 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' office was at Henry Pawlings 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 18th.⁵⁴

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.⁵⁵

PROVOST GUARD AND GUARD HOUSES

On General Duportail's plan , along the road which was 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 court martials had been summoned. The Provost Guard, apparently a stone barn pressed into service, was beginning to assume the character of military prisons at their 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 stating that "Great numbers of Prisoners are now in the Provost suffering severely from the severity of the season."⁵⁶ One is left to imagine what the unheated and overcharged barn was like. Conditions can hardly have improved when on January 3 one John McClure, apparently a civilian under arrest for illegal hawking in camp, was tried and released because of the "suffering in the Provost"⁵⁷ 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 Quarter Master 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..."⁵⁸ 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 dead drunk in the (presumably brigade) guard house while his prisoners cavorted and played ball outside.⁵⁹

Another structure is referred to in General Orders as a guard house, although it was actually more of a check point on the west bank of the Schuylkill at Sullivan's Bridge. Troops were apparently making nocturnal forays over the bridge without proper authorization, resulting in a General Order of February 23 requiring the Quarter Master General to construct "A Guard House at ye new Bridge over Schuylkill...to be Immediately built on this Side."⁶⁰

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

SUTLERS' BOOTHS

Civilian sutlers were apparently 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...."⁶¹ The implication is that these stalls may have been semi-permanent structures housing those who dispensed spirits supplementing the ration to the soldiery.

ARTIFICERS HUTS

Although a good deal is known of the artificers, those skilled artisans who kept the army going by repairing wagons, artillery, carriages, sadlery, and building barrels, et al., 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.⁶² No other reliable references to their location have been discovered.

FORTIFICATIONS

Washington took the threat of a British attack on his cantonment at Valley Forge with utmost seriousness. 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 former became increasingly important in April and May. Although Washington never stated this motive, fortification fatigue work may also have served as a passtime for 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.

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, being 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..."⁶³

This was one operation at camp which presumably was not impeded by lack of proper tools, for Mark Bird's shipment of 500 picks, 1,000 spades, and 1,000 shovels had arrived at the end of December.⁶⁴ 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 Alexander McDougall: "His Excellency has been in Expectation of an Attack, in Consequence we have begun to fortify the Camp..."⁶⁵

When 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 complete critique of the works on March 5. At that time, two incomplete redoubts were underway on the left of the encampment and the outer line entrenchments were not finished. The inner-line entrenchments were begun but no redoubts were yet being raised in that sector. No mention is specifically made of a "star" 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 quite clear the the two redoubts to which Steuben referred were the star redoubt, on the left near Sullivan's Bridge, and the redoubt on the far left of the outer line, referred to on the map as not yet begun.⁶⁶

Work progressed so lethargically that Washington decided on a formal division of labor on March 27th, calling for a meeting

of the Brigadiers whose troops occupied the inner 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."⁶⁷ The outer 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..."⁶⁸

The redoubts and obstacles received a flurry of attention in mid-April, as incoming intelligence brought fears of British assaults flaring up anew. Apparently at this time there was a raging controversy over the usefulness of redoubts in strengthening the linear defenses. In a report dated April 7, 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 only two of the redoubts were in progress:

It is by no means doubtful that the addition of a few Redouts will increase the strength of 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. 69

Until mid-April, judging from Duportail's comments, only two of the redoubts were nearing completion, and the entrenchments, probably those of the inner line, were as yet unfinished. On the 13th, twelve wagons were ordered to parade before Woodford's Brigade "...in order to draw in Sods to the Redoubts."⁷⁰ A memorandum from Duportail of the same date cryptically mentions a controversy over where the redoubt on Mount Joy should be placed. This redoubt, obviously not begun as yet, is very probably what we refer to as Fort Washington.⁷¹ On the fourteenth, redoubt-fever seems to have taken hold, with Washington's Secretary John Laurens dashing off a request to Assistant Quarter Master General Charles Pettit for cord to lay out the work.

"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..."⁷² Laurens needed 200 fathoms, or 1200 feet, of this very 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:

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...⁷³

At the same time Lord Stirling, charged with overseeing the works, found a cache of rails from the 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 inner-line defenses.⁷⁴ 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 of "Redoubt No. 4", complained to Stirling that wagons he had requested had not yet arrived, it being 11 AM and his men were sitting idle at the site.⁷⁵ This missive, in which North makes 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 star redoubt and one of the works on the

far left of the outer line were already underway, and as Duportail had been considering the proper positioning of Fort Washington from early April, it is very likely that this "Redoubt No. 4" is what we refer to as Fort Huntington.

Work continued well into May, when on the 9th Washington reported that three engineers were still quite busy overseeing the constructions.⁷⁶ He was profoundly displeased, however, now that the ground had thawed, with the "languid Progress"⁷⁷ of the works, and he generally chastised those officers responsible in General Orders of May 9. Lord Stirling must have shot back an aggrieved reply, provoking 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 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. 78

By April 26 the inner line was "...Picketted from end to end..."⁷⁹ 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 inner line suggest that it was probably the latter. The Parker spy map designates brush twenty yards before the inner 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..."⁸⁰

Another brigade order for Conway's 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 were ordered to parade before Conway's Brigade "... where the Engineer will attend to shew the Work..."⁸¹ This project, to be overseen by Col. Febiger, may have been a continuation of the work on Redoubt No. 4 (Fort Huntington?) mentioned earlier. The work was apparently still not completed by May 22, when troops from Paterson's, Weedon's, and Learned's Brigades were ordered to work on it until finished.⁸² This unspecified work before Conway's Brigade, however, could have related to the entrenchments or the construction of redans, although the unusual 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 outer line. It appears only on the Pennypacker map, which is incorrect in several instances, but it is also mentioned by Henry Woodman as having survived long after the encampment.⁸³ This may be the work reconstructed as Fort Greene, but probably it was a work closer to the river. No mention of work on this feature has been located to date.

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

1. Star Redoubt - probably the earliest work.
2. First redoubt on the outer line ("Fort Muhlenberg") - begun before March 5, but later than the Star Redoubt.
3. Redoubt on Mount Joy ("Fort Washington") - begun after April 13.
4. Redoubt No. 4 ("Fort Huntington"?) - begun around May 2 and perhaps not completed until about May 22.
5. Second redoubt on the outer line (reconstructed as "Fort Greene" ?) - date unknown but because of lack of cartographic evidence probably begun late in the encampment period.

Entrenchments.

The most detailed description of Valley Forge entrenchments came from the British officer Thomas Anburey, who published his Travels Through the Interior Parts of North America in 1789.

This document, published as a series of letters from an officer of Burgoyne's Army on his way to internment in Virginia, seems to have been heavily revised prior to publication. He nevertheless probably observed, or heard tell of, the Valley Forge encampment 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 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. 84

Auburey 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."⁸⁵ 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 it would benefit the works to "strengthen the profiles."⁸⁶

The entrenchments were begun in January, and stretched continuously along the outer line by June. The outer line entrenchments were almost entirely leveled subsequent to the encampment by plowing, a fate spared those of the inner line on account of the unarable terrain. Portions of the inner line entrenchments are still clearly visible. Archaeological investigations should be able to disclose the location on the outer line entrenchments.⁸⁷

Redoubts.

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

This consideration will use the names of redoubts which are currently in use, but will refer back to the chronology section.

"Fort Greene":

This fort was known early in the century as Fort John Moore. On the site today is a four-sided redoubt reconstructed in 1948 on the basis of aerial photography and archaeological investigation on the original site of the fortification. A United States Airforce aerial survey disclosed an anomaly closely corresponding to a diamond-shaped earthwork, and archaeological testing of the site revealed the ditch to the redoubt. It was reconstructed in a design similar to that of Fort Washington, on its original site.⁸⁷

In Steuben's March 5th report he recommends building "...a small work on a Height more towards Schuylkill..."⁸⁸ and it is possible, although far from certain, that this is the work. As it is not located on the Duportail map or any of its variants, but does appear on the undated Pennypacker map, it would seem that this work was begun quite late in the encampment. No contemporary descriptions have been discovered. Henry Woodman remembered seeing the redoubt on the land owned by John Moore.⁸⁹

"Fort Muhlenberg":

This fortification was reconstructed in 1940, without recourse to archaeological investigation. It was built along the general lines of Fort Washington, but the precise location of the original redoubt which it is intended to duplicate is not

known, beyond its general situation on land owned by Mordecai Moore at the time of the encampment.⁹⁰ The Duportail map shows one redoubt on the far left of the outer-line, and the reconstruction possibly represents that work. The original redoubt is one of two which Steuben encountered when he inspected the fortifications on or before March 5. The work he viewed must have been on the south slope of the outer line, as he saw a need for one which would command the area between the outer line and the Schuylkill. The Galloway spy map, forwarded to Lord Dartmouth on March 24, shows a redoubt on the outer line but states that it is not yet begun. In Steuben's report it is also referred to as incomplete.⁹¹

"Fort Washington"

This fortification is in situ, having been reconstructed in 1915 upon its own remnants. It was, and remains, the best preserved fortification at Valley Forge, commanding a large expanse of ground to the south and east.⁹²

Steuben suggests building a redoubt in this 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..."⁹³

The need for a redoubt in this sector seems to have been quite apparent to the officers, but the precise placement of the redoubt became a matter of contention. Duportail inspected the

ground at least twice, and was opposed to 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 lining the declivities of the hillside would be a much better expedient. At some time following this report, the redoubt was built.⁹⁴

"Fort Huntington"

Like Fort Washington, the redoubt is in situ, having been reconstructed in 1915 on its own remains. Both this work and Fort Washington 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.⁹⁵ As indicated above in the chronology section, this may have been the work which Colonel North referred to as Redoubt No. 4.

"Star Redoubt"

The star redoubt was reconstructed in 1916 on ground traditionally held to have been its original site, without recourse to archaeological investigation.⁹⁶ 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 original location appears to have been altered. If one views the encampment from the west, or

rear, boundary as formed by Valley Creek, than the star redoubt becomes one of the works 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. 97

It is clear that Steuben is not referring to the second, later redoubt constructed on the outer 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 the star redoubt is still open to question; on the Duportail map 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 Steuben report, have been found.⁹⁸

Examination of the best preserved works, Forts Washington and Huntington, 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 star redoubt. A redoubt shown on the Parker spy map, which could be either the star redoubt or Fort Huntington, (probably the latter), refers to it as housing two guns and a magazine.⁹⁹ Forts Washington and Huntington were well positioned on commanding eminences with extensive fields of fire, Fort Washington being particularly difficult to approach.

