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Camp Reading: Logistics of a Revolutionary

War Winter Encampment

David A. Poirier

INTRODUCTION

Archaeological investigations of Revolutionary War winter encampment sites have been undertaken at both Valley Forge State Park (1777-1778), in Pennsylvania, and at Morristown National Historical Park (1779-1780), in New Jersey. These are the preceding and succeeding winter encampments, respectively, to Connecticut's Camp Reading (1778-1779).

Salvage excavations of Revolutionary War hut sites were conducted in 1972 at Valley Forge (Egloff, Packard, and Ramsey n.d.) owing to construction activities associated with the expansion of tourist parking facilities at the park. In contrast the Morristown encampment site has been examined repeatedly, beginning with Civilian Conservation Corp investigations in the 1930's (Cotter 1961) through to several researchers contracted by the National Park Service in the 1960's in order to locate, measure, and authenticate Revolutionary War hut sites (Campbell 1962a, 1962b, 1963; Cotter 1961; Landis 1966).

The Valley Forge and Morristown research orientations emphasized the examination of hut fireplaces in order to identify the limits of a brigade line of encampment and to describe fireplace and hut architectural features. In addition Cotter's 1961 Morristown research sought to relocate and verify the poorly documented excavations carried out by the Civilian Conservation Corp. He was not successful (Cotter 1961).

Thus, the primary foci of analysis upon the unearthed hut and fireplace features have been the identification of internal constructional details and the spatial alignment patterns of individual huts within a brigade line of encampment.

Archaeologically recovered structural remains from both Valley Forge and Morristown contradict the "idealized" concepts of external regularity in spatial patterns and internal symmetry as extracted from documents pertinent to the organi-

zation of Revolutionary War winter encampments (Martin 1962). The archaeological data from Valley Forge and Morristown suggest that huts are randomly situated within an overall regularized formation and that the internal architectural features vary considerably as to both constructional style and internal positioning.

In contrast to the interest in architecture, the recovered artifactual evidence consists of either cursory descriptive listings for each fireplace at Valley Forge (Egloff, *et al.* n.d.) or, more commonly, a nonquantified summation statement of cultural material present, for instance, bones and ash, for Morristown (Campbell 1962b). Thus, information is not adequately reported to permit other kinds of analysis by interested scholars.

HISTORICAL BACKGROUND: CAMP READING

After the British surrender at Saratoga, New York, on October 17, 1777, military activities in the North stalled, as a result, Sir Henry Clinton withdrew his forces from Philadelphia to New York City (Williams, Current and Friedel 1969). Following cautiously, General Washington stationed most of his army in winter quarters for 1778-1779 at scattered locations in Connecticut, New York, and New Jersey (Presidential Papers Microfilm 1964). The strategy was to maintain observation of the British forces in New York City. As part of this observational strategy, Major-General Israel Putnam's command went into winter quarters at Redding, Connecticut. It consisted of 2 brigades of Connecticut troops, the First Connecticut brigade commanded by Samuel Parsons of Old Lyme and the Second Connecticut brigade commanded by Jedidiah Huntington of Norwich, and 1 brigade of New Hampshire troops commanded by Enoch Poor. Camp Reading functioned specifically to conduct "intelligence gathering" activities and to interpret British maneuvers along the Connecticut coast (Presiden-

tial Papers Microfilm 1964). It also provided geographically close reinforcements for West Point's fortifications.

General Putnam preceded the main body of his command by several weeks and laid out 3 camps in the 3 sheltered valleys formed by the Saugatuck River and its tributaries, which lie along the borderline of Bethel and Redding (Anonymous 1903). The units which comprise this 1778-1779 encampment site are the hutting area located within the modern boundaries of Putnam Memorial State Park in Redding, the middle valley quarters located on private lands in Redding, and the hutting area of West Redding. This last area may have been totally erased by a later railroad station and small village complex (Figure 1). In addition a small lookout guard station is located on land controlled by the town of Redding.

Information describing the daily activities within the Redding encampment is limited to several excerpts from the diary of Joseph Plumb Martin, (1962: 147-149, 150). It underscores the

severity of the 1778-1779 winter which tested the Continental Army encamped at Redding:

"We arrived at Redding about Christmas or a little before and prepared to build huts for our winter quarters. And now came on the time again between grass and hay, that is, the winter campaign of starving."

"... we had nothing extraordinary, either eatables or drinkables, to keep a new year."

"... and went on in our old Continental line of starving and freezing. We now and then got a little bad bread and salt beef (I believe chiefly horsebeef, for it was generally thought to be such at the time.) The month of January was very stormy, a good deal of snow fell, and in such weather it was a mere chance if we got anything at all to eat."