Redans.

Two "redans," probably artillery emplacements or rifle pits, are still in evidence within the park, one to the left of Fort Huntington and one above Fort Washington on Mount Joy. No contemporary references have been found to these small, arrow-shaped works, but one appears before the inner-line on the Duportail map. More may have been constructed along both lines of defense later in the encampment period.¹⁰⁰

Obstacles.

Contemporary documentary evidence conclusively proves the existence of abatis before the inner 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 quite different. George Ewing spoke of pickets before the entire inner line in April, 1778,¹⁰¹ and Brigade Orders for Conway's Brigade (15 March 1778) required that offal be taken "...a Proper Distance between the Hutts & Abittees & Either Burried or Burn'd."¹⁰²

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

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. 103

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 inner line.¹⁰⁴

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

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 14th, before some of the redoubts were even begun, Sir William Howe wrote to Lord Germain that the American positions were too strong to attack with a clear chance of success.¹⁰⁵ 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 Amburey's description is to be believed and the works were but paper defenses, it should be remembered that Washington placed a great deal of importance on them. The inner line, despite the overextension of the outer line, comprised a formidable position indeed.

EXCAVATED FEATURES

General Washington rode through camp about mid-April and was appalled by the stench that assailed his nostrils. The 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 cleaning up the camp, but the brigades may have been rather lax in attending to them.

Offal Pits.

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

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. 106

It was not until a month later, however, that brigade orders for Conway's Brigade began to press the regimental Quarter Masters to see to the unpleasant problem. The 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. 107

When the Army vacated the old encampment and moved into tents in June it left the old camp 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 Pitts and burying all kinds of Garbage and Carrion that remain. 108

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, when 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.)

Vaults.

Privies, referred to most frequently in orders as "vaults" or "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 intolerable, owing to the want of Necessaries of the Neglect of them..."¹⁰⁹ In May they were still uncovered and Washington ordered that some sort of structure be erected over and around them.¹¹⁰ (These features should also prove archaeologically valuable, as privies are almost invariably rich in artifacts and botanical samples.)

SPECIAL USE AREAS

Parades.

This expansive tract of clear ground roughly in the center of the encampment is held to have been the Grand Parade, and it appears to be the only suitable piece of terrain for drilling massed brigades. During May, brigades drilled under 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, 1778.¹¹¹

Parade areas also had grimmer associations, as they were the stages upon which the corporal punishments meted out by courts martial were carried out. Brigades and divisions 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.¹¹² A paraded division certainly required the space of the Grand Parade. Capital punishments very 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 Brigade.¹¹³

Certainly some, and probably all brigades had individual parade grounds, as the men were paraded by regiment each morning, 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.¹¹⁴ Brigades on the inner line, as well as Varnum's and McIntosh's, may have used the Grand Parade as their brigade parades. Troops on the outer line may have paraded before or behind their works, as space permitted.

Continental Horse Yard.

Receipts for horses requisitioned by officers are frequently docketed "Continental Horse Yard" during April and May. The location of this area is not precisely known, although it is thought to have been on the road to Moore Hall or just beyond. The only possible reference to the horse yard location known to date is in the General Order of 18 January 1778. In organizing horses and wagons for supply Washington directed that:

"...all private Waggons 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 Adjud.t Gen.ls Office...." 115

The Adjutant General's office was at or near the "Mansion House," later restored as the Camp Hospital and conjecturally designated as Steuben's quarters. The horse yard, if this was the field referred to above, was probably between this ediface and Moore Hall.

Grave Sites.

Traditional grave sites are located at the westernmost extremity of the outer line, and north of the Pennsylvania Brigades' portion of the line, both of which are currently marked.

No contemporaneous documentation concerning these sites has been found, nor have any specific contemporary references to burials within the perimeter of the camp been discovered.

Markets.

One month into the encampment it was decided to invite local farmers to vend their produce and foodstuffs to the army to supplement strained supplies of rations. The brigadiers met at Sullivan's quarters on January 21 to decide upon proper locations and set regulations governing the markets. The officers met again on the 24th, and Washington duly sent out the price lists and regulations on January 30. They were published in the Pennsylvania Packet on February 4. The markets were opened on February 8,¹¹⁶ three alternating locations having been selected.

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. 117

In mid-March the market on the north side of Sullivan's Bridge was moved across the river into camp, perhaps to stem the flow of traffic across the bridge.¹¹⁸

The markets were probably designed with dual purposes; to supply troops with fresh food, supplementing the scant rations and preventing the outbreak of scurvy; and to supply 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.¹¹⁹

Picket Posts.

It is reasonable to assume that Washington ringed his army with pickets and guards, but only two precise locations have been located in contemporary manuscripts. Regulations pertaining to pickets and guards were plentiful enough. On December 22 it was ordered that men going on picket duty were to take the necessary rations with them, as they would not be permitted to return during the period when they mounted guard. Guards were not to remain on duty for more than forty-eight hours, and the penalty for deserting one's post was death by hanging.¹²⁰

One picket post was located 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..."¹²¹

LOGISTICAL FEATURES

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 location 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. The 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 of the river. Fatland Ford, the traditional crossing place just downstream from the 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 John Sullivan was assigned the task of building it and was given priority access to axmen, tools and timber.¹²²

Location.

The bridge's proximity to Fatland Ford is well established. Duportail's plan places it just 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 clearly discernable 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 perfectly fordable in mid-summer. This is Fatland Ford, and downstream from it, near the back channel outlet, is a stony-bottomed stretch which is the approximate site of the rock-filled piers of the bridge.¹²³

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 riverboatmen 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 still 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 a partially destroyed inscription:¹²⁴

 PENCER

 RIDGE

177

Somehow the bridge came to be called "Spencer's Bridge," probably after the temporary commander of Conway's Brigade, General Joseph Spencer.

Chronology.

Bridge construction was getting under way by December 26, 1777, when a box of tools "...Containing the following Articles for building a Bridge..."¹²⁵ was received by an aide to General Sullivan at Fatland Ford. All of the following items, with the exception of the listed cooper's tools, were in the box:¹²⁶

	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 the 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 apparently 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 was definitely finished and operative by the end of March, when an aide to General Duportail, Captain 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.¹²⁷

Sullivan's bridge lasted through the summer of 1778, but by November 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 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 "...for the Works down the river...,"¹²⁸ very likely the chevaux de frises for the new defenses of Philadelphia undertaken by the Council.¹²⁹

In order to speed the 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 throughout the camp. The construction of the bridge apparently required specialized talents,

for a letter of February 13 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.¹³⁰

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."¹³¹ 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 towards the end of 1778 provide 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 located 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.¹³²

In November, General Sullivan was queried by the Pennsylvania Assembly as to how to shore up the bridge, and 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. 133

This was a sanguine estimate, for 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.¹³⁴

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 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."¹³⁵

Roads in Camp.

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 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 alignment 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,¹³⁶ it appears that three roads were applied for and created through the future encampment area between 1725 and 1761.¹³⁷ All other roads within the area of camp now incorporated within the National Park were apparently farm and military traces created 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. The main axes were the so called "Baptist Road" passing through Fatland Ford (1736), and the two roads roughly in a parallel manner to the river, one to Swedesford Road via Jenkins Mill (1761) and another one to Swedesford Road from Valley Forge (1725).¹³⁸ Several rough tracks crossed the terrain, including those built for approaches to Sullivan's Bridge and a track to the general vicinity of the outer line, as indicated on the Duportail map. Steuben's 5 March 1778 report implies that this was barely passable and hardly useful for military purposes.¹³⁹

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 and pass thro' and said river at the usual ford made use of..."¹⁴⁰ 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 create a passage from the Valley Creek to the Philadelphia Road.¹⁴¹

The next adjacent fords across the Schuylkill were Gordon's Ford (Phoenixville), and Swedesford (Norristown).

IV CIVILIAN STRUCTURES AND FEATURES

DWELLINGS AND AGRICULTURAL STRUCTURES

Structural analysis of a permanent edifices within the Park being the more proper precinct of the architectural historians, the following discussion will be confined chiefly to cartographic inferences, documentary evidence, and general observations concerning the encampment period uses of the structures. The following is a partial list of dwellings traditionally thought to have been used as officers' quarters during the encampment. (N.B.: Only structures currently part of Valley Forge National Historical Park are listed below.)

1. Washington's Headquarters (Potts House). Attribution as Washington's Quarters is not absolutely certain, but reasonably so; the current structure is heavily restored.
2. Varnum's Quarters (David Stephens House). Attribution is reasonably certain; the building is completely reconstructed, save for stone walls and second-floor construction.
3. Huntington's Quarters (Marice Stephens House). The original log structure not extant; the approximate location is known.
4. Stirling's Quarters (William Currie House). Attribution is certain; the building is heavily restored.

5. Maxwell's Quarters (John Brown House). The original structure is incorporated in present building.
6. Knox's Quarters (Samuel Brown House). The original structure has been heavily and inexpertly altered in the name of restoration.
7. Steuben's Quarters. There is no provable relationship between the Baron von Steuben and the quarters so designated, and substantial contrary evidence exists. The first floor east door, fireplace wall cabinet work, as well as much of the stonework are eighteenth century.
8. Morgan's Quarters (Mordecai Moore House). The original structure may in part be incorporated in the extant building.
9. Lafayette's Quarters (Samuel Havard House). The original structure is incorporated in the extant building.

The remaining structure within the park related to the encampment period is the so-called Bake House, and the current structure contains original fabric.

General Observations

Discussion of the attributions of the general officers quarters is of bi-level complexity and involves first establishing that the remaining structure is the same building extant during the encampment, and secondly determining whether the said general was indeed housed in the structure to which his name has been attached by tradition. Conclusive attributions for structures within the park are disconcertingly scarce and remain inferential.