Biweekly returns for the New Hampshire brigade from December 11, 1778, to February 19, 1779, indicate an "on paper" brigade strength ranging from 1,340 to 1,394 individuals. However,

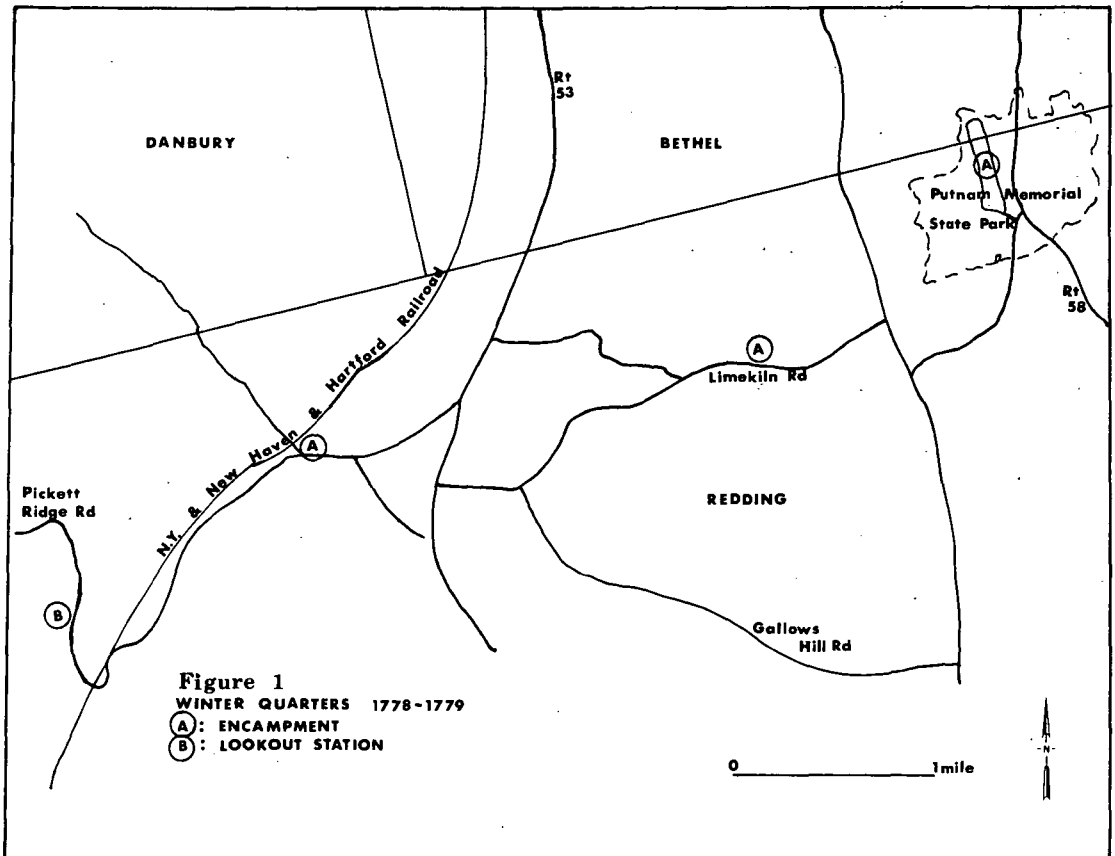


Figure 1. Winters quarters, 1778-79: Site Location.

the actual "present fit for duty" figures reduce the total count to 900-1,000 individuals in camp each return period (Marshall 1778-1779). In addition to the routine enumerations of "Sick Present," "Sick Absent," and "Deaths," the return for December 26, 1778, notes that 162 men within the New Hampshire brigade are "unfit for duty for want of shoes (Marshall 1778-1779)." This reinforces the dramatic descriptions within Martin's account.

Connecticut brigades quartered at the Redding encampment received orders in May 1779 to withdraw to several locations in the vicinity of West Point in order to strengthen that area's fortifications (Presidential Papers Microfilm 1964). The New Hampshire brigade departed from Camp Reading in late April 1779 for Continental Village, New York (National Archives and Records Service, 1957).

The brevity of the account dealing with the Redding encampment illustrates the general dearth of historical data pertinent to military activities in the North from 1778 to 1781. Modern Revolutionary War historians have chosen to concentrate upon the active military campaigns in the South during those years (Alden 1954; Montross 1952; Wallace 1951; Ward 1952). Research specifically focusing upon Connecticut's contribution to the Revolutionary War has also failed to chronicle adequately the activities of the Connecticut brigades from 1778 to 1781 (Mix, 1932; Tarbox, 1876; VanDusen, 1961).

RESEARCH PROBLEM

A historical and archaeological study of the Revolutionary War winter encampment of 1778-1779, located in Redding, Connecticut, was proposed in 1974 in order to determine Revolutionary War military logistics (Aigner and Poirier 1974). The term logistics, as used here, has twofold meaning: the arrangement of structures within a winter encampment reflecting the organization of internal encampment activities; and, the economics of supply. The last refers to sufficient materials, both equipment and provisions, so as to insure efficiency (by avoiding oversupply and shortages which generate discontent and disorganization).