They include:

1. George Washington - Isaac Potts House
2. James Mitchell Varnum - David Stephens House
3. Lord Stirling - William Currie House

Other locations, such as the site of Huntington's Quarters, are known, but the original structures either no longer exist or have been substantially altered. Most additions to houses reputed to have been officers' quarters were done in the late nineteenth or twentieth centuries. They were generally accomplished at considerable cost, and with particular attention to integrating the additions with the original fabric. Consequently it is not always possible to discern immediately the extent of the remodeling. Nineteenth century photographs of the structures, including many in the Valley Forge National Historical Park Library, indicate the drastic alterations perpetrated on nearly all of the officers' quarters now within the boundaries of the park.

Known architectural renderings of the remodeling efforts are not particularly revealing. John Dodd, Historical Architect, has examined some of the drawings made by R. Brognard Okie, who worked on several of the structures, but they do not reveal the existing conditions which Okie found. The situation has been further muddled by the tradition of naming a building for a general known to have quartered at or near the site, as in the case of "Huntington's Quarters."

It was customary, indeed expected, that general officers in the field would be quartered as comfortably as possible, regardless of the hardships suffered by the troops under their command. Most of the generals and doubtless some of the lower-ranking officers at Valley Forge found comfortable housing from the

beginning of the encampment. Most general officers were clustered south of camp, where there was an abundance of farm dwellings allowing them to quarter within a short distance of their troops. None were quartered north of the Schuylkill, where they might have been separated from the army by high water before the completion of Sullivan's Bridge, although Quarter Master's Department officials and other functionaries found housing north and west of camp. Steuben and de Kalb may have spent part of the period in a log structure, and Huntington may have resided in similarly primitive circumstances throughout the encampment period. Most of the information pertaining to the quartering of general officers consists of traditional attributions, with a few marked exceptions provided chiefly by cartographic evidence.

Washington's Headquarters (The Potts-Hewes House).

Cartographic evidence.

1. Duportail map c. 1778, and variants,
2. Parker Spy map, 1778,
3. Galloway Spy map, 1778, and
4. Davis-Armstrong-Sparks map, 1833.

Duportail clearly delineates a structure with a wing (perhaps the kitchen) on his plan for the encampment as "quartiers generales". The map show four other structures between headquarters and the Valley Creek ford, two of which appear to be associated with a raceway. As the Potts property incorporated not only a forge but a grist and sawmill, it is possible that these structures

could represent either of the two latter enterprises. All known variants of the Duportail map show the same structure as Washington's Headquarters, and both spy maps and the Davis-Armstrong-Sparks map show headquarters to be in the same location. Headquarters are not shown on the Pennypacker map.

Documentary Evidence.

The most revealing 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.¹ 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 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, 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. 2

Boudinot goes on to say the Lee repaid Washington's courtesy by that night sneaking "...a miserable dirty hussy..."³ into his room by means of a back door. Boudinot wrote his journal a 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 the facts that Martha Washington had 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 delegates and military personages would be feted there, presumably in the log dining pavilion, and such petitioners as the wives of the Quakers exiled to Virginia were received and heard.⁴ The location of headquarters was certainly no secret to the British, whose spies managed to ride with relative ease through camp.⁵

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. 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 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, so designated today.⁶ (The two-story part has been restored repeatedly, and the kitchen wing is entirely reconstructed.)

Varnum's Quarters (David Stephens House)

Cartographic evidence.

1. Duportail map, c. 1778,
2. Parket Spy map, 1778,
3. Davis-Armstrong-Sparks map, 1833, and
4. Pennypacker map.

The Stephens house was a definite landmark to those who applied their cartographic talents to the encampment; it is labeled on the Pennypacker map as "Gen. Varnum's Quarters," on the Spy map as "D. Stephens".

Documentary evidence.

Letters of James Mitchell Varnum from this period are particularly scarce, and none located to date refer to his living accommodations. As he inhabited one of the few stone dwellings within the nucleus of the encampment, it was common for groups of officers to meet there to decide on such things as the proper exchange of rawhide for shoes.⁷

The location of Varnum's Brigade, as indicated on the Davis-Armstrong-Sparks map, is just east of Varnum's quarters on the road between Valley Forge and Jenkins' Mill, and Varnum was thereby situated quite close to the troops under his command. There appears to have been an effort to quarter the generals as near to their brigade encampments as accommodations and circumstances would permit.

Because of the prominence of the David Stephens house as a landmark on period maps it is presumed that a permanent, probably stone, structure existed at the time of the encampment. This structure was substantially added to over time, as indicated in a ca. 1900 photograph by L. A. Sampson of Berwyn, Pa., which shows at least two subsequent additions. The house was then subjected to two separate restorations, one in 1935 and a later one by National Heritage Corporation, resulting in the structure visible today.⁸

Because the structure is designated "D. Stephens" on the Parker Spy map and "Gen. Varnum's Quarters" on the Pennypacker map, it is reasonable to assume that the David Stephens house was indeed Varnum's quarters. As Philadelphia county deeds indicate no other dwelling structure on the David Stephens tract, it is also reasonable to assume that the heavily reconstructed structure extant today may incorporate some fabric dating to the Revolutionary period. (This is principally stonework and second-floor construction.)
Huntington's Quarters (Maurice Stephens House).

Cartographic Evidence.

Davis-Armstrong-Sparks map, 1833.

A dwelling labeled "Gen. Huntington's Quarters" appears in the locale of the Maurice Stephens property. No evidence exists from either the Duportail map or its variants.

Documentary Evidence.

Zachariah Davis was tenant of the Maurice Stephens property during the encampment period, and would have been the lessor to

General Huntington. 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. It is likely that Huntington inhabited the log house, as a milk house due to the necessity for coolness is clearly untenable. The present structure, designated improperly as Huntington's quarters, was built in 1816, as indicated both by the presence of a dated stone slab ("1816") on the east gable end and a corresponding jump in tax assessment for the year 1816.⁹

No contemporary evidence relating to 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. Huntington did not describe his quarters in extant letters.¹⁰

Stirling's Quarters (William Currie House).

Cartographic Evidence.

1. Parker spy map,
2. Davis-Armstrong-Sparks map, and
3. Pennypacker map.

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.

Documentary Evidence.

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" in order to distinguish it from another property which he bought in 1751.¹¹ Lord Stirling does not refer to his quarters in any but the most cursory sense in his correspondence located to date.

Attribution of the William Currie house as Stirling's quarters depends exclusively at this juncture upon cartographic evidence and tradition. Stirling's quarters was adaptively restored and added to in 1927 by the most recent owners, Robert C. and Frances H. Liggett.

Maxwell's Quarters (John Brown House)

Cartographic Evidence.

None.

Documentary Evidence.

Traditionally the John Brown, Jr. dwelling was referred to as the quarters of General 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.¹² Architectural historians John and Cherry Dodd report:

The southerly three bays (including the stair hall) of the dominant wing for the original structure; the plan is typical of the period and recently uncovered pit-sawn joists and hand-hewn summer beam are quite probably contemporary with the period also. The present house, however, is the result of 1913 additions and alterations superimposed on a ca. 1880 addition and alteration. It is the work of the local eclectic architect R. Brognard Okie, for Senator Philander C. Knox (also one time U. S. Attorney General and Secretary of State).

Knox's Quarters (Samuel Brown House).

Cartographic Evidence.

Davis-Arsmtrong-Sparks map, 1833.

The above map designates a structure in the approximate location of the Samuel Brown house as Knox's quarters.

Documentary Evidence.

According to Chester County deeds, Samuel Brown, yeoman, owned a property in this vicinity between 1774 and 1783. It is not known if any fabric within the current structure can be definitely said to date from the Revolutionary period.¹³

Knox is known to have led one of the more active social lives of the Generals at camp. Mrs. Knox arrived late in the encampment period, but she stayed in Knox's hut at the center of the Artillery Park, where it is possible that Knox was living also.¹⁴ The oldest section of the house was injudiciously restored in 1975.

Steuben's Quarters.

The problem of the attribution of "Steuben's Quarters" is emblematic of the sort of confusion which to a greater or lesser extent attends efforts to document solidly the precise encampment

period functions of any of the extant dwellings. The case of "Steuben's Quarters" however, contains the added fillip of political controversy and legislative interference.

In the mid-1960s a controversy developed among local historians concerning the attribution of Steuben's quarters to a building known early in the century as the "Mansion House," a structure within the hamlet of Valley Forge which, although sporting considerable Victorian detail exteriorly, nevertheless contained some eighteenth-century fabric. The structure had partially burned and was being restored by the Park Commission as the Camp Hospital, when Edward Pinkowski, author of Washington's Officers Slept Here, began to garner publicity for his effort to have the structure designated as Steuben's quarters. He based his assertion on the diary of Steuben's aide, Pierre Duponceau, in which appears the entry, "Le Lundi 20 Change Logement pres caux de l'Adjudant Genl. chez un nomme Jimmy White."¹⁵ From this Pinkowski deduced that Steuben had quartered at the Adjutant General's quarters, traditionally the Mansion House and shown on the very rough maps to be west of Valley Creek. What the diary actually says is "Monday the 20th changed quarters to a place near the Adjutant General's at the house of one Jimmy White." The White house is shown on one period map, the Parker spy map, which although admittedly rough, appears to place it further west than the Mansion House and much closer to the river. A tabled resolution of the Pennsylvania House of Representatives

of 1965 asserted that the Mansion House was the Jimmy White residence, while another unconfirmed source states that the White house was destroyed with the construction of the Reading Railroad in 1840.¹⁶ The argument, than, hangs on two crucial questions. How is Duponceau's statement to be accurately translated, and is the Mansion House structure the same as the residence of Jimmy White?

The translation of the Duponceau statement hinges on the phrase "pres caux," which is no longer in current usage. It is very likely a form of pres ceux, meaning "near those." Chester County deeds at the Chester County Court House do not describe structures on the James White property.¹⁷ Although the House Resolution implied the confirmation of the identification of the Mansion House as the home of Jimmy White, it offers no documentation or proof. (Chester County Archives have been closed for the past two years due to the refurbishing of the Chester County Historical Society, and tax record searches will be undertaken on the Mansion House and the Jimmy White property as soon as the archives reopen.)