Heretofore, the attributes and implications of Revolutionary War military logistics have been neglected in favor of the description of specific structural categories, that is, hut sites at the Valley Forge encampment of 1777-1778 (Egloff, Packard, and Ramsey n.d.) and at the Morristown encampment of 1779-1780 (Campbell 1962a, 1962b, 1963; Cotter 1961). The emphasis upon the recovery of architectural and constructional

evidence for the Valley Forge and Morristown research designs has resulted in the absence of an investigation of the overall settlement pattern of a Revolutionary War winter encampment. As a result study of the patterns and processes inferred from the archaeological evidence, crucial to the determination of intra- and inter-encampment logistics, is ignored.

Nonetheless, the recovered data from Valley Forge and Morristown possess information pertinent to the second definition of logistics as the economics of supply, e.g., faunal remains of food eaten. The site of the Redding winter encampment is composed of 3 geographically separate components and, as such, represents an ideal situation for assessing both inter- and intra-site logistics by means of the archaeological identification of the overall spatial layout of the cultural features. Furthermore, an intensive study of hut remains within the Redding encampment should provide comparative data concerning the quantity and quality of available materials at the 3 encampments—Redding, Valley Forge, and Morristown (See Appendix A, note 1).

RESEARCH DESIGN

The basic assumption crucial to an interpretation of Revolutionary War encampment logistics is that logistics are a valued system necessary to facilitate efficient communication networks and effectively coordinate the variety of internal camp activities (equipment manufacture, military drilling, and resource distribution). It follows that the dependence upon logistic systems necessitates a highly organized and rigidly structured settlement pattern of all camp buildings ranging from enlisted and officer quarters to guard outposts to privies. In other words, Revolutionary War reliance upon military logistics appears to mandate the controlled spatial distribution of structures and activity areas within an encampment rather than a random arrangement of structures and activity areas.

The research design calls for an assessment of the overall settlement pattern at Camp Reading. This requires the identification of the function of structures, the location and definition of activity areas, and the determination of rank differentiated areas.

Field survey and archaeological investigation will serve to locate and identify the variety of Revolutionary War encampment structures which composed Camp Reading: enlisted and officer quarters, guard outposts, bake ovens, magazines, forges, parade grounds, privies, and stable areas. Hopefully, information pertinent to structural dimensions, structure alignment, structure spacing, and the location and delineation of structure-free

activity areas will be secured. A survey of each separate sub-encampment will establish the precise geographic extent of the historical remains and allow for an accurate comparison and interpretation of inter- and intra-encampment logistics.

The interpretation of logistics as the economics of supply assumes that equipment and rations which are supplied from external commercial sources, e.g., nonlocal ceramic manufactures, are distinguishable from materials resulting from encampment field expediency measures. The latter would include the alteration of materials so that the primary functional design is redirected to accomplish immediate objectives—the conversion of barrel hoops into cooking utensils (Olsen 1964).

The distinction between *external commercial sources* and *field expedient production* of artifactual materials may be ascertained through the identification of known sources of artifact types by means of manufacturers' trade marks or distinctive stylistic attributes and through an assessment of change in functional utility from the manufacturer's original purpose. Also, through consideration of the degree of complexity of the manufacturing process, i.e., special production equipment and restrictive temperature requirements, the distinction between commercial production and local camp manufacture may be ascertained for those artifact types of unknown origins. An examination of internal encampment differences in priority of distribution of supplied materials (identification of differences in kind or quantity of essential equipment or provisions between enlisted personnel and officers) may be determined by archaeological sampling of the total variety of structures.

A second approach for the examination of logistics as the economics of supply is archaeologically, sampling for faunal material as evidence of the encampment dietary patterns. Identification and quantification of the specific types of animals present within the faunal material enables the separation and relative weighting of the proportions of supplied (domestic) species from wild game species, from which we may infer local field expediency measures. Comparison of the relative proportions of supplied versus hunted species from Camp Reading with Valley Forge and Morristown enables us to assess similarities and differences in site subsistence patterns. This is, in essence, a proportional measurement of the reliance upon military logistical systems in preference to field expediency dependence.

Identification and quantification of particular bones (skull, vertebrae, etc.) allows a qualitative reconstruction of subsistence patterns. Bones

specify the quality of the cut of meat utilized. Examination of the percentages of different bone types within Camp Reading and secondly between all 3 encampments permits interpretations of the nutritional value of the reconstructed parts of the diets. Also, qualitative bone type frequencies may reflect the efficiency of several logistical systems in manipulating and interacting with both local and state civilian economic conditions and with the unstable political situation characteristic of the period generally.

CAMP READING: FEASIBILITY STUDY 1973

At the request of the Unit Manager of Putnam Memorial State Park in Redding and with the cooperation of the Connecticut State Archaeologist and the Connecticut Department of Environmental Protection, a study was conducted during October and November 1973, primarily to locate archaeological evidence of the 1778-1779 winter encampment and to correlate the archaeological data with the historical documents.

Two research activities were employed. There was a systematic walking examination of the Redding sub-encampments and limited archaeological testing within the boundaries of Putnam Memorial State Park. Selection of particular features for excavation was based upon the descriptions within the commissioners' reports of deliberate surface modifications in areas of historical importance and upon modern surface indications of natural disturbance, i.e., fieldstone outcrops, stumps, and drainage ditches (Anonymous 1903, 1905, 1907, 1908, 1913, 1915).