It is the opinion of John Reed, author of Valley Forge: Crucible of Victory, that the Mansion House, now designated as Steuben's Quarters, was really the Adjutant General's quarters referred to in the Duponceau Diary.¹⁸ Although this seems to be the most likely hypothesis due to the fact that the Duponceau "maps" show this office to be in the vicinity of Valley Creek, this attribution has not been definitely confirmed.

In 1965 the adherents to the scheme to designate the ex-Mansion House as Steuben's Quarters managed to have a resolution to that effect introduced by the Pennsylvania State House of Representatives, largely it appears, on the basis of an admonition that German-Americans would be mightily displeased if a structure within the park did not bear an identification with Steuben. Representative Brugger of Montgomery County argued persuasively that it was incorrect to attempt to legislate history on the basis of inconclusive evidence, and succeeded in having the resolution tabled. The resolution stated, however, that the structure should bear the dual identification as "Adjutant General's and Steuben's Quarters", but apparently the Park Commission saw fit to ignore the former association.¹⁹

Beyond the Duponceau sketches, which can hardly be dignified with the term "maps," there is not cartographic evidence for the location of Steuben's quarters. Documentary evidence other than the Duponceau diary has not been located.

Morgan's Quarters (Mordecai Moore House)

Cartographic Evidence.

None.

Documentary Evidence.

No contemporary references to Morgan's quarters have been located. Woodward claims that Morgan and Walter Stewart were quartered in the Abijah Stephens house, which was also definitely known to have been the quarters of the Baron de Kalb during the latter part of

the encampment. Pinkowski designates the Mordecai Moore house as having been Morgan's Quarters, as well as the Commissary's Office, but cites no documentary source.²⁰

Lafayette's Quarters (Samuel Havard House) .

Cartographic evidence.

Davis-Armstrong-Sparks map, 1933.

On this map Lafayette's quarters are shown as bordering Valley Creek in the approximate location of the Samuel Havard House, but no earlier cartographic evidence has been encountered.

Documentary evidence.

A statement by the Marquis de Lafayette, which has appeared in an ambiguous translation, has often been taken to be a scathing comment on his own modest living quarters. He has been quoted as describing his quarters as "...scarcely more cheerful than dungeons..."²¹ when in actuality his statement, penned to his wife in the midst of the winter, described the barracks of the soldiers. He apparently left no description which dealt specifically with his own accommodations. If a portion of the current structure dates to the period, it has been graced with added windows serving to dissipate the gloom. Lafayette's quarters were apparently never a hub of activity as were Headquarters and Varnum's, doubtless due to its location on the far west of the encampment nucleus.

The portion of the extant structure known as the "Lafayette" section dates to the Revolutionary period.

The Bakehouse (The Potts-Dewees, or Ironmaster's House)

The "Bakehouse" still presents unsolved historical and architectural problems, but the general outline of its history has emerged. It should be noted, however, that some of the following statements are based on tradition and inference.

The house was probably constructed about the same time as the Valley Forge (1743) by Daniel Walker, who founded the forge with Stephen Evans. The land passed next to John Potts, probably in 1757. Deeds of Philadelphia County, which then encompassed this district, show the following property descent:²²

John Potts, Sr. to John Potts, Jr., 24 March 1768

John Potts, Jr., to Joseph Potts, 20 May 1768

Tradition has it that William Dewees, who married John Potts' niece Sarah, became part-owner of the Forge, but no record of deed transferal has been located. In September of 1773, however, Joseph Potts transferred one-half interest in the acreage and forge to his brother David, and undocumented sources hold that from this date on, David's family shared the house with the William Dewees family. The house may have had two kitchens, and was possibly divided as a two-family dwelling. William Dewees was commissioned an officer in the Pennsylvania Militia early in the Revolution, and apparently the house was vacant at the time the British destroyed the forge and ransacked the property in September of 1777.²³

Unconfirmed sources indicate that the house was being used to bake bread for the Continental Army prior to the Valley Forge

encampment and that it became the residence of Washington's "Baker General", Christopher Ludwick, (or Ludwig). William Dewees, who appealed to Washington early in the encampment period to help him conserve his property, was financially ruined by the combined British and American depredations. Following the war, David Potts reestablished the forge, using the dwelling house for his residence, remaining in operation from at least 1789 to 1798, as indicated by Upper Merion Township Tax Lists.²⁴

During the encampment period the "Bakehouse" was used for courts martial, and was the auditorium for theatrical productions staged by officers in May, 1778. It presumably continued functioning as a bakery throughout the period. (Certainly not all bread consumed by the Continental Army in camp, however, was made here.)²⁵ Letters of William Bradford, Deputy Commissary General of Musters, supply an account of the production, presumably hilarious, of Addison's Cato by officer corps thespians.²⁶ In interpreting the "Bakehouse" we are presuming, on the basis of tradition, that the structure now so known is indeed the same building referred to as the "Bakehouse" in period documents. The case, however, is far from iron-clad, as no period descriptions of the building have as yet been found. In 1854 the "bakehouse" sprouted a two story porch and Italianate tower. The building was reconstructed in 1951 in an attempt to return it to a colonial appearance. Any hope of accuracy was sacrificed by the inclusion of a porch, cellar ovens, and the large chimney added to the west

end, the latter two additions occurring in 1963. Its current guise does not reflect the fact that it may have been a two-family house before the Revolution.²⁷

Concluding Observations.

With the exception of those quarters which repeatedly served administrative functions, such as Varnum's, general officers' quarters were chiefly locations in which to sleep, eat, conduct brigade business, stow belongings, and occasionally receive fellow officers. Varnum's, Maxwell's, and Sullivan's quarters (no longer extant) appear in General Orders as locations for meetings of the general officers and brigade commanders. Brigadiers were generally located on the southern periphery of the camp nucleus, and appear to have been quartered as near to their commands as circumstances would permit. Most of those buildings which now bear associations with Brigadier Generals no longer preserve semblances to the humble farm structures extant in the eighteenth century, which have generally been aggrandized beyond recognition. Titles and tax records for the most part offer sparse information, and not until the Direct Federal Tax of 1798, twenty years following the encampment, are dimensions and number of lights provided.

INDUSTRIAL STRUCTURES

At the beginning of the Revolution, the Valley Forge community included the forge, a gristmill, and a sawmill along Valley Creek. The original Mount Joy Forge was built in 1743 by Stephen Evans and Daniel Walker. The sawmill was in existence by 1757 or 1758, when the lands and operations were bought out by John Potts. The gristmill was in operation by 1768, when John transferred the property to John Jr., who almost immediately conveyed the forge and mills to his brother Joseph.²⁸

The forge was burnt by the British in September of 1777 and remained in a ruinous state throughout the encampment period. No mention is made of the Potts sawmill in the December 26, 1777, report of Henry Lutterloh on mills operating in the vicinity, and it too may have been burned. Grist and sawmills are specified in the tax assessment of Isaac Potts in 1783; the forge reappears on the tax assessments in 1789.²⁹

The Duportail map shows two distinct raceways, one beginning just above and extending considerably below the Valley Creek ford, and one entirely above the ford; both are on the east side of the creek. Further up Valley Creek, approximately opposite the lowest point of the saddle formed by Mount Joy, is another small complex of buildings on the west side. It is fairly plain that these represent the forge, the sawmill, and the gristmill, but no specific notations on the map enlighten us as to which structures housed those specific functions.³⁰ Historian John Reed has posited

that the structure nearest Washington's Headquarters was the gristmill and that the one farthest up Valley Creek was the forge. This would place the structure just south of the Valley Creek ford as the saw mill.

In 1921 foundations and debris were found near an old dam site just south of the nexus of the Gulph Road (Route 23) and Valley Creek and were posited to be the remnants of the New Forge built following the Revolution. Excavations during grading work along Valley Creek disclosed a circular hearth with brick remnants, charcoal, iron ore, soap stone, scrap iron, and burned earth. The new forge was apparently not used after 1816 and the area was encompassed in a textile mill built in 1820.³¹

Excavations in 1929 disclosed another forge site, just south of the New Forge, uncovering the charcoal house and other debris associated with what was presumed, perhaps incorrectly, to have been the old Valley Forge destroyed by the British.³²

Both structures are noted on a civil engineer's map made by Jacob Clark in December, 1921, and added to in June, 1930. Shown are sites of the old and new forges, the head race of the old forge, and the location of planking associated with a dam for a headrace, probably for the mill downstream, thought to have been the gristmill from reference in the Potts Family Papers (HSP Manuscript Collection).³³ Providing these inferences are correct, the Valley Forge would have been situated just south of the Valley Creek Ford; the gristmill just north, near Washington's Headquarters.

Obviously a great deal remains to be done to elucidate the precise locations of these structures at the time of the encampment. A careful consideration of deeds and the Potts family papers should provide more information.

More work must also be done with recourse to the Potts papers in order to reconstruct the agricultural-industrial community of Valley Forge and assess fully the impact of war on the fragile economy represented by the fledgling industries.

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 & 1/2 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 Clizles
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 & 1/2 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
2 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	No	56.....80
	48.....80		57.....84
	50.....80		58.....75
	51.....80		59.....75
	52.....80		60.....80
	53.....70		61.....80
	54.....80		62.....70
	55.....86		63.....80
	<hr/>		<hr/>
	707		624
No	64.....75	No	72....100
	65.....85		73.....90
	66....103		74.....90
	67.....67		75.....90
	68.....67		76.....80
	69.....66		77.....90
	70.....90		78.....86
	71.....90		79.....65
	<hr/>		<hr/>
	643		691
			707
			624
			643
			<hr/>
			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 Filling 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

APPENDIX B

List of Quarter Masters' stores received of Thomas Craig, Assistant Deputy Quarter Master, 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 & 10 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 Paters Ink powder
1 Coil Rope 44 fathom
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	}	Old Gear
44 Breech Bands		
4 Blind Bridles		
2 Cart Saddles		
7 Single Trees		
12 Double Trees		
100 Water Buckets		
3 Shingling hatchetts		

HSP
Weiss Manuscripts

APPENDIX C

THE PROBLEM OF THE ALBIGENCE WALDO DIARY

At the onset of the Valley Forge Historical Research Project, it was decided to rely exclusively on those documents that were available in manuscript form. This produced a pronounced difficulty in the case of the Albigençe Waldo diary, one of the most colorful and widely quoted first-person accounts of the American Revolution. Unfortunately the manuscript version of this diary has been missing for some time, and there are indications that it has not been available in the original for scholars to scrutinize since at least 1860, when it was first published in the Historical Magazine.¹ What is equally disturbing, the diary contains a number of passages which, although in accordance with the historical record, are distinctly nineteenth-century in flavor. The core of the diary may be original enough, but there is a strong suspicion that it was, to be gentle, creatively edited.