Walking surveys without archaeological testing were conducted of the middle valley encampment and the lookout guard station site. Approximately 10 definite fireplace structures for Revolutionary War huts were located. These fireplace structures survived the effects of nature and human activities remarkably well. The 3 vertical walls of the hearth have remained upright for a majority of these hut sites, in contrast with other sub-encampments. Survey of the lookout guard station, a site on a ridge commanding an excellent view of the area, revealed only several conical heaps of fieldstone of undetermined age and function.

Next, a walking survey at the park was the basis for drawing Figure 2. The 2 parallel rows of irregular depressions, partially filled with fieldstone, are evidently the only evidence of former hut fireplaces. They are the dominant features because of the continuous selective care accorded them as recorded within the commissioners' reports. Within these documents, the number of double rowed fireplace structures cited as visible along Putnam Avenue varies. Forty-five are indica-

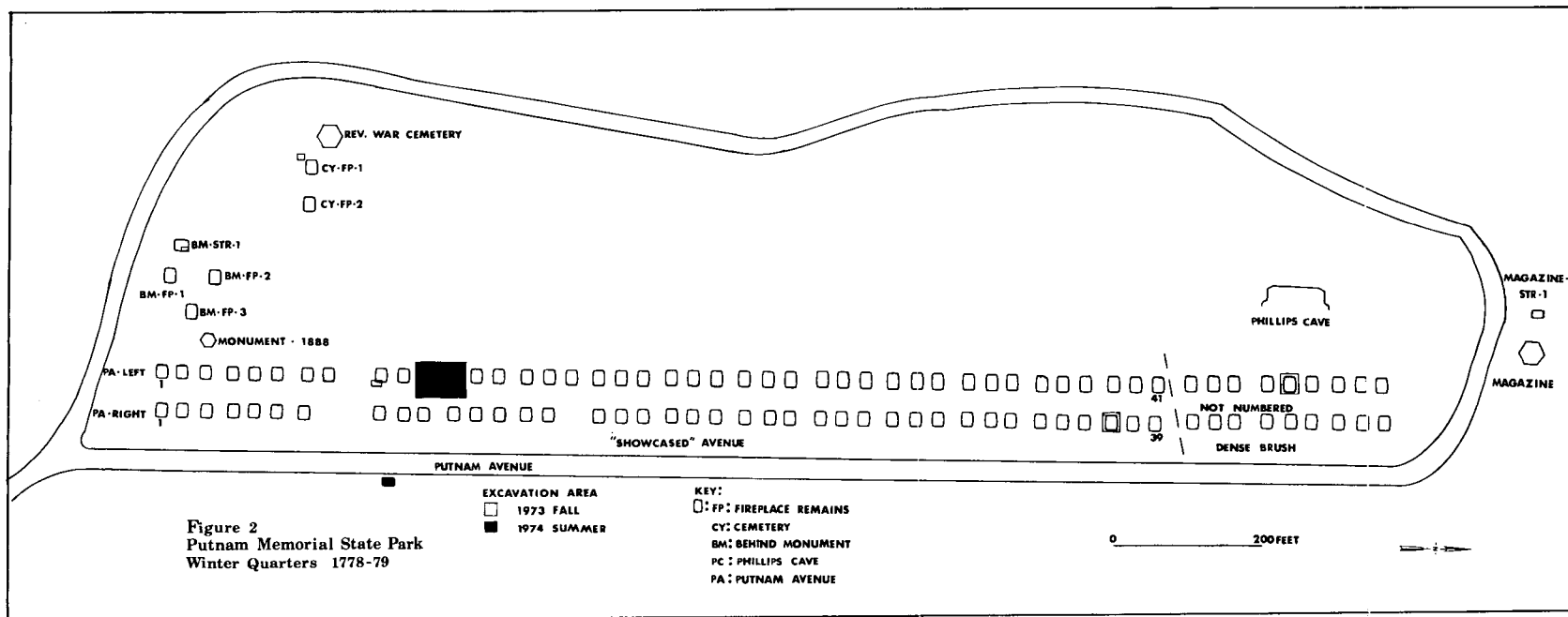


Figure 2. Winter quarters, 1778-79: Site map.

ted in 1903 and 220 in 1908! The distances reportedly covered by them also differ.

Figure 2 shows a number of irregularly shaped depressions containing a jumble of fieldstone which are clearly visible in 2 parallel rows along Putnam Avenue. These coincide roughly with the 1903 tabulation of 45. There are some 10 additional fireplace structures per row obscured by an extremely dense brush area which is continuous with this tended section of Putnam Avenue. Three previously reported fireplace structures are located to the west of the monument erected in 1888. Two fireplace structures, exhibiting enlargements in length, breadth, and quantity of stone fill, are newly noted east of the Revolutionary War cemetery (Figure 2: CY:FP-1 and CY:FP-2. [See Appendix A note 2.]

The survey also revealed 2 other structures. First, there is a rectangular fieldstone foundation to the west of the 1888 monument (Figure 2: BM:Str-1). [See Appendix A note 3.] Second, solid fieldstone foundation walls are located west of what has been identified within the commissioners' reports as a powder magazine (Figure 2: Magazine:Str-1). Three walls of this new structure are composed of fieldstone dry laid 3-5 feet in height with a narrow stepped opening on the south side of the east wall; the fourth or west wall is the unmodified face of a natural rock outcrop.

In summary the survey findings have increased the information presented within the commissioners' reports and have generated unanswered questions concerning the function and temporal affinity of the 2 newly identified structures, BM:Str-1 and Magazine:Str-1.

Following the survey archaeological excavations were concentrated upon the 2 parallel rows of hut fireplace features along Putnam Avenue. These were selected for early excavation because this line of encampment has witnessed continuous modification since the 1779 troop departures, ranging from crop raising (Anonymous 1903) to the landscaping activities of the park commissioners. Furthermore, the remains along Putnam Avenue are the focal point of historical significance for the average visitor (See Appendix A note 4).

North of Putnam Avenue, several fireplace features located during the survey (but not numbered owing to their inaccessibility) evidently were not landscaped by the park commissioners. A dense thicket of brush and the random appearance of fieldstone outcrops scattered throughout directly contrasts with the closely cropped, rock free surface of the tended area. Several excavations were undertaken and the con-

temporaneity with the Putnam Avenue hutting area ascertained (See Appendix A note 5).

The field survey and the limited archaeological investigation of the 1973 study generated the following information pertinent to Major-General Israel Putnam's winter encampment of 1778-1779 located at Putnam Memorial State Park in Redding:

1. two previously unrecorded hut fireplace features, CY:FP-1 and CY:FP-2, were located;
2. two previously unrecorded structures, BM:Str-1 and Magazine:Str-1, of unknown function and temporal affinity were located;
3. post-occupational disturbances alluded to within the commissioners' reports were confirmed for at least the southern portion of showcased Putnam Avenue line of encampment, *i.e.*, fireplace features, PA:FP-Left 9 and PA:FP-Right 13;
4. occupational data recovered from fireplace PA:FP-Right 37 in an undisturbed context suggest a positive archaeological potential for the northern portion of the showcased Putnam Avenue line of encampment;
5. absence of 20th century picnic debris for fireplace PC:FP-x and the unkept appearance of fireplaces CY:FP-1 and CY:FP-2 suggests a positive archaeological potential for these areas;
6. two ash pits containing concentrations of calcined bone represent undisturbed Revolutionary War features.

FIELD RESEARCH 1974

The successes of 1973 led to expanded and more ambitious work the next season (See Appendix A note 6). The 1974 research focused upon the 1778-1779 winter encampment remains located in Putnam Memorial State Park (Figure 2) in Redding. Field operations were directed to the investigation of one of the total 1778-1779 winter encampment site. Those encampment remains located within Putnam Memorial State Park were chosen for two reasons. First, the park serves to focus public attention upon the historic remains. The other sub-encampment locations are generally, legally inaccessible to the public and have not drawn local and state-wide recognition. Second, part of the 1974 field strategy was to establish if an intensive archaeological examination of the Putnam Memorial State Park remains could recover meaningful logistics data, considering the post-1779 occupational disturbances by the park commissioners.

Excavation

Two adjacent surface features located towards the southern end of the main line of encampment were selected for excavation (Figure 2: PA:FP-



Figure 3. View looking north of Revolutionary War "hut fireplace."

Left 11 and PA:FP-Left 12). There was no visible modern soil disturbance and these features appeared unchanged from a 1903 photograph (Anonymous 1903). These features are collapsed Revolutionary War hut fireplaces similar to the other fireplace features located in 1973. In general the outer periphery of stones tends to approach a circular outline varying in (maximum) diameter from 2.0-3.5 meters with the feature's interior being a jumble of irregular native fieldstones (See Appendix A note 7).

The archaeological research established the general stratigraphic profile to be, from top to bottom, 1) modern topsoil containing 20th century picnic debris, 2) sterile sand and gravel (evidence confirming grading and landscaping activities alluded to within the commissioners' reports), 3) a black humic stratum containing Revolutionary War cultural materials, and 4) a sterile base of sand and gravel. Where there are fireplace features, the sterile sand and gravel level (level 2) attributable to the landscaping activities of the park commissioners is detected primarily along the outer periphery of stones and only occasionally in patches between the major grouping of stones. A second variation of the basic stratigraphic sequence, more important in regards to the inter-

pretation of the site's cultural history, is the disturbance in these same features. The sequence is reduced to 2 levels: a) a rich black humus, and b) a sterile base of sand and gravel. This sequence is clearly the result of unrestricted picnicing since 1888. Countless small picnic fires and the resulting organic picnic debris (level a) have so enriched and transformed the matrix of the fireplace features that neither natural nor arbitrary levels could delineate a Revolutionary War occupational floor.