Nothing would please the author more than to have this manuscript come to light and be authenticated conclusively, and perhaps this report may have the salutary effect of forcing it into the open. Until such an event should take place, however, it has been decided to exclude the Waldo diary from the foregoing report.

ABBREVIATIONS OF ARCHIVES AND COLLECTIONS

AAS American Antiquarian Society, Boston, MA.
APS American Philosophical Society, Philadelphia, PA.
ChiHS Chiago 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, New Haven, CT.
JRC John Reed Collection
LC Library of Congress, Washington, DC.
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.
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.

NOTES

INTRODUCTION

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, NH., New Hampshire Historical Society, 1930), 1:605.
4. Jedediah Huntington to Andrew Huntington, 23 December 1777, Jedediah Huntington Papers, ChiHS.
5. The earlier encampments of the Continental Army at Cambridge, Massachusetts, and Morristown (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,), 2:125.
7. John C. Fitzpatrick, ed. The Writings of George Washington from the Original Manuscript Sources 1745-1744 (Washington, DC, Government Printing Office, 1933), 10:192.
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 (1878): 294.
9. It is too early to construct a typology of structures based on their various attributes (materials, form, design) because there are too many structures, extant and lost, about which very little is known. This, however, is not an unreasonable goal for the future, presuming that more data can be obtained archaeologically. Then the simple catagorical 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.

I THE MAPS

1. "Brouillion et Plan du Camp de Vallee Forge" Map Collection, HSP, Philadelphia, Pennsylvania. Because the map was found in the attic of the house known as Duportail's Quarters, it has always been attributed to him. Careful comparison with other Duportail autograph documents has yet to be carried out. See also Wm. Gilmore Simms, ed., The Army Correspondence of Colonel John Laurens in the Years 1777-8 (New York: The Bradford Club, 1867), p. 94.
2. Report of Louis Duportail, 7 April 1778, NYPL.
3. The map contains two intriguing inscriptions. The first is a correction, as he places an asterisk in the Schuylkill, stating "...a cet Endroit la riviere forme un coude insensible qui port son cour a L'est Sud, en A..." ("At this point the river bends imperceptibly, which carries it course to the southeast, as in A.") The second correction pertains to the entrenchment of the outer line, and the meaning of the inscription is rather vague: "B-tout cet party du retrenchment je port plus enavan en F" (referring to the entrenchments as marked "B" and a line which connects them as "F"; he seems to be saying that "All this part of the entrenchments (B) I have carried forward in "F."")
4. Letter appended to photocopy of the Sparks copy of the Duportail map, Barbara Bethelson to Allen Montgomery, 28 June 1976. The Sparks copy now resides in the Jared Sparks Collection. CUL.
5. Ibid.
6. Photostat, JRC.
7. "Facsimile of old Map in possession of Davis Family in the House occupied by General Duportail." VFNHPL.
8. Benjamin F. Stevens, Facsimiles of Manuscripts in European Archives Relating to America, 26 vols. (London: 1839-1895), 24: Ms#2093.
9. "Plan of Washington's Position, Mr. Parker, late a Merchant in Virginia, now in Philadelphia," Clinton Papers, WLC. (Copy in the VFNHPL).
10. Ibid.
11. What is called here the "Davis-Armstrong-Sparks Map," 1833, is from Jared Sparks Collection, CUL.

12. "Pennypacker Map," Map Collection, HSP.
13. Oath of Benjamin Lodge, et. al. Society Miscellaneous Collection, HSP.

II THE TOOLS

1. Orderly Book of Colonel C. Hughes, entry for 27 September 1777, Papers of the Valley Forge Park Commission, PA Archives, Harrisburg, 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.
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, DC: 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.
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.

9. If axes were balky, 18th 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, (Spring, 1963), and Stephen C. Wolcott, "The Froe - A Useful Tool," 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.

III MILITARY STRUCTURES AND FEATURES

1. John C. Fitzpatrick, ed. The Writings of George Washington from the Original Manuscript Sources (Washington, DC: United States Government Printing Office, 1933), 10:170.

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, Vol. LVI, 1, (1966), 28-65, and Harold R. Shurtleff, The Log Cabin Myth. (Cambridge, MA: 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 and so on, 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.

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.
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.
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 Cadwalder, 18 January 1778, Cadwalader Collection, HSP.
10. Ebenezer Crosby to ?, 14 April 1778, Houghton Library, HU.
11. Fitzpatrick, GWG, 11:463.
12. Henry Muhlenberg to Nathanael Greene, 8 May 1778, Gratz Collection, HSP.
13. Fitzpatrick, GWG, 12:40.
14. Report of Henry Lutterloh, 26 December 1777, Roll 96, M859, RG 93, NA.

15. Baron de Kalb to the Vocomte 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. general,) comme celles des troupes."
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.
18. B. J. Egloff, et al., "Four Hut Sites," pp. 3-10.
19. Report of Henry Lutterloh, 26 December 1777, Roll 96, M859, RG 93, NA. See also Fitzpatrick, WGW, 10:215.
20. Orderly Book of Christopher Greene, entry of 22 December 1777, Christopher Greene Collection, RIHS. For order to engineers, see Fitzpatrick, WGW, 10:180.
21. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M806, RG 15, NA.
22. 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.
23. Fitzpatrick, WGW, 10:262.
24. 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.
25. Fitzpatrick, WGW, 10:271.
26. Thomas Ewing, ed., Military Journal of George Ewing, (1754-1824) A Soldier at Valley Forge. (Yonkers, NY: privately printed, 1928), p. 26.

27. William Gifford to Benjamin Holme, 24 January 1778, Revolutionary War Documents, NJHS. William Gifford to Benjamin Holme, 12 January 1779, NJHS.
28. Tench Tilghman to John Cadwalader, 18 January 1778, Cadwalader Collection, HSP.
29. Henry Muhlenberg to Nathanael Greene, 8 May 1778, Gratz Collection, HSP.
30. Fitzpatrick, WGW, 11:463 and 12:40.
31. For details pertaining to Valley Forge as an ordinance depot and hospital see pp.
32. Isaac Melcher to Congress, 16 November 1778, Roll 99, M247, RG 93, NA.
33. Enos Reeves, "Extracts from the Letter-Books of Lieutenant Enos Reeves, of the Pennsylvania Line," Pennsylvania Magazine of History
34. Henry Woodman, The History of Valley Forge (Oaks, Pa.: John U. Francis, 1921), pp. 85-86.
35. Report of Baron von Steuben, 5 March 1778, ChiHS.
36. Ewing, Diary of George Ewing, p. 25
37. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M809, RG 15, NA. See postscript of document.
38. Dr. John Cochran, chief physician at Valley Forge, most frequently docketed his letters "Flying Hospital." See correspondence in papers of Jonathan Potts, HSP.
39. Jonathan Todd to Timothy Todd, 25 December 1777, Roll 1561, M809, RG 15, NA.
40. Fitzpatrick, WGW, 10:284.
41. Fitzpatrick, WGW, 10:300.
42. Manuscript HM660 (Orderly Book), entry for 15 January 1778, HL.
43. Fitzpatrick, WGW, 10:306.
44. 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.
45. Muster Rolls for 1st New Hampshire Regiment, 1778, Roll 44, M246, RG 93, NA.

46. Fitzpatrick, WGW, 12:4.
47. 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.
48. *Ibid.*, p. 218.
49. *Ibid.*, p. 175.
50. Fitzpatrick, WGW, 10:289.
51. Valley Forge Orderly Book, p. 254.
52. *Ibid.*, p. 289.
53. Charles Stewart to Captain Greenleaf, 22 December 1777, MHS.
54. Manuscript HM 660 (Orderly Book), entry for 15 and 18 January 1778, HL.
55. Woodman, History of Valley Forge, p. 87
56. Valley Forge Orderly Book, p. 173.
57. *Ibid.*, p. 177.
58. *Ibid.*, p. 193
59. Court Martial proceedings, Thomas Clark, President, 2 May 1778, Lachlan McIntosh Collection, GHS.
60. Valley Forge Orderly Book, p. 248. Fitzpatrick, WGW, 11:18.
61. *Ibid.*, p. 290.
62. Map of Valley Forge, Jared Sparks Collection, CUL. Copy at VFNHPL.
63. General Order of 20 December 1777, GWP, LC.
64. Invoice of Mark Bird, 22 December 1777, Manuscript Collections, ChiHS.
65. James Mitchell Varnum to Alexander McDougall, 7 February 1778, NYHS.
66. Report of Baron von Steuben, 5 March 1778, ChiHS. Original French copy: AAS.
67. Fitzpatrick, WGW, 11:161.