Although the Revolutionary War level (3) was identified, stratigraphic or archaeological (artifactual) identification of a distinct hut floor was not attained in the excavation area. However, several undisturbed cultural features were uncovered within the Revolutionary War level. The most significant was an *in situ* deposit of charcoal, burnt earth, calcined bone and ash in direct association with lead shot located at the junction of squares 15 and 24 beneath the outer periphery of the above-ground fireplace remains (See Appendix A note 8). Of the adjacent units excavated, squares 16, 24 and especially 25 contained a distinct and continuous Revolutionary War soil stratum which yielded a wider range and greater quantity of Revolutionary War artifactual materials than the

Table 2
Distribution of Revolutionary War Artifactual Material.

Location Square #	Artifact Categories											
	Lead Shot/Lead	Slag/Nail/	Button/Clay	Pipe/Glass/	Gunflint/Un	identified/Buckle/	Ceramic/Misc./	Total				
1											0	
3					1						1	
4				2				1			3	
5						1					1	
10								1			1	
11				1		1					2	
12			5		3			2			10	
13	1	1	1	1	1			1			6	
14											0	
15	1	6	2						2		11	
16	3	7	5	3		1				1	20	
17											0	
19											0	
20	4	1	5	2	3	7	1		1		24	
21		4	3	5		4		1	1		18	
22	1	2	1		3	2					9	
23		3		2			1				6	
24		3	1	12		2		1	2		21	
25	8	14	1	8	2	2	1	3	1	2	42	
26		6	1	1				1			9	
27						1	1				2	
28	1	8		2	3	5	1			9	29	
29	11	4		1		5		1			22	
30		1	1			2				1	5	
31				1					1		2	
35	1	2	2	1							6	
36				2		3					5	
37	1	1								1	3	
38	1			1		1					3	
45						1					1	
Totals	33	63	28	45	16	35	5	12	8	10	4	262

2. Lead shot.

Determination of caliber size frequency for the lead shot suggests 2 distinctive weapon types (Table 1). The caliber range from .58 through to .64 was probably manufactured for use in imported French muskets of .69 caliber (Hanson and Hsu 1975). The six lead shot specimens of .65 and .66 caliber were probably cast for use in the .75 caliber weapon which was the standard issue of both the American and British forces during the Revolutionary War (Hanson and Hsu 1975). There is no lead shot of caliber within the .47 to .57 range, that used in contemporary American made rifles.

3. Other materials.

By virtue of their specialized manufacturing processes, it's likely that clay tobacco pipes, gunflints, and ceramics are not encampment produced. One clay pipe bowl fragment bears the cartouche of a "T" on the partial bowl back and the initials "T" and "D", one on each side, on the spur. Unfor-

tunately, the number of reported specimens, widespread geographic and temporal distribution, and the absence of information on production history for this common cartouche obviates precise identification, but its nonencampment manufacture and its availability during the Revolutionary War is known.

The honey-colored gunflint fragments are similar in color to known raw sources for the French flint industry. The single complete gunflint, whitish gray from burning, possesses a retouched, rounded back side, a French attribute.

Ceramics, recovered predominately from the square 28 refuse pit, consist of redware sherds with both surfaces glazed in varying shades from light brown to dark olive. Sherd size is too small to determine vessel type. Since competition from finer imported wares and the domestic functional design of most redwares limited the redware market system to the local region of the particular potter,

Table 3
Distribution of Camp Reading Faunal Material.

Location	Fragments	Weight (grams)
Sq. 1	1	0.3
3	57	11.7
4	377	93.3
5	0	0.0
10	61	6.1
11	111	41.7
12	140	40.5
13	485	172.7
14	18	10.0
15	532	212.2
16	268	66.6
17	0	0.0
19	22	15.6
20	132	26.8
21	442	112.3
22	811	331.6
23	914	430.1
24	46	21.9
25	222	58.8
26	820	212.5
27	808	336.8
28	1996	358.1
29	47	12.3
30	43	16.6
31	158	78.1
35	1915	690.1
36	159	58.6
37	255	96.8
38	70	41.1
45	4	2.3

Totals 11981 3971.5 Weight/Fragment: 0.33 grams

Category	Fragments	Total %	Within Category %
Unidentifiable	7,907	66.0	
Diagnostic	1377	3.1	
Identifiable/Nondiagnostic			
Cranial	149	1.2	4.0
Long Bone	2,068	17.3	55.9
Mandibular	836	7.0	22.6
Rib	125	1.0	3.4
Scapular	36	0.3	1.0
Tarsal	93	0.8	2.5
Vertebral	390	3.2	10.5
Totals	11,981	99.9%	99.9%

these are extra-camp but probably local in origin.
4. Faunal remains.

Although faunal evidence represents quantitatively 98% of the total Revolutionary War cultural material recovered from Camp Reading (11,981 fragments), small size greatly limits the amount identifiable to species. The average weight per

fragment is a scant 0.33 grams. Fully 66% of the total number of fragments are not identifiable to bone or species. While 34% may be identified to bone, only 3.1% (377 pieces) are identifiable at the specific level. Preliminary analysis of the last includes horse (teeth) and some small wild species.

DISCUSSION

General statements pertinent to logistics may be offered on the basis of survey and excavation materials to date. First, we may estimate the capacity of the identified hut remains along the main line of encampment for the Putnam Memorial State Park sub-component of Camp Reading. Assuming a maximum of 12 enlisted men per hut, huts could house 960 individuals in the Putnam Avenue hut remains and 1,080 individuals counting the additional 10 huts in the continuous dense brush area. Both figures correspond nicely with the "present fit for duty" count of 900 to 1,000 individuals in camp for the New Hampshire brigade (Marshall 1778-1779). Second, the verified arrangement of the enlisted men's huts in 2 precisely straight parallel lines duplicates the line of encampment for enlisted men known from both Valley Forge and Morristown.

Further archaeological research is required at Camp Reading to determine the status of the occupants of the third and fourth parallel rows of huts located west of the 1888 monument (Figure 2). This would establish the similarity or not of Camp Reading's brigade pattern to the "Company Officer" and "Field Officer" hut locational pattern of Morristown (Campbell 1962a). It is also of note that while research at Valley Forge (Egloff, Packard and Ramsey n.d.) and Morristown (Cotter 1961) has established the irregular placement of enlisted men huts within the brigade lines, nowhere has it established the total spatial arrangement of all encampment structures. Without these data military logistics cannot be examined.

In terms of external commercial supply versus internal encampment field production, tentative interpretation of encampment logistics at Camp Reading may be offered. First, evidence of field expediency measures (redirection of an object's original functional design to enable the accomplishment of local objectives) are absent in the Camp Reading artifactual inventory. However, commercially manufactured artifacts (clay pipes, gunflints, ceramics, and glass fragments) comprise *only* 26% of the total artifact assemblage recovered. The overall trend reflects Camp Reading's dependence upon internal encampment artifact production rather than upon the logistics of external commercial suppliers, the negative evidence notwithstanding. At the same time it is tentatively observed that the nonlogistically oriented assemblage in comparison to military and domestic inventories from excavated hut sites at Valley Forge (Egloff, Packard, and Ramsey n.d.; Landis 1966) and at Morristown (Campbell 1962a, 1962b, 1963; Cotter, 1961) is both meager and impoverished. This suggests the implementation

of more efficient logistic systems at these latter 2 encampments.

In regards to the faunal evidence, the tentative dietary reconstruction for Camp Reading contrasts in specific content with the Valley Forge inventory of cow, pig, and fish (Egloff, Packard, and Ramsey n.d.) and with the absence of wild game animal remains at Valley Forge (Olsen, 1964). Importantly, the Camp Reading dietary reconstruction contrasts in qualitative cut of meat. Valley Forge remains contain a higher proportion of limb, cranial, and vertebral fragments than Camp Reading where 56% of the identifiable materials are limb and 23% mandibular fragments. A tentative interpretation of the faunal data, offered as an hypothesis, is dependence at Camp Reading upon a narrower inventory of domestic species as well as upon poorer quality cuts of meat than at Valley Forge. It would appear that the dietary deficiencies of the 1778-1779 Redding winter quarters surpassed those of Valley Forge (1777-1778). This may be the direct result of either Camp Reading's (apparent) nonlogistical orientation or the failure of the personnel to successfully manipulate the local logistical systems.

APPENDIX A

1. The Valley Forge and Morristown sites differ from Camp Reading in that the former represent the winter quartering of the entire Continental Army whereas Camp Reading's occupational strength was limited to 3 New England brigades; the 1778-1779 winter brigade distribution reflected American surveillance of the British forces in New York City. However, these 3 encampments should nonetheless possess comparable structured settlement patterns which directly reflect military logistic concepts. All 3 encampments were seasonal, that is, winter quarters and all 3 encampments consisted of temporally short occupations, roughly December to May. The comparability of these encampments is further strengthened by their similarity of limited manufacturing of noncomplex equipment, such as, lead shot, and their overall emphasis upon regulation of subsistence activities. They also share a similarity in external encampment functions—a general quiescence of overt military maneuvers.

2. The system employed to record surface features located within Putnam Memorial State Park consists of a location prefix, *i.e.*, CY=cemetery, and, PA=Putnam Avenue, in order to quickly identify the particular geographic area concerned and a functional identification suffix, *i.e.*, FP=hut fireplace, and Str=structure of undetermined function.

3. A one meter test excavation was laid out and removed to a depth of 6 inches where a 4 inch thick layer of charcoal was encountered. The zone above the charcoal yielded only a 1920 United States cent, several severely encrusted unidentified iron pieces, and a scatter of charcoal flecks. The layer of charcoal yielded no artifactual evidence through which an identification of the function of this structure could be derived.