68. Orderly Book of the 2nd Pennsylvania Regiment, entry for 31 March 1778, HSP.
69. Report of Louis Duportail, 7 April 1778, NYPL.
70. Lord Stirling to Charles Pettit, 13 April 1778, ChiHS.
71. Louis Duportail to George Washington, 13 April 1778, GWP, LC.
72. John Laurens to Charles Pettit, 14 April 1778, Dreer Collection, HPS.
73. Ebenezer Crosby to Norton Quincy, 14 April 1778, Houghton Library, HU.
74. Lord Stirling to Charles Pettit, 16 April 1778, Dreer Collection: Generals of the American Revolution, HSP.
75. Caleb North to Lord Stirling, 2 May 1778, Mrs. Archibald Crossley Autograph Collection, MMC, LC.
76. Fitzpatrick, WGW, 11:368.
77. Fitzpatrick, WGE, 11:367.
78. Fitzpatrick, WGW, 11:374.
79. Ewing, Diary of George Ewing, p. 42.
80. Orderly Book of Malcolm's Additional Continental Regiment, kept by Peter Trulman, Adjutant, Brigade Orders (Conway's) for 15 May 1778, NYHS.
81. Ibid., entry for 19 May 1778.
82. Fitzpatrick, WGW, 11:433. Orderly Book of the 8th Massachusetts Regiment, entry of 22 May 1778, HL.
83. Woodman, History of Valley Forge, pp. 85-86.
84. Thomas Auburey, Travels Through the Interior Part of North America (Boston: Houghton-Mifflin, 1923), pp. 170-71.
85. Valley Forge Orderly Book, p. 279.
86. Louis Duportail to George Washington, 13 April 1778, Washington Papers, LC.

An archaeological excavation of very limited scope was carried out on the innerline 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 Fort Huntington. 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 innerline 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.

87. See Vertical Files, Fort Greene, and Map Cases, VFNHPL, for photographs and plans.

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

89. Woodman, History of Valley Forge, p. 85.

90. *Ibid.*, p. 86.

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

92. See Valley Forge Park Commission Committee on Forts Report, 1916, VFNHPL.

93. 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.

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

95. Those that have been consulted include: Louis Andre comte de Clairac, L'ingenieur 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 adresse aux Officiers d'infanterie pour tracer et construire toutes sortes d'ouvages de campagne... (Leipsig, 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 Fort Washington and Fort Huntington. General Duportail's aide, Captain Fleming, owned a copy of Nicola's translation, although it is not certain that he owned it or used it at Valley Forge. JRC.

96. 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 Star Redoubt was reconstructed. It demonstrates clearly that there were no discernable above ground evidences of the Star Redoubt at this location at the time of reconstruction.

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

98. Ibid.

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

100. See Duportail map, Map Collection, HSP.

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

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

103. Fitzpatrick, WGW, 11:199-200.

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

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

106. Fitzpatrick, WGW, 11:260.

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

108. Fitzpatrick, WGW, 12:53.

109. Fitzpatrick, WGW, 11:260.

110. Fitzpatrick, WGW, 11:346.

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

112. Valley Forge Orderly Book, p. 215.

113. Fitzpatrick, WGW, 12:50.
114. Valley Forge Orderly Book, p. 248.
115. 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.
116. Valley Forge Orderly Book, p. 200.
117. Ibid., p. 228.
118. Ibid., p. 260.
119. 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.
120. Fitzpatrick, WGW, 10:190; 11:345, 353.
121. Ewing, Diary, p. 39.
122. Valley Forge Orderly Book, p. 164. Sullivan had been assigned to direct the building of the bridge by 22 December 1777.
123. Personal observations of the author, July, 1978.
124. 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 Boatman'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.
125. Receipt for tools, 26 December 1777, Roll 122, M859, RG 93, NA.
126. Ibid.
127. John Laurens to Henry Lutterloh, 28 December 1777, Oldridge Collection, LC. Hammond Papers of John Sullivan, 2:17. Captain Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.

128. 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.
129. Ibid.
130. Captain Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.
131. Report of von Steuben, 5 March 1778, Manuscript Collections, ChiHS (French edition: Manuscript Collecitons, AAS).
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135. Captain Fleming to Major Bauman, 26 March 1778, Sebastian Bauman Papers, NYHS.
136. Index to Roads and Bridges and Court Dockets, City Archives, City Hall Annex, Philadelphia, PA.
137. Ibid.
138. Ibid.
139. Report of von Steuben, 5 March 1778, Manuscript Collections, ChiHS.
140. Index to Roads..., op. cit.
141. Ibid.

IV CIVILIAN STRUCTURES AND FEATURES

1. Martha Washington to Mercy Warren, Adams-Warren Papers, MHS.
2. Elias Boudinot, Journal of Historical Recollections of American Events During the Revolutionary War (Philadelphia: Frederick Bourquin, 1894), p. 78.
3. Ibid.
4. For typescripts of most of the extant 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.
5. This is inference based on perusal of the two known spy maps,
6. Tax assessments on Isaac Potts, 1774-1793, Upper Merion Township Tax Lists, Montgomery County Historical Society, Norristown, PA.
7. Fitzpatrick, WCW, 10:311.
8. 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.
9. 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.
10. Woodman, History of Valley Forge, p. 57.
11. Deed Book P, Vol. 15, pp. 129, 132, Tredyffrin Township, Chester County, PA, Chester County Court House, West Chester, PA.
12. For ownership on the dwelling by John Brown, Jr., during the Revolution see Chester County Deed 2:176, Chester County Court House, West Chester, PA.
13. See Chester County Deed Z:176, and Deed V5:298, Chester County Court House, West Chester, PA.

14. Henry Knox to William Knox, 27 May 1778, Henry Knox Papers, MHS.
15. Diary of Pierre Duponceau, Delaware Historical Society, Wilmington, DE. The VFHRP has yet to obtain a photocopy of this manuscript. A translation with photocopies of the "maps" has been obtained from Papers of the Valley Forge Park Commission, Pennsylvania State Archives, Harrisburg, PA. The original French of the sentence in question appears in a manuscript for the "Question Box" column of the Picket Post, by John Reed, John Reed Collection, VFNHPL.
16. John Reed Picket Post manuscript. Pennsylvania General Assembly, History of House Bills and Resolutions.
17. This was apparently done by those opposed to the Steuben Quarters designation, but no reliable opinion of an authority has been published.
18. Verbal communication with author, September 1978.
19. Pennsylvania Legislative Journal (Harrisburg, PA: 1965), pp. 855-57. Deleted 8 June 1965. Pennsylvania, History of House Bills and Resolutions, p. 251.
20. Woodman, History of Valley Forge, p. 57. Pinkowski, Washington's Officers Slept Here, pp. 166-75.
21. 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 pitites barraques qui ne sont gueres plus gaies qu'un cachot." Translated properly this reads: "...here the American army will pass the winter in little huts that are no more pleasant than a dungeon." See Stanley J. Idserda, ed., Lafayette in the Age of the American Revolution, Selected Letters and Papers, 1776-1790. Volume I. December 7, 1776 - March 30, 1778 (Ithaca, NY and London: Cornell University Press, 1977), pp. 223, 459.
22. Philadelphia County Deeds I6:228; I6:231. Philadelphia City Hall Annex, Philadelphia, PA.
23. For a discussion of the evidence for these assertions see title searches undertaken by the Valley Forge Historical Research Project, "The Bakehouse," which included evidence pertaining to the restoration of the Bakehouse as provided verbally by the restoration architect Edwin Brumbaugh, in a conversation with Michael Lawson, Valley Forge Historical Research Project researcher, late in 1977.

24. Tax Assessments on David Potts, Ironmaster, 1791-1798. Upper Merion Tax Lists, Montgomery County Historical Society, Norristown, PA. See also Tax Assessments of Isaac Potts, 1774-1793, Upper Merion Tax Lists, Montgomery County Historical Society, Norristown, PA.
25. Ewing, Diary, p. 38. Valley Forge Orderly Book, p. 180.
26. William Bradford to Rachel, 14 May 1778, Wallace Papers, vol. 1, William Bradford, HSP.
27. Valley Forge Park Commission, Report of the Valley Forge Park Commission, Commonwealth of Pennsylvania, January 1947 to January 1951 (Valley Forge, PA: no publisher, 1951), pp. 4-5.
28. Philadelphia County Deed I6:228 and I6:231. Philadelphia City Hall Annex, Philadelphia, PA.
29. Report of Henry Lutterloh, 26 December 1777, Roll 96, M-859, RG 93, NA. See also tax assessments of Isaac Potts, 1774-1793, Upper Merion Tax Lists, Montgomery County Historical Society, Norristown, PA.
30. Duportail map, HSP.
31. Valley Forge Park Commission, Report of the Valley Forge Park Commission, Commonwealth of Pennsylvania 1921-1927 (Valley Forge, PA: no publisher, 1927), pp. 6-7.
32. See Vertical Files, VFNHPL, "Valley Forge," for photographs and reports.
33. Jacob Clark, map entitled "Levels on Valley Creek and the Bed of the Mill Pond," August-December 1921, with additions of 1930, VFNHPL.

INDEX

- Abatis, 58
- Abbreviations, list of, 103
- Adjutant General's Quarters, 86
- Anburey, Thomas, 52, 59
- Armstrong, John Jr., 17
- Artificers' huts, 44; location of, 15
- Augers, 22, 107 n. 9
- Axes, 20; felling, 21; manufacture of, 106 n. 3; quality of, 21,
106 n. 6
- Bakehouse (Potts-Deweese, or Ironmaster's House), 89;
uses of, 90
- Baptist Road, 73
- Bird, Mark, shipment of picks by, 46
- "Black Bull," 40
- Boudinot, Elias, Commissary General of Prisoners, 40, 78
- Bradford, William, Deputy Commissary General of Musters, 90
- Bridge, Sullivan's 65
- Brigade encampments, 10
- Brigade hospitals, 37
- British Army, skills of, 2

- Brouillion et Plan du Camp de Vallee Forge (Duportail Master Plan), 12
- Brown, John Jr., 83
- Brown, Samuel, 84
- Buss, John, 26, 33
- Bull, John, and Sullivan's Bridge, 69, 70, 71
- Bull Tavern, 40
- Butler, Anthony, shipment of equipment to camp by, 95
- Cadwalader, John, 27
- Camp hospitals, 36
- Capital punishment, 62
- Carolina (McIntosh's) Brigade, 17
- Civilian structures and features, at Valley Forge, 74
- Clark, Jacob, 93
- Clothier's stores, 40
- Commissary Department, 9
- Commissary of Hides, 10
- Commissary of Military Stores, 40
- Commissary's stalls, stores, and slaughter pens, 41
- Continental Army, 5; encampments of, at Cambridge, Massachusetts, and Morristown, 104 n. 5; skills of, 1
- Continental Horse Yard, 63
- Conway's Brigade, 51, 58, 60; location of, 14
- Crosby, Ebenezer, 27, 49
- Courts of Quarter Sessions for Philadelphia and Chester Counties, 72

Dam, at Valley Forge, 93

Dartmouth, Earl of, 16

Davis-Armstrong-Sparks Map, 17; artificers huts on, 44;
Huntington's quarters on, 81; Knox's quarters on, 84;
Lafayette's quarters on, 88; Stirling's quarters on, 82;
Varnum's quarters on, 80; Washington's headquarters on, 77

Davis, William, 17

Davis, Zachariah, 81

de Kalb, Baron, 28, 87; quarters of, 77

Deweese, William, 89

Dodd, Cherry, 83

Dodd, John, 76, 83

DuPonceau, Pierre, 85

Duportail, Brigadier General Louis Legèque, 12; and redoubts,
47, 55

Map, Duportail, 12, 13, 35, 42, 56, 58, 66, 72, 105 n. 1

Duportail Master Plan ("Brouillion et Plan du Camp de Vallee
Forge"), 12, 42, 105 n. 1, n. 3; bridge locations on, 66;
date or origin of, 13; details of, 13; hutting locale
specified in, 35; raceways on, 92; redans on, 58;
redoubts on, 56; roads on, 72; variants on, 14;
Varnum's quarters on, 80; Washington's headquarters on, 77

Dwelling huts, 24; number of, 30. See also Huts.