4. The hut fireplace feature PA:FP-Right 13 (Figure 2) was plotted, photographed, and then structurally disassembled via manual lifting and subsequent trowelling in an attempt to detect hearth detritus or an occupational stratum. In fact the only stratum detected was an unmistakable plow zone. The artifactual material removed can be characterized as a mixed assemblage of 20th century picnic discards, such as, green soda bottle glass, crown bottle caps, peach pits, aluminum foil, and a 1918 United States cent. These results suggest a confirmation of the severity of the documented post-Revolutionary War disturbances, at least with regard to this specific feature.

A one meter square test excavation was opened on the east side of fireplace PA:FP-Left 9. The artifactual evidence, *i.e.*, 20th century picnic debris of soda bottle glass, crown bottle cap, peach pit, and a 1919 United States cent, virtually duplicates the data obtained from fireplace PA:FP-Right 13.

Another excavation method employed was the removal of a series of one meter squares (trowelling down by natural levels) so that they connected to form a rectangular perimeter around fireplace PA:FP-Right 37. A sharp plow zone subsoil junction combined with an artifactual yield of production numbered bottle glass, wrought nail fragments, quartz chips, and the basal portion of a flint projectile point supports the documentary suggestion of post-occupational farming activities. However, in the northeast quarter of the rectangular perimeter excavated around this particular fireplace, below the plow zone, 2 pieces of lead shot found amidst a scatter of charcoal and calcined bone hinted of a Revolutionary War occupation level. Unfortunately, a definite hut floor was not discernable either through stratigraphic interpretation or through an archaeologically distinct floor deposit. Evidence of 20th century road grading ruled out expansion of the excavation in the northeast quarter. Thus, fireplace PA:FP-Right 37 represents another affirmation of the negative archaeological impact of post-occupational activities upon the heavily used Putnam Avenue line of encampment.

5. The perimeter method of a series of one meter squares was employed around fireplace PC:FP-x, located east of a natural cave, Phillip's Cave, and among those fireplaces not specifically counted. Revolutionary War materials, *i.e.*, lead slag, a 2-tined fork, wrought nails, and a pewter "USA" button, were unearthened, scattered along the southern side of the perimeter; however, an occupational hut floor was not detected. In the southwest corner of the perimeter, a concentration of calcined bone, possibly the deliberate dumpings from a hearth cleaning, was encountered. Although a definite living floor was no ascertained, the domestic nature of the artifacts, the dumping of calcined bone, and the absence of intrusive 20th century picnic debris suggest a positive correlation between this particular fireplace feature and the 1778-1779 winter encampment.

A one meter test pit was initiated on the southwest side of fireplace CY:FP-1 in order to determine the significance of a small, roughly circular surface depres-

sion. The occurrence of a large amount of calcined bone (315 pieces weighing 114.2 grams) without surrounding soil discoloration suggests a secondary dumping of a fireplace cleaning rather than an *in situ* burning. Unlike the calcined bone deposit unearthened to the southwest of fireplace PC:FP-x, this test excavation also yielded several wrought nails and a pontilled bottle fragment.

6. The 1974 research was under the joint sponsorship of Western Connecticut State College and the University of Connecticut, with the cooperation of the Connecticut Department of Environmental Protection Parks and Recreation Unit and the support of the University of Connecticut Research Foundation. For the 10 week field season, the field crew generally consisted of from 3-8 students assisted by several local volunteers. Two groups from the Youth Conservation Corp, a federal-state environmental project, volunteered their services and enlarged the field crew for a week each. The small crew size led us to focus on only one of the encampment areas.

7. An 18m X 16m grid pattern, demarcated into 2m X 2m squares, was surveyed over the selected fireplace features in order to establish horizontal and vertical excavation control. The squares were sequentially numbered progressing from south to north in blocks of 9 units and continuing from west to east with the initial starting square (square #1) for the numbering system being the extreme southwestern unit of the grid pattern. Thirty squares were totally excavated within this grid pattern by means of trowelling following natural stratigraphic levels.

8. This feature was located at the junction of squares 15 and 24 beneath the outer periphery of the above ground fireplace remains. Except for this particular feature, the cultural levels in square 15 were quite disturbed through the general intrusion of 20th century picnic debris, attributable to the 20th century utility of the above ground fireplace remains, to the extent that the Revolutionary War soil level was not definitely identified throughout the remainder of this square.

9. One test area, separate from the Putnam Avenue research, was undertaken at the specific request of the Parks and Recreation Unit. This investigation was initiated to determine the potential impact upon the Revolutionary War cultural stratum in the vicinity of the present modern museum building by a proposed addition. A limited excavation, 4m X 4m, examined the area immediately adjacent to the south side of the present building.

The stratigraphic sequence differed from the sequence along Putnam Avenue in showing only 2 levels. A thin covering of modern topsoil with wire nails and a large quantity of gray colored, flat roofing slate (from a former museum roof?) overlay sterile sand and gravel. The total absence of a Revolutionary War stratum at this locale is attributable to construction activities associated with the existing museum building. Further construction near the museum would have no effect upon the Revolutionary War stratum.

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