Dwellings, at Valley Forge, 74

"Encampment at Valley Forge 1778" (map), 15

"Encampment at Valley Forge in 1778" (map), 15

Entrenchments, 52; description of, 53; excavation of, 113
Inner and Outer Line, location of, 13

Equipment, shipment of, to camp, 95

Evans, Stephen, 92

Ewing, Ensign George, 33, 50

Excavated features, at Valley Forge, 60

Fatland Ford, 66, 73

Fleming, Captain, 69, 72

Flower, Benjamin, 40

"Flying Hospitals," 37

Fort Greene (Fort John Moore), 51, 52; reconstruction of, 54

Fort Huntington, 51, 52, 56

Fort Muhlenberg, 52, 54

Fort Washington, 52, 55

Fortifications, 45; chronology of the building of, 45;
general observations on, 59

Fords, 73

Forge, at Valley Forge, 92; location of, 13

Froes, 22

Galloway, Joseph, spy map of, 15, 16, 46, 55; and Washington's
Headquarters on, 77

General Hospitals, 36

Geerhart, Frederic, 42

Germain, Lord, 59

Gifford, Captain William, 26, 33

Grave sites, 63

Greene, Nathanael, 22, 27, 33, 62

Greenleaf, Captain, 41

Gordon's Ford, 73

- Grand Parade, 8; uses of, 62
- Gristmill, 92
- Guard houses, 42, 43
- Guard, provost, 42
- Headquarters, Washington's. See Washington's Headquarters.
- Hewes, Deborah, 79
- Horse yard, Continental, 63
- Horses, receipts for, 115, n. 115
- Hospitals, camp, 36; types of military, 36
- Howe, Sir William, 59
- Howell's Tavern, 42
- Hut building, 21
- Hut-building chronology, 32
- Huts, 109, n. 15, n. 16; artificers', 44; condition of, in May, 1778, 27; construction of, 107 n. 2; doors of, 30; historical significance of, 36; location of, 13; materials and techniques for building, 24; roofs of, 29; settlement pattern of, 35; spacial allotment of, 35; timbers of, 29; typical enlisted man's, 26; typical officer's, 25, 28; walls of, 30
- Huntington, Brigadier-General, 1, 3
- Huntington's Brigade, location of, 14
- Huntington's Quarters (Maurice Stephens House), 81; cartographic evidence of, 81; documentary evidence of, 81
- Industrial structures, at Valley Forge, 92
- Inoculations, smallpox, 39
- Issues, Commissary of, 41
- Jenkin's Mill, 42
- Jones, Colonel, 42
- Joy, Mount, 4, 8

- Knox's Quarters (Samuel Brown House), 84; cartographic evidence of, 84; documentary evidence of, 84
- Lafayette, Marquis de, 14, 88
- Lafayette's Quarters (Samuel Havard House), 88; cartographic evidence of, 88; documentary evidence of, 88
- Laurens, John, 13, 30, 48, 79
- Lee, General Charles, 78
- Livestock, housing of, at Valley Forge, 41
- Lodge, Benjamin, 18
- Logistical features, 65
- Lossing, Benson J., 3
- Ludwick (Ludwig), Christopher, "Baker General," 90
- Lutterloh, Henry, 30
- McClure, John, 43
- McDougall, Alexander, 46
- McIntosh's Brigade, location of, 14
- Magazines and stores, 40
- Mansion House, 63, 85
- Map, David-Armstrong-Sparks, 17, 44, 77, 80, 81, 82, 84, 88
- Map, Joseph Galloway Spy, 15, 16, 46, 55, 77
- Map, Parker Spy, 16, 50, 77, 80, 82
- Map, Pennypacker, 18, 51, 54, 72, 82
- Maps of Valley Forge: difficulties with, 12; categories of, 12; contour, 114 n. 96
- Markets, 64; location of, 13, 65; purposes of, 64
- Maxwell's Brigade, 10, 59; huts of, 35; location of, 14
- Maxwell's troops, location of, 15
- Maxwell's Quarters, 83; documentary evidence of, 83

Melcher, Isaac, Barrack Master General, 34

Military Stores, Commissary of, 40

Military structures, 24

Mills, location of, 13

Moore, Mordecai, 55

Moore Hall, 49, 59

Morgan's Quarters (Mordecai Moore House), 87; documentary evidence of, 87

Morristown, 25

Mount Joy, 4, 8

Mount Joy Forge, 92

Muhlenberg, General, 33

New Windsor, 25

North, Colonel Caleb, 49, 56

Obstacles, 47, 58; location of, 13

Offal pits, 60

Officers' quarters, 74; additions to, 76; general observations on, 75, 91; location of, 76

Ogden, Colonel, 2

Okie, R. Brognard, 76

Paine, Thomas, 6, 36

Palisades, 58

Parade grounds, brigade, 62

Parades, 62

Parker Spy Map, 16, 50; Stirling's quarters on, 82; Varnum's quarters on, 80; Washington's headquarters on, 77

Pennsylvania Packet, February 4, 1778, 64

Pennypacker, Governor, 18

Pennypacker Map, 18, 51; redoubts on, 54; and roads at Valley Forge, 72; Stirling's quarters on, 82; Varnum's quarters on, 80

Pettit, Charles, 48

Pickering, Timothy, 33

Picket posts, 65

Picks, spades, and shovels, 23

Pinkowski, Edward, 85

Poor, General Enoch, 26

Poor's Brigade, 38

Posts, picket, 65

Potts, Isaac, 79

Potts, John Jr., 89

Potts, John Sr., 89

Potts, Joseph, 89

Potts, Sarah, 89

Potts' sawmill, 92

Prisoners, housing of, at Valley Forge, 42

Privies, 61

"Provision store," 42

Provost Guard, 42; location of, 13, 42

Quarter Master's Department, 5

Quarters, enlisted men's. See Huts.

Quarters, officers.' See Huts; Officers' Quarters; specific names of officers.

Reading, forage and military equipment from, 10

Redans, 58; location of, 13

Redoubt No. 4, 49, 51

Redoubt, Star, 16

Redoubts, 53, 113 n. 93; building of, 46; design of, 57;
location of, 13; order of construction of, 52

Reed, John, 86, 92

Reeves, Enos, 34

Refuse disposal, at Valley Forge, 60

Refuse removal, of, at Valley Forge, 10

Roads, location of, within Valley Forge, 13, 72

Roofing process, 107 n. 9

Sampson, L. A. 81

Sawmill, 92

Schuylkill, bridge across, 2, 66

Shake-splitting, 107 n. 9

Shovels, 23

Smallpox inoculations, 39

Spades, 23

Sparks, Jared, 14, 17

Special use areas, at Valley Forge, 62

Spencer, General Joseph, 68

Spencer's Bridge (Sullivan's Bridge), 68

Spy Map, Joseph Galloway, 16

Spy Map, Parker, 16

Star Redoubt, 16

Stephens, Abijah, 29

- Steuben's Quarters, 84; controversy surrounding, 85
- Stewart, Charles, Commissary General of Issues, 41
- Stirling, Lord, 32
- Stirling's Quarters (William Currie House), 82; cartographic evidence of, 82; documentary evidence of, 83
- Star Redoubt, 52, 56
- Stewart, Walter, 87
- Stores, clothiers, 40
- Stores and magazines, 40
- Stores, Quarter Master's, at Valley Forge in May, 1778, 99
- Structures, typology of, at Valley Forge, 104 n. 9
- Sullivan, General John, 2; and Sullivan's Bridge, 71
- Sullivan's Bridge, 65; construction chronology of, 68; description of, 70; dismemberment of, 69; historical significance of, 71; location of, 13, 66; site markers of, 67; workers on, 69
- Supreme Executive Council, 5, 71
- Sutlers, at Valley Forge, 10
- Sutlers' booths, 44
- Swedesford, 73
- Swedesford Road, 73
- Tilghman, Tench, 27, 33, 79
- Todd, Jonathon, 21, 25, 32, 37
- Tools, 20; for bridge building, 68; delivery of, to Valley Forge, 22; shipment of, to camp, 95
- Travels Through the Interior Parts of North America (Thomas Anburey), 52
- Waldo, Albigeance, diary of, 102

Walker, Daniel, 92

Washington, General George, 5; and bridge construction, 66, 68; and fortifications, 45, 50; and hut building, 25; and orders to clean the camp, 60; and surveyors, 18

Washington, Martha, 78

Washington's aides, correspondence of, 116, n. 4

Washington's Headquarters (the Potts-Hewes house), 77; cartographic evidence of, 77; documentary evidence of, 78; functions of, 79; rental fee for, 79

Washington's Officers Slept Here (Edward Pinkowski), 85

West, Sergeant Joseph, 43

White, Jimmy, 85

Woodford's Brigade, 48

Woodman, Henry, 34

Valley Creek, 44, 57

Valley Forge encampment: building of, 8; camp hospitals at, 36; civilian structures and features of, 74; dwelling huts at, 24; dwellings and agricultural structures of, 74; excavated features at, 60; forge at, 92; fortifications at, 45; gristmill at, 92; hardships suffered at, 6; historical significance of huts at, 36; industrial structures of, 92; logistical features of, 65; maps of, 12; military structures at, 24; provost guard and guard houses at, 42; roads at, 72; sawmill at, 92; special use areas at, 62; stores and magazines at, 40; structures and facilities at, 7; sutlers' booths at, 44; symbolic meaning of, 3; tools uses at, 20

Valley Forge: Crucible of Victory (John Reed), 86

van Cortlandt, Colonel, 39

Varnum, General James Mitchell, 46; quarters of, 80

Varnum's Brigade, location of, 14, 80; Orderly Book of, 32

Varnum's Quarters (David Stephens House), 80; cartographic evidence of, 80; documentary evidence of, 80

Vaults, 61

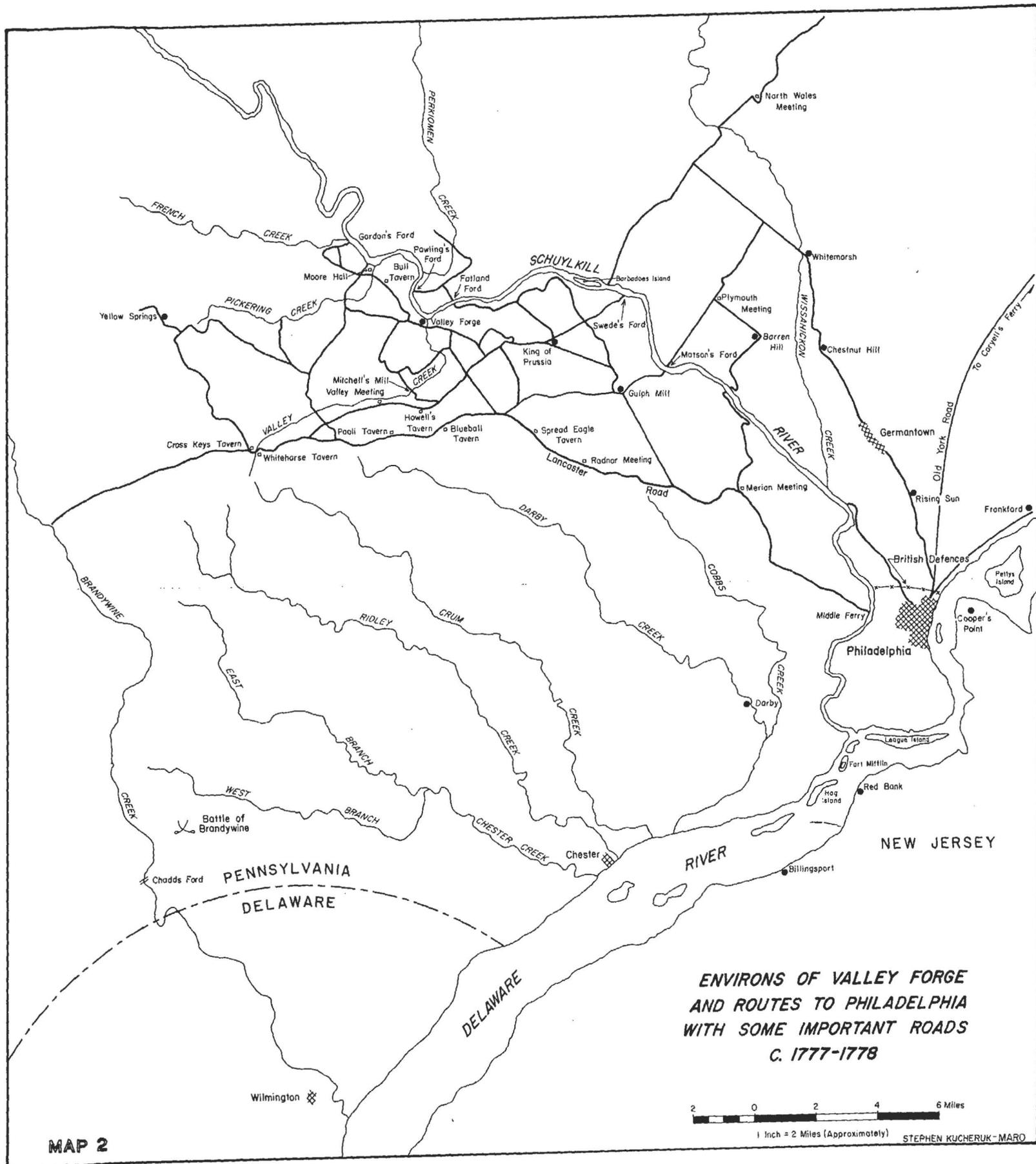
von Steuben, Baron, 8, 16, 46, 54; quarters of, 77; and
redoubts, 55, 57; and Sullivan's Bridge, 70

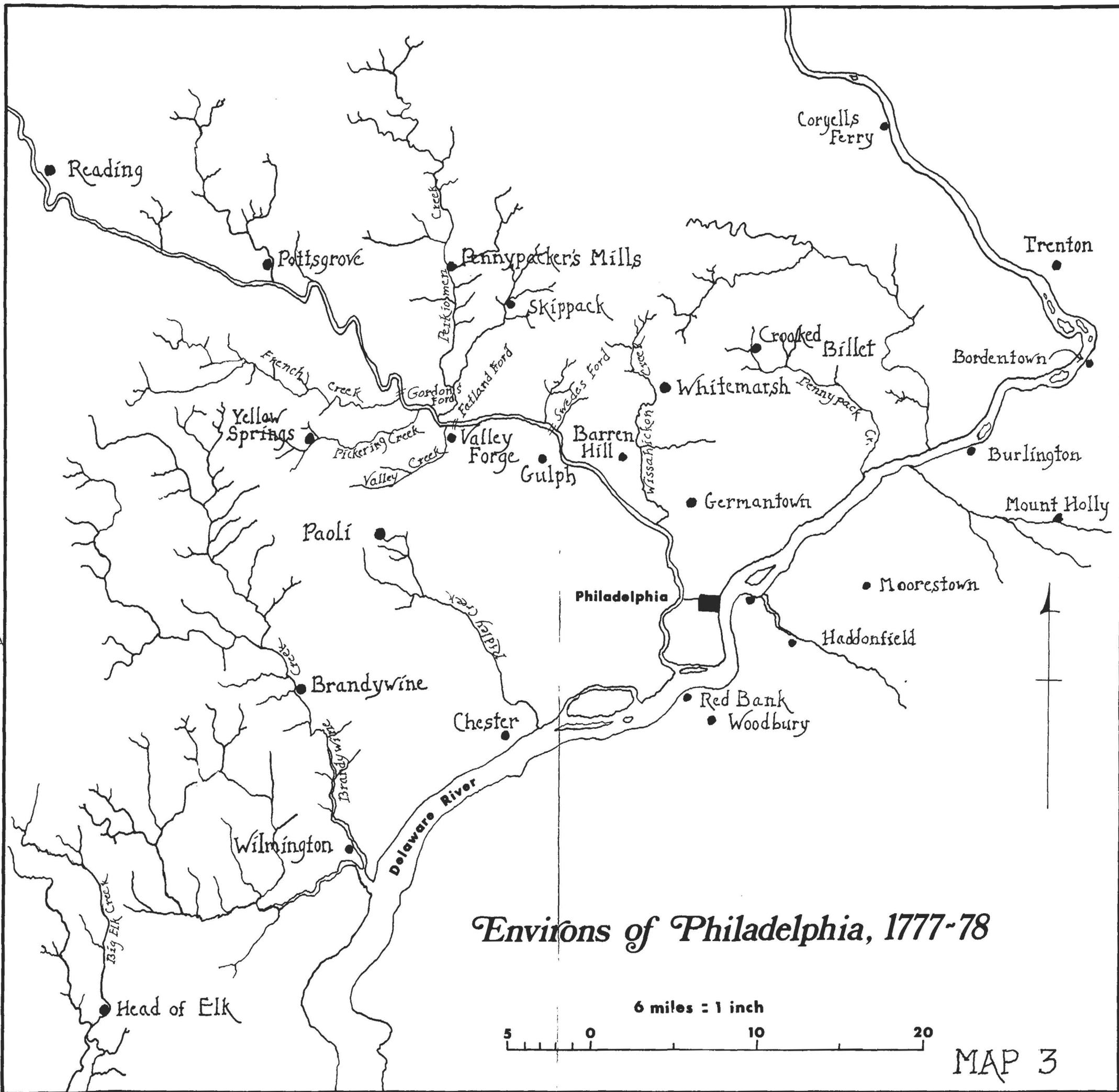
Addendum: A "New" Manuscript Map of Valley Forge

With the publication of the journal of the German jäger Captain Johann Ewald's diary¹ another period map of Valley Forge has come to light. Ewald was in Philadelphia during the British occupation. The conditions under which the map was drawn are not in evidence in the diary, but the editor supposes that it was "... a composite of information from reports of spies, deserters, prisoners, and reconnaissance."² The map itself³ displays some knowledge of the country surrounding camp, and with the principal arteries passing through and around it, but is otherwise highly problematic. The most glaring omission is the inner line fortification network - only "Fort Washington" is shown (as are the "Star Redoubt" and two redoubts at the left of the outer line). The speculation that this map is derived from the observation of spies seems well taken, as the perimeters of the camp are the focus of attention. Other than the omission of the inner line, the principal divergence appears to be the placement of the Carolina Brigade, and a redoubt, on the west side of Valley Creek. This is very probably an error reflecting an improper perception of the location of "Fort Huntington" and the Carolina troops, as no other maps indicate this positioning.

ADDENDUM NOTES

1. Ewald, Captain Johann, Diary of the American War: A Hessian Journal (trans. by Joseph P. Tustin), New Haven: Yale University Press, 1979.
2. Ibid., p. 124.
3. Ibid., p. 125.





Environs of Philadelphia, 1777-78

6 miles = 1 inch

5 0 10 20

MAP 3

V-